Table of Contents

# UNITED STATES
# SECURITIES AND EXCHANGE COMMISSION
**WASHINGTON, D.C. 20549**

# FORM 10-K

**(Mark One)**

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

**For the fiscal year ended December 31, 2019**

**or**

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

**For the transition period from _____ to _____**

**Commission file number: 001-32598**

# Entegris, Inc.

**(Exact name of registrant as specified in its charter)**

| **Delaware** | **41-1941551** |
|---|---|
| **(State or Other Jurisdiction of Incorporation or Organization)** | **(I.R.S. Employer Identification No.)** |

**129 Concord Road, Billerica, Massachusetts 01821**
**(Address of principal executive offices and zip code)**

**(978) 436-6500**
**(Registrant's telephone number, including area code)**

**Securities registered pursuant to Section 12(b) of the Act:**

| Title of Each Class | Trading Symbol(s) | Name of Exchange on which Registered |
|---|---|---|
| **Common Stock, $0.01 Par Value** | **ENTG** | **The Nasdaq Global Select Market** |

**Securities registered pursuant to Section 12(g) of the Act: None**

Indicate by check mark if the registrant is a well known seasoned issuer, as defined in Rule 405 of the Securities Act. ☒ Yes ☐ No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. ☐ Yes ☒ No

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerate filer," "smaller reporting company," and "emerging growth company" in Rule 12-b-2 of the Exchange Act.

| | | | |
|---|---|---|---|
| Large Accelerated Filer | ☒ | Accelerated Filer | ☐ |
| Non-Accelerated Filer | ☐ | Smaller reporting company | ☐ |
| | | Emerging growth company | ☐ |

If an emerging growth company, indicate by check mark if registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

The aggregate market value of voting stock held by non-affiliates of the registrant, based on the last sale price of the Common Stock on June 29, 2019, the last business day of registrant's most recently completed second fiscal quarter, was $5,003,128,875. Shares held by each officer and director of the registrant and by each person who owned 10 percent or more of the outstanding Common Stock have been excluded from this computation in that such persons may be deemed to be affiliates of the registrant. This determination of affiliate status for this purpose is not necessarily a conclusive determination for other purposes.

As of February 3, 2020, 134,627,369 shares of the registrant's Common Stock were outstanding.

## DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Definitive Proxy Statement for its 2020 Annual Meeting of Stockholders scheduled to be held on April 29, 2020, or the 2020 Proxy Statement, which is scheduled to be filed with the Securities and Exchange Commission, or SEC, not later than 120 days after December 31, 2019, are incorporated by reference into Part III of this Annual Report on Form 10-K. With the exception of the portions of the 2020 Proxy Statement expressly incorporated into this Annual Report on Form 10-K by reference, such document shall not be deemed to constitute part of this Annual Report on Form 10-K.

**ENTEGRIS, INC.**

**INDEX TO ANNUAL REPORT ON FORM 10-K**

**FOR THE FISCAL YEAR ENDED DECEMBER 31, 2019**

# PART I

## Item 1. Business.

### OUR COMPANY

Entegris, Inc. (“Entegris”, “the Company”, “us”, “we”, or “our”) is a leading global developer, manufacturer and supplier of microcontamination control products, specialty chemicals and advanced materials handling solutions for manufacturing processes in the semiconductor and other high-technology industries. We leverage our unique breadth of capabilities to create value for our customers by developing mission-critical solutions to maximize manufacturing yields, reduce manufacturing costs and enable higher device performance.

Semiconductors, or integrated circuits, are key components in modern electronic devices. Smartphones (including 5G), cloud computing, the Internet of Things, artificial intelligence, autonomous vehicles and other applications require faster, more powerful and more energy efficient semiconductors. In response to these requirements and the growing demand from these applications, semiconductor manufacturing technology has rapidly been moving to smaller and more complex dimensions, adopting new device architectures, such as FinFET transistors and 3D-NAND, and utilizing new and innovative manufacturing materials to increase transistor performance and bit density. As technology nodes becomes increasingly complex, to enable improvements and to maximize yields, manufacturers require the effective development and application of new materials, a reliable and consistent supply of high-value materials, and contamination-free transportation, storage and delivery of these materials, seamlessly integrated into the semiconductor manufacturing process, at ever-increasing levels of purity and contaminant control. Additionally, the effective management and maintenance of the entire materials handling system, from initial production of process chemistry, to transportation and dispensing onto the wafer, has grown in importance to enhanced device yield.

We believe that greater materials intensity and greater materials purity will be the two defining factors of the next generation of semiconductor performance. We are well positioned to help our customers achieve their targeted levels of chip performance, yields and reliability. Our technology portfolio includes advanced materials and high-purity chemistries, with optimized packaging and delivery systems and in-process filtration and purification solutions that ensure high-value liquid chemistries and gases are free from contaminants use. Our standard customized productions and solutions enable the highest levels of purity and performance that are essential to the manufacture of semiconductors, flat panel displays, light emitting diodes, or LEDs, high-purity chemicals, solar cells, gas lasers, optical and magnetic storage devices, and critical components for aerospace, glass manufacturing and biomedical applications. The majority of our products are consumed at various times throughout the manufacturing process, with demand driven in part by the level of semiconductor and other manufacturing activity.

Our business is organized and operated in three operating segments, which align with the key elements of the advanced semiconductor manufacturing ecosystem. The Specialty Chemicals and Engineered Materials, or SCEM, segment provides high-performance and high-purity process chemistries, gases, and materials, and safe and efficient delivery systems to support semiconductor and other advanced manufacturing processes. The Microcontamination Control, or MC, segment offers solutions to filter and purify critical liquid chemistries and gases used in semiconductor manufacturing processes and other high-technology industries. The Advanced Materials Handling, or AMH, segment develops solutions to monitor, protect, transport, and deliver critical liquid chemistries, wafers and other substrates for a broad set of applications in the semiconductor industry and other high-technology industries. While these segments have separate products and technical know-how, they share common business systems and processes, technology centers, and strategic and technology roadmaps. We leverage our expertise from these three segments and complementary product portfolios to create new and increasingly integrated solutions for our customers.

### THE SEMICONDUCTOR ECOSYSTEM

The manufacture of semiconductors requires hundreds of highly complex and sensitive manufacturing steps, during which a variety of materials are repeatedly applied to a silicon wafer to build integrated circuits on the wafer surface. We serve the semiconductor ecosystem by providing specialty materials and chemicals utilized in many process steps, offering a broad range of products to monitor, protect, transport, and deliver these critical process materials during the manufacturing process and providing systems to purify liquid chemistry and gases throughout the manufacturing process. The areas of the semiconductor ecosystem that rely most heavily on our products and solutions are described below.

**Deposition**. Deposition processes include physical vapor deposition (PVD), where a thin film is deposited on a wafer surface in a low-pressure gas environment, chemical vapor deposition (CVD), where a thin film is deposited on a wafer surface by exposing it to one or more volatile precursors which react with the wafer surface, atomic-layer deposition (ALD), where a thin film is deposited on a wafer surface by exposing it to one or more precursors which react through a series of sequential, self-

limiting reactions, and electro-plating, where a metal layer, such as copper, is deposited using chemical baths. Our advanced precursor materials and electro-plating chemicals are utilized to meet the semiconductor industry's composition, uniformity and thickness needs of deposited films. Our filtration and purification products are used to remove contaminants during the deposition process, consequently reducing defects on wafers. These products are critical to ensuring device performance and achieving the targeted manufacturing yields of semiconductor manufacturers.

**Chemical Mechanical Planarization (CMP)**. CMP is a polishing process used by semiconductor manufacturers to planarize, or flatten, many of the layers of material that have been deposited upon silicon wafers. We offer a broad range of products used by semiconductor manufacturers during and immediately following the CMP process. Our CMP slurry products are used for polishing ultra-hard surface materials, including SiC (silicon carbide) and GaN (gallium nitride) substrates. Our formulated cleaning chemistries remove residue from wafer surfaces after the CMP process, and prevent subsequent corrosion. Our filtration and purification systems are used to filter liquid slurries and cleaning chemistries in order to remove select particles and contaminants that can cause defects on a wafer's surface. Our roller brushes are used in conjunction with our clean chemistries to clean the wafer after completion of the CMP process in order to prepare the wafer for subsequent operations, and our pad conditioners are used to prepare the surface of the CMP polishing pad prior to every polishing cycle.

**Photolithography**. Photolithography is a process repeated many times throughout the semiconductor manufacturing process that uses light to print complex circuit patterns onto the wafer. To print the projected optical pattern, the wafer is coated with a thin film of light-sensitive material, called photoresist. Light is projected to expose the photoresist, which is then developed (somewhat like photographic film) to create a stenciled image pattern. Our liquid filtration and liquid packaging and dispense systems play a vital role in assuring the pure, accurate and uniform dispense of photoresists onto the wafer so that manufacturers can achieve acceptable yields in the manufacturing process, and our gas microcontamination control systems eliminate airborne contaminants that can disrupt effective photolithography processes.

**Etch and Resist Strip**. During the etch process, specific areas of the thin film that have been deposited on the surface of a wafer are removed to leave a desired circuit pattern. After the etch process, the hardened resist needs to be completely removed. Our formulated chemical solutions remove photo resists and post-etch residues, and our gas filters and purifiers help assure the purity of the process gas streams used in the etch process. Our precision-engineered coatings provide barriers to corrosive chemistries in the etch environment, protect surfaces from erosion and minimize particle generation.

**Ion Implant**. Ion implantation is a key technology for forming transistors and is used many times during semiconductor fabrication. During ion implantation, wafers are bombarded by a beam of electrically-charged ions, called dopants, which change the electrical properties of the exposed surface films. Our Safe Delivery Source® (SDS®) and VAC® (Vacuum Actuated Cylinders) gas delivery systems assure the safe, effective and efficient delivery of the toxic gases necessary for the implant process. In addition, our proprietary low temperature plasma coating processes for core components are critical elements of ion implantation equipment.

**Wet Cleaning**. Ultra-high purity chemicals of precise composition are used to clean the wafers before and after several of the processes described above, to pattern circuit images and to remove photoresists after etch. The cleaning chemicals must be maintained at very high purity levels without the presence of foreign material such as particles, ions or organic contaminants in order to maintain manufacturing yields and avoid defective products. Our proprietary formulated cleaning chemistries are used in these wet cleaning processes, and our liquid filters and purifiers ensure the purity of these chemicals.

**Wafer Solutions**. Our wafer and reticle carriers are high-purity "micro-environments" that carry wafers between manufacturing process steps. These products protect wafers from damage or abrasion and minimize contamination during transportation and automated processing. Front-end wafer processing can involve hundreds of steps and take several weeks. Protection of the processed wafer is essential, as a batch of fully processed 200 mm or 300 mm wafers transported in one of our products can be worth over a million dollars.

**Chemical Containers**. Semiconductor manufacturing and other high-technology processes utilize large volumes of high-purity, corrosive and hazardous chemicals. Our ultrahigh purity chemical container products, such as drums, flexible packaging and associated coded connection systems, maintain chemical purity, maximize utilization and ensure safe transport, containment and dispense of valuable, ultraclean process fluids, from storage by the chemical manufacturer to point-of-use. Our FluoroPure® containers and NOWPak® liner-based systems maximize chemical retrieval and minimize chemical waste, which lowers our semiconductor manufacturer customers' costs. Our portfolio of bottles, canisters, closures and accessories enhance tool productivity, increase yields and reduce operating costs. Relatedly, our ultrapure valves, fitting, tubings, and sensing and control products are used to distribute these chemicals around the fab and in wet process tools.

**Other Markets**. Many of the processes used to manufacture semiconductors are also used to manufacture photovoltaic cells, LEDs, flat panel displays and magnetic storage devices resulting in the need for similar filtration, purification, control and measurement capabilities. We seek to leverage our products, technologies, expertise and core capabilities to address these important market opportunities and pursue opportunities in certain life sciences applications.

**INDUSTRY TRENDS**

**Emerging Applications.** The market for semiconductors has grown significantly over the past few decades, and we expect this trend to continue. We believe that smartphones (including 5G), Internet of Things and emerging applications in cloud computing, machine learning and artificial intelligence, autonomous vehicles, and virtual reality will drive growth in the demand for semiconductors, drive wafer starts and create significant opportunities for our products. Existing applications in data processing, wireless communications, broadband infrastructure, personal computers, handheld electronic devices and other consumer electronics are also expected to drive demand for semiconductors, and in turn, our products.

**Manufacturing Complexity and Architecture.** The emerging applications described above require more powerful, faster and more energy-efficient semiconductors. Semiconductor architectures are changing, with transistor design increasing in complexity, the use of multilayered patterning, vertical structures such as FinFET and 3D-NAND, and shrinking dimensions. These advanced architectures require more process steps to manufacture. We believe that demand for our materials and consumable products will be driven by the increase in process steps and the associated lithography, deposition, CMP, and etch and clean required to manufacture leading-edge semiconductors. Additionally, new materials have played a significant role in enabling improved devices performance, and we expect this trend to continue. As dimensions get smaller, new materials will be required for transistor connectivity. For example, leading-edge semiconductor manufacturers are moving towards atomic layer scale, where the precision of the manufacturing process and purity of the materials is extremely important to maintain the device integrity. These materials need to be supplied and delivered at ever-increasing levels of purity and control, from point-of-production to point-of-use and dispense on the wafer. We expect the trend for new materials supplied at high levels of purity to drive the demand for our advanced materials and our products and solutions designed to purify, monitor, protect, transport, and deliver critical materials. To address the challenges of the advanced technology nodes, we collaborate with our customers to develop new materials, to enhance our filtration and purification capabilities and to introduce advanced materials packaging and monitoring capabilities.

**Material Handling Solutions.** Our semiconductor customers have become increasingly focused on materials handling solutions that enable them to safely store, handle, process and transport critical materials throughout the manufacturing process to minimize the potential for damage or degradation to their materials and to protect their investment in processed wafers. We believe that these trends provide opportunities for us to utilize our breadth of capabilities to provide innovative materials, materials management, purification, wafer transport, and process solutions to semiconductor customers to enable them to successfully manage this growing complexity.

**Reliance on Trusted Suppliers.** Our customers require that their key materials suppliers demonstrate greater capabilities, such as sustainability, scalability, flexible manufacturing, quality control, supply chain management, and the ability to effectively collaborate on solutions to problems. We have responded to these demands by deploying resources to enable us to align with their requirements and drive operational excellence. For example, in 2016 and 2017, we expanded our technology centers in South Korea and Taiwan and in 2019, we opened a technology center in China, containing application and analytical labs, adding to our research and development capabilities to enhance local development and collaboration and to strengthen relationships with our key customers. We believe these trends will allow us to leverage our manufacturing, operational and technical capabilities, along with our broad technology portfolio, to become an increasingly important strategic supplier to our customers.

**Continued Consolidation.** Our customer base within the semiconductor industry has consolidated through mergers and acquisitions. As a result, the importance of maintaining and developing strong and close relationships with our customers becomes even more essential. While continuing to strengthen these relationships, we also seek to further broaden our customer base by leveraging our products, technologies, expertise and core capabilities in serving semiconductor applications to address adjacent market opportunities, including in manufacturing processes for flat panel displays, high-purity chemicals, solar cells, optical magnetic storage devices and products for life sciences applications.

**Manufacturing in China.** Sustained semiconductor industry development in China, which has experienced recent growth in semiconductor production, could spur future industry growth. Construction on an historic number of fabs has been commenced in recent years, and we expect that heavy investment in the semiconductor sector in China will continue, with many new fab projects expected to ramp in the next several years by local and multinational companies. As a result, we expect that China will remain one of the fastest growing regions in the semiconductor industry. Additionally, existing fabs in China are working to

rapidly enhance their capabilities to manufacture the latest generation advanced node products, targeting both leading-edge and mainstream applications. In 2019, we expanded our manufacturing footprint in China through the acquisitions of Hangzhou Anow Microfiltration Co., Ltd. (Anow) and opened a new technology center in Shanghai, China, containing application and analytical labs. We believe we are well positioned in China (with both local and global customers) and expansion and growth of the semiconductor industry in China could increase demand for our products.

**OUR COMPETITIVE STRENGTHS**

**Technology Leadership**. We are committed to being able to provide our customers with innovative solutions for their manufacturing needs. For example, we have introduced sub-10 nanometer and 7 nanometer filtration products, advanced deposition materials for next generation transistor and interconnect technologies, advanced reticle pods for extreme ultra-violet, or EUV, photolithography applications, advanced 300 mm wafer carriers and advanced coatings to meet the rigorous demands of the advanced technology nodes faced by our customers.

**Comprehensive and Diverse Product Offerings**. As semiconductor manufacturers are driving towards more advanced technology nodes, our customers are seeking suppliers who can provide a broad range of customized, reliable, flexible and cost-effective products and materials, as well as the technological and application design expertise necessary to enhancing their productivity, quality, and yield. We believe our comprehensive offering of materials and products creates a competitive advantage as it enables us to meet a broad range of customer needs and provide a single source of product offerings for semiconductor device and equipment manufacturers. Additionally, our broad product and solution portfolio allows us to serve many aspects of the semiconductor manufacturing ecosystem and to create synergies among certain of our products. For example, our microenvironment and fluidics products are utilized when a fab is being built to move wafers and materials throughout the fab, our chemistries and gas products are consumed during operation of the fab, and our contamination control products ensure the purity of chemistries and gases throughout the fab and its supply chain.

**Global Presence**. We have established a global infrastructure of design, manufacturing, distribution, service and technical support facilities to meet the needs of our global customers. We have, for example, expanded our manufacturing operations and increased our investment in advanced technology centers in Taiwan and South Korea to support our important customers in these regions, established or acquired new sales, manufacturing and service locations in China and opened a technology center in Shanghai, China to serve a growing semiconductor manufacturing base in that country, expanded manufacturing capacity in Malaysia and expanded our presence in Singapore to enhance our global and regional management of supply chain and manufacturing processes. We service our customer relationships in Asia, North America, Europe and the Middle East predominantly via direct sales and support personnel and to a lesser extent through selected independent sales representatives and distributors.

**Advanced Manufacturing**. We have established leading-edge manufacturing plants located in the United States, Canada, China, Malaysia, Japan, South Korea and Taiwan that possess the advanced manufacturing capabilities described under “Manufacturing” below.

**Strong Relationships with Broad Customer Base**. We have strong relationships with our customers, which include leading semiconductor manufacturers, original equipment manufacturers, or OEMs, and semiconductor materials suppliers. These relationships provide us with significant collaboration opportunities at the product design stage, which facilitate our ability to introduce new products and applications. For example, we work with our key customers in the development of advanced manufacturing processes to identify and respond to their requests for current and future generations of products for emerging applications requiring cleaner materials, as well as systems that maintain the integrity and stability of materials during transport through the manufacturing process. We believe that our customer base will continue to be an important source of new product development opportunities. Due to the specialized nature of our products, manufacturing complexity, qualification requirements in customers’ fabrication processes, high customer re-formulation and qualification change costs, and extensive proprietary products, we believe our supply position with our customers is strong.

**Strong Financial Performance and Cash Flow Generation.** We have a strong financial profile. In addition to servicing our debt obligations and effecting our capital allocation strategy, we expect that our financial profile will allow us to invest in the research and development and advanced manufacturing capabilities necessary to maintain and expand our technology leadership and to drive organic growth. Additionally, as we have done in the past, we expect that our cash flow generation will enable us to grow inorganically through smaller acquisitions of product lines or technology that expand upon our product portfolio or through larger acquisitions where we act as a consolidator in the industry and increase our scale and strengthen our position as a leading supplier to our customers.

**OUR BUSINESS STRATEGY**

We intend to build upon our position as a leading worldwide developer, manufacturer and supplier of advanced specialty materials, filtration and purification solutions, delivery systems, and materials packaging solutions to expand our core business and to grow in other high value-added manufacturing process markets. Our strategy includes the following key elements:

**Commitment to Technology Leadership**. We continuously seek to improve our products and develop new products as our customers' needs evolve. As semiconductor devices become smaller and more powerful, and new materials and processes are deployed to produce them, we seek to expand our technological capabilities by developing advanced products that address the requirements for greater purification, protection and transport of high value-added materials and by developing advanced materials for use in critical fabrication processes.

**Leveraging our Expertise**. We leverage our broad expertise across our portfolio of advanced materials, materials handling and purification capabilities to create innovative new solutions to address unmet customer needs. For example, our industry-leading post-CMP cleaning chemistry is developed and manufactured by our SCEM segment, with collaboration from our MC segment, packaged with our ultra-clean container and connector system made by our AMH segment, and delivered to the process tools through fluid handling systems also made by our AMH segment. Furthermore, in the process tools, these chemistries may go through one or several purification systems made by our MC segment to eliminate particles and contaminants. Another example of this strategy is our advanced deposition materials business, where we leverage our ability to synthesize unique molecules, our knowledge of how to purify these materials, and our capability to safely transport these materials and deliver them onto the wafer at a high throughput. We seek to utilize our expertise in areas of increasing importance to semiconductor manufacturers, such as developing advanced materials and ensuring the purity of high-value materials, and our ability to work collaboratively across our three segments, which enables us to quickly and effectively develop optimized and complementary solutions for our customers.

**Operational Excellence**. Our strategy is to continue to develop our advanced manufacturing capabilities into a competitive advantage with our customers by focusing on the following priorities:

- use of manufacturing equipment and facilities incorporating leading-edge technology including advanced cleanroom and cleaning procedures;
- implementation of standardized manufacturing systems stressing optimization of equipment effectiveness, predictive maintenance, and direct labor productivity;
- implementation of automated quality systems that provide both process monitoring and process control throughout the manufacturing process as well as predictive quality data to mitigate against potential quality excursions;
- implementation of supply chain management systems that ensure a reliable and responsive supply of high-quality raw materials;
- conduct of manufacturing operations to ensure the safety of our employees and of the individuals using our products; and
- maintaining an agile manufacturing organization that is capable of rapid design and development of prototypes of new and derivative products, as well as promptly responding to customer feedback concerning prototypes so that we can quickly commercialize and ramp production for our customers.

**Continued Focus on Customers**. We view the strong relationships we have with our customers, which include leading semiconductor manufacturers, OEMs, and semiconductor materials suppliers, as critical to our long-term success. We intend to reinforce and further strengthen these relationships, through, among other things, collaborations and joint development. Customer intimacy enables us to respond rapidly and thoroughly to their manufacturing challenges and enables us to bring forth new products that serve an existing need.

**Adjacent Markets**. We leverage our expertise in the semiconductor industry by developing products for other industries that employ similar technologies and production processes and that utilize materials integrity management, high-purity fluids and integrated dispense systems. For example, outside of the semiconductor industry, our products are used in manufacturing processes for flat panel displays, high-purity chemicals, solar cells, optical magnetic storage devices and products for life sciences. We plan to continue to identify and develop products that address needs in adjacent markets. We believe that by utilizing our technology and core capabilities to provide solutions across multiple industries, we are able to increase the total available market for our products and reduce, to an extent, our exposure to the cyclicality of the semiconductor industry.

**Strategic Acquisitions, Partnerships and Related Transactions**. We will continue to pursue strategic acquisitions and business partnerships that enable us to address gaps in our product offerings, secure new customers, diversify into complementary product markets, broaden our technological capabilities and product offerings, access local or regional markets and achieve benefits of increased scale. For example, in January 2020, we acquired Sinmat, a CMP slurry manufacturer, with products used for polishing ultra-hard surface materials, including SiC (silicon carbide) and GaN (gallium nitride) substrates, supplementing our existing capabilities in CMP cleans, filtration and applications, which now reports into our SCEM division.

In 2019, we acquired Digital Specialty Chemicals Limited (DSC), a Toronto, Canada-based provider of advanced materials to the specialty chemical, technology, and pharmaceutical industries, and MPD Chemicals (MPD), a provider of advanced materials to the specialty chemical, technology, and life sciences industries, which each report into the SCEM division, to grow and diversify our engineered materials portfolio. Also in 2019, we acquired Hangzhou Anow Microfiltration Co., Ltd. (Anow), a filtration company for diverse industries including semiconductor, pharmaceutical, and medical, which reports into the MC division, which brought new polymeric membrane technologies and liquid filtration offerings to our portfolio, and also provided us with additional infrastructure to manufacture filtration products in the Asia region. In June 2018, we acquired from SAES Getters S.p.A. the SAES Pure Gas business, a leading provider of high-capacity gas purification systems used in semiconductor manufacturing and adjacent markets, which now reports into our Microcontamination Control division, enabling us to offer a broad portfolio of gas purifications solutions for both bulk and specialty gases to our customers. In January 2018, we acquired Particle Sizing Systems, LLC, a company focused on particle sizing instrumentation for liquid applications in both semiconductor and life science industries, which enables customers to perform particle size analysis online and in real time, directly in fluid stream process, preventing costly yield excursions. In April 2017, we acquired the water and chemical filtration product line for microelectronics applications from W. L. Gore & Associates, Inc., or Gore, where we acquired a synergistic product line that leverages our existing platform and expands our served markets. Our 2014 acquisition of ATMI, Inc., or ATMI, brought a whole new portfolio of technologies and materials products to serve our semiconductor customers. Further, as the dynamics of the markets that we serve shift, we will reevaluate our existing businesses and may decide to restructure or replace one or more businesses, such as the sale of our small cleaning business in France sold in 2018. Finally, we are continuously evaluating opportunities for strategic alliances, such as our strategic alliance with Enthone, joint development programs and collaborative marketing efforts with key customers and other industry leaders. For example, in connection with our strategic commitment to support the growing semiconductor and related microelectronics industries in China, in 2017, we entered into agreements with local partners to expand our capability to manufacture our specialty chemical and deposition products locally and shorten our supply chain for our customers in China.

**OUR SEGMENTS**

Our business is organized and operated in three segments which align with the key elements of the advanced semiconductor manufacturing ecosystem: Specialty Chemicals and Engineered Materials, or SCEM; Microcontamination Control, or MC; and Advanced Materials Handling, or AMH. We leverage our expertise from these three segments to create new and increasingly integrated solutions for our customers. The following is a detailed description of our three segments:

***SPECIALTY CHEMICALS AND ENGINEERED MATERIALS SEGMENT***

The SCEM segment provides high-performance and high-purity process chemistries, gases, and materials that enable enhanced device performance. These materials are utilized in critical semiconductor manufacturing processes such as deposition, cleaning, and integration of complex materials. Advanced materials, delivered at high purity, are critical to enabling the performance of leading-edge logic and memory applications. We believe the growing demand in the 3D-NAND market, challenges with metallization schemes and the need for specialized cleaning solutions will drive consumption for materials in our SCEM segment. In conjunction with products from our MC and AMH segments, the materials in our SCEM segment provide unique solutions to safely and efficiently deliver critical materials to support semiconductor and other advanced manufacturing processes.

**Specialty Gas Products**. Our specialty gas solutions provide advanced safety and process capabilities to semiconductor, display and solar panel manufacturers. Our SDS cylinders store and deliver hazardous gases, such as arsine, phosphine, germanium tetrafluoride and boron trifluoride, at sub-atmospheric pressure through the use of our proprietary carbon-based adsorbent materials. These products minimize potential leaks during transportation and use and allow more gas to be stored in the cylinder, features which provide significant safety, environmental and productivity benefits over traditional high-pressure cylinders. New generations of SDS products further increase the gas storage capacity, reducing tool down time, therefore, resulting in significant cost savings for our customers. We also offer VAC, a complementary technology to SDS, where select implant gases and gas mixtures are stored under high pressure but delivered sub-atmospherically.

**Specialty Materials Products**. Our specialty materials include specialized graphite, silicon carbide, thermally conductive foam and a variety of unique, high purity coatings for dry or plasma etch, chemical vapor deposition and ion implant applications. Our POCO® premium graphite is used to make precision consumable electrodes for electrical discharge machining, hot glass contact materials for glass product manufacturing and forming, and other consumable products for various industrial applications, including aerospace, optical, medical devices, air bearings and printing. Our high-performance specialty coatings, such as our Pegasus™ and our latest development Cearus™ coatings, provide erosion resistance, minimize particle generation and prevent contamination on critical components in semiconductor environments and other high-technology manufacturing operations. Our specialty materials provide customized solutions for applications challenged with unique temperature, corrosive, chemical or process environments, such as electrostatic chucks used to hold wafers during processing, plasma etch chamber components, aircraft bearings, and ultrasonic transducers.

**Advanced Deposition Materials Products**. Our advanced deposition materials include advanced liquid, gaseous and solid precursors which are incorporated in chemical vapor deposition (CVD) and atomic layer deposition (ALD) processes by the semiconductor industry, including organometallic precursors for the deposition of tungsten, titanium, cobalt and aluminum containing films and organosilane precursors for the deposition of silicon oxide and silicon nitride films. These precursors are designed in close collaboration with OEM process tool manufacturers as well as device makers to produce application specific solutions that are compatible with complex integrations of material solutions used to build the semiconductor device. We expanded our advanced deposition materials offerings and capabilities through our acquisitions of MPD and DSC. We offer containers that allow for reliable storage and delivery of low volatility solid and liquid precursors required in ALD processes. When combined with our proprietary corrosion-resistant coatings and filtration solutions from our MC segment, our advanced deposition materials enable the industry's highest purity levels, resulting in improved device performance.

**Surface Preparation and Integration Products**. We offer a range of materials used to prepare the surface of a semiconductor wafer during the manufacturing process and to integrate with materials being used on the wafer. We also provide advanced plating solutions, such as our Viaform® product (a trademark of and exclusively licensed from Element Solutions, Inc.), which includes inorganic and proprietary organic molecules that provide the wiring for copper interconnects. We also offer CMP cleaning solutions for applications such as semiconductor post-etch residue removal, wafer etching, organics removal, negative resist removal, edge bead removal, and corrosion prevention. Our wet chemistries solutions, combined with filtration solutions from our MC segment and fluid handling solutions from our AMH segment, provide enhanced purity, which results in improvements in our customers' processes. Our consumable PVA roller brush products are used to clean the wafer following the CMP process, and our pad conditioners, based on our silicon carbide capabilities, lengthen CMP pad life.Through the acquisition of Sinmat, we offer slurry products used for polishing ultra-hard surface materials, including SiC (silicon carbide) and GaN (gallium nitride) substrates, which are substrates utilized in the power electronics and advanced communications end-markets.

**Specialty Chemicals**. Our specialty chemicals include advanced liquid and solid materials, which are used in a range of high-performance material applications ranging from medical devices to materials used in semiconductor applications. Major areas of product solutions include organometallic and organosilane materials used in semiconductor device manufacturing, monomers and polymers used in the manufacture of medical devices, polyolefin catalysts used in the manufacture of polyethene and polypropylene, chromic materials used in security dyes and inks, isotopically labeled materials used in clinical diagnostics, and a range of materials used in the manufacture of approved pharmaceutical ingredients. In addition, our special chemicals business provides materials to a number of our other businesses to enable advanced performance of final product solutions.

***MICROCONTAMINATION CONTROL SEGMENT***

The MC segment offers solutions to purify critical liquid chemistries and gases used in semiconductor manufacturing processes and other high-technology industries. The design and performance of our liquid and gas filtration and purification products are important to the semiconductor manufacturing process because they remove contamination and directly reduce defects and improve manufacturing yield. Our proprietary filters remove organic and inorganic nanometer-sized contaminants from the different fluids and gases used in the manufacturing process, including photolithography, deposition, planarization and surface etching and cleaning. As our customers leverage leading-edge lithography tools and multi-patterning technology to enable each subsequent generation of products, our filtration and purification products are utilized to achieve necessary levels of purity and contamination control. We believe demand for purification and filtration products is being driven by the continuous node shrink in logic semiconductors and the ramp in the 3D-NAND market, as the risk of yield loss grows with the incremental manufacturing steps needed for the production of these devices. We utilize expertise from the AMH segment in polymer science and from the SCEM segment in chemical manufacturing to develop differentiated filtration and purification solutions for our customers.

**Liquid Microcontamination Control Products**. We offer a variety of products that control contaminants in our customers' liquid processes. For example, our Torrento® series of filters is used for the filtration of aggressive acid and base chemistries for both semiconductor fabs as well as specialty chemical manufacturers including our SCEM segment. Manufacturers of high purity chemicals as well as semiconductor fabs use our Trinzik® products for the filtration of chemicals and ultra-pure water. Our Impact® series of filters are used in point-of-use photochemical dispense applications, including those provided by our AMH segment, where the delivery of superior flow rate performance and reduced microbubble formation is critical. In addition, we broadened our membrane and liquid filtration offerings serving semiconductor, pharmaceutical, and medical applications with the acquisition of Anow.

**Gas Microcontamination Control Products**. We offer a broad portfolio of products designed to remove particulate and molecular contaminates from gas streams from the point of creation on the gas pads to the point-of-use at the wafer in semiconductor, flat panel display and LED fabs. In addition, we provide products used to eliminate airborne molecular contamination from critical process tool areas or cleanrooms in the fab. Our Wafergard® gas filters reduce outgassing and

remove particle contamination. Our GateKeeper® gas purifiers and large facility-wide gas purification systems provide continuous purified gas supply to customer fabs by chemically reacting and absorbing contaminants, effectively removing gaseous contaminants down to part-per-trillion levels. Our Chambergard™ gas diffusers provide semiconductor equipment manufacturers with the capability to rapidly vent their tools to atmosphere to dramatically reduce process cycle times without adding particles to the wafers. These products are used in, or alongside, critical processing tools to improve yield and reduce tool downtime. In addition, we provide filters used to eliminate airborne molecular contamination from critical process tool areas or cleanrooms in the fab, improving process yield.

***ADVANCED MATERIALS HANDLING SEGMENT***

The AMH segment develops solutions to monitor, protect, transport, and deliver critical liquid chemistries, wafers and substrates for a broad set of applications in the semiconductor industry and other high-technology industries. These systems and products improve our customers' yields by protecting wafers from abrasion, degradation and contamination during manufacturing and transportation and by assuring the consistent, clean and safe delivery of advanced chemicals from the chemical manufacturer to the point-of-use in the semiconductor fab. The construction of advanced semiconductor fabs drives demand for our wafer handling and fluid handling products. As those fabs move into production, we see demand for wafer carrying and fluid containment solutions offered by this segment. The AMH segment collaborates closely with the semiconductor chemical manufacturers segment in developing products that are compatible with advanced chemistries to enhance yield, and integrates liquid filtration technology from our MC segment to deliver consistent and pure chemistry.

**Wafer Solutions**. We lead the market with our high-volume line of Ultrapak® and Crystalpak® products for wafers ranging from 100 to 200 mm, which ensure the clean and secure transport of wafers from the wafer manufacturers to the semiconductor fab. We also offer a front-opening shipping box, or FOSB, for the transportation and automated interface of 300 mm wafers. We lead the market for 300mm front opening unified pods, or FOUPs, wafer transport and process carriers, and standard mechanical interface pods, or SMIF pods, for 200mm wafer applications. These microenvironment products safely and accurately deliver wafers within the semiconductor fab environment to the various process fabrication steps. We are a leader in reticle protection products for photolithography. This includes products that protect the high-value EUV (extreme ultraviolet) lithography masks during both the mask manufacturing process and their use in the semiconductor fab.

**Chemical Containers**. We have a broad portfolio of flexible and rigid polymer packaging and container products, from low-volume containers to transport high-value photoresist chemistries, such as our NOWPak® products, to large intermediate bulk containers (IBCs) to safely and efficiently transport chemicals in bulk, such as our FluoroPure® products. Our connection systems provide for safe and efficient chemical dispense from the container in the fab. Chemical companies utilize our packaging products to ensure the purity of chemistries shipped to semiconductor fabs, resulting in enhanced yields.

**Fluidics**. We are a leader in high-purity fluid transfer products such as valves, fittings, tubing, pipe, custom fabricated products and associated connection systems, such as our PrimeLock® connections, for high-purity chemical applications and our proprietary digital flow control technology improving the uniformity of chemicals applied on wafers. Our IntelliGen® integrated, high-precision liquid dispense systems enable the uniform application of advanced chemistries during the wafer fabrication process, integrating our valve control expertise with filter device technologies from our MC segment, so that filtering and dispensing of photochemicals can occur at different rates, conserving high-value chemistry and reducing defects on wafers. Our comprehensive product lines provide our semiconductor manufacturers, process tool makers and chemical customers with a single-source provider for their high-purity chemical management needs throughout the manufacturing process.

**Particle Sizing Instrumentation.** We build instrumentation for high-resolution and high-concentration particle counters that use Single Particle Optical Sizing (SPOS) technology to accurately determine particle size and counts. We also produce on-tool process monitoring systems that perform automated online particle size and/or counts analysis of suspensions. These applications include real-time monitoring of CMP slurries and other instrumentation for liquid applications in both semiconductor and life science industries.

**OUR CUSTOMERS AND MARKETS**

Our most significant customers include semiconductor device manufacturers, semiconductor equipment makers, gas and chemical manufacturing companies, leading wafer grower companies and manufacturers of high-precision electronics. We also sell our products to flat panel display equipment makers, materials suppliers and panel manufacturers, and manufacturers of hard disk drive components and devices.

Our other high-technology markets include manufacturers and suppliers in the solar and life science industries, electrical discharge machining customers, glass and glass container manufacturers, aerospace manufacturers and manufacturers of biomedical implantation devices.

In 2019, 2018 and 2017, net sales to our top ten customers accounted for 43%, 44% and 47%, respectively, of combined net sales. In 2019, 2018 and 2017, Taiwan Semiconductor Manufacturing Company Limited, accounted for $187 million, $154 million and $168 million of net sales, respectively, or approximately 12%, 10% and 13% of our net sales, respectively, including sales from each of our three reporting segments. In addition, in 2019, 2018, and 2017, Samsung Electronics Co. accounted for $128 million, $164 million and $141 million of net sales, respectively, or approximately 8%, 11% and 10% of our net sales, respectively, including sales from all of the Company's segments, respectively. International net sales represented 76%, 78% and 79%, respectively, of total net sales in 2019, 2018 and 2017. Approximately 3,100 customers purchased products from us during 2019.

We may enter into supply agreements with our customers. These agreements generally have a term of one to three years, but do not contain any long-term purchase commitments. Instead, we work closely with our customers to develop non-binding forecasts of the future volume of orders. However, customers may cancel their orders, change production quantities from forecasted volumes or delay production for a number of reasons beyond our control.

**SALES, MARKETING AND SUPPORT**

We sell our products worldwide, primarily through our direct sales force and strategic independent distributors located in all major semiconductor markets. Independent distributors are also used in other semiconductor market territories and for specific market segments. As of December 31, 2019, our sales and marketing force consisted of approximately 500 employees worldwide.

Our unique capabilities and long-standing industry relationships have provided us with the opportunity for significant collaboration with our customers at the product design stage, which has facilitated our ability to introduce new materials and new solutions that meet our customers' needs. We are constantly seeking to identify for our customers a variety of materials, purification and process control challenges that may be addressed by our product solutions. Our sales representatives provide our customers with worldwide technical support and information about our products and materials.

We believe that our technical support services are important to our sales and marketing efforts. These services include assisting in defining a customer's needs, evaluating alternative products and materials, designing a specific system to perform the desired operation, training users and assisting customers in compliance with relevant government regulations. Additionally, our field application engineers, located in all of the major markets we serve, work directly with our customers on product qualification and process improvements in their facilities. We maintain a network of service centers, applications laboratories and technology centers located in all key markets internationally and in the United States to support our products and our customers with their advanced development needs, provide local technical service and ensure fast turnaround time.

**COMPETITION**

The market for our products is highly competitive. While price is an important factor, we compete primarily on the basis of the following factors:

- technical expertise;
- product quality and performance;
- advanced manufacturing capabilities;
- total cost of ownership;
- historical customer relationships;
- breadth of product line;
- breadth of geographic presence;
- customer service and support; and
- after-sales service.

We believe that we compete favorably with respect to the factors listed above. We believe that our key competitive strengths include our broad product line, our strong research and development infrastructure and investment, our manufacturing excellence, our advanced quality control systems, the low total cost of ownership of our products, our ability to provide our customers with quick order fulfillment and our applications expertise in semiconductor manufacturing processes. However, our competitive position varies depending on the market segment and specific product areas within these segments. While we have longstanding relationships with a number of semiconductor and other electronic device manufacturers, we still face significant competition from companies that also have longstanding relationships with other semiconductor and electronic device manufacturers and, as a result, have been able to have their products specified by those customers for use in manufacturers' fabrication facilities.

The competitive landscape is varied, ranging from large multinational companies to small regional or regionally-focused companies. While product quality and technology remain critical, overall, industry trends are indicating a shift to localized, cost-competitive and consolidated supply chains.

Because of the unique breadth of our capabilities, we believe that there are no global competitors that compete with us across the full range of our product offerings. Many of our competitors are local companies that participate in only a few products or in specific geographies. While there are other larger, broad-based materials suppliers, many are concentrated in specific product areas, such as filtration, specialty chemicals or materials handling. Notable competitors with respect to certain specific product areas include Pall Corporation (part of Danaher Corporation), Shin-Etsu Polymer Co., Ltd., Gemu Valves, Inc., Tokyo Keiso Co., Ltd., Mersen, the EMD Performance Materials division of Merck KGaA, E. I. du Pont de Nemours, Company, The Dow Chemical Company, Air Liquide, Praxair, Inc. (a subsidiary of Linde plc.), Donaldson Company, Inc. and Parker Hannifin Corp.

**ENGINEERING, RESEARCH AND DEVELOPMENT**

We believe that technology is important to the success of our businesses, and we plan to continue to devote significant resources to engineering, research and development (ER&D), balancing efforts between shorter-term market needs and longer-term investments. As of December 31, 2019, we had approximately 800 employees in engineering, research and development. We have supplemented and may continue to supplement our internal research and development efforts by licensing technology from third parties and/or acquiring rights with respect to products incorporating externally owned technologies. Our R&D expenses consist of personnel and other direct and indirect costs for internally funded project development, including the use of outside service providers.

We believe we have a rich pipeline of development projects. For example, our engineering, research and development efforts have been focusing on growth opportunities in areas such as bulk photochemical filtration, new boron mixtures for ion implant, new precursors for deposition, specialty coatings for key applications and new cleans chemistries. Our engineering, research and development efforts are directed toward developing and improving our technology platforms for semiconductor and advanced processing applications and identifying and developing products for new applications, often working directly with our customers to address their particular needs.

We have engineering, research and development capabilities in California, Colorado, Connecticut, Massachusetts, Minnesota, Texas, Canada, China, Japan, South Korea, Taiwan, Singapore and Malaysia to meet the global needs of our customers. We use sophisticated methodologies to research, develop and characterize our materials and products. Our capabilities to test and characterize our materials and products are focused on continuously reducing risks and threats to the integrity of the critical materials that our customers use in their manufacturing processes.

We participate in Semiconductor Equipment and Materials International (SEMI®), an association of semiconductor equipment suppliers, and we also collaborate with leading universities and industry consortia, such as the University of California and the Interuniversity Microelectronics Centre (imec®). We undertake this work to extend the reach of our internal R&D and to gain access to leadership ideas and concepts beyond the time horizon of our internal development activities.

**PATENTS AND OTHER INTELLECTUAL PROPERTY RIGHTS**

As of December 31, 2019, we own approximately 2,330 active patents worldwide, of which about 630 are United States patents. Additionally, we owns about 1,040 pending patent applications globally. In addition, we license certain patents owned by third parties. We rely on a combination of patent, copyright, trademark and trade secret laws and license agreements to establish and protect our proprietary rights. We seek to refresh our intellectual property on an ongoing basis through continued innovation. While we license and expect to continue to license technology used in the manufacture and distribution of products from third parties, we do not consider any particular patent or license to be material to our business.

We vigorously protect and defend our intellectual property. We require each of our employees, including our executive officers, to enter into agreements pursuant to which the employee agrees to keep confidential all of our proprietary information and to assign to us all inventions made during the course of employment. We also require outside scientific collaborators, sponsored researchers, and other advisors and consultants who are provided confidential information to execute confidentiality agreements. These agreements generally provide that all confidential information developed or made known to the entity or individual during the course of the entity’s or individual’s relationship with the Company is to be kept confidential and not disclosed to third parties except in specific limited circumstances.

**MANUFACTURING**

Our customers rely on our products and materials to ensure the integrity of the critical materials used in their manufacturing processes by providing purity, cleanliness, consistent performance, dimensional precision and stability. Our ability to meet our customers’ expectations, combined with our substantial investments in worldwide manufacturing capacity, position us to respond to the increasing demands from our customers for yield-enhancing materials and solutions.

To meet our customers' needs worldwide, we have established an extensive global manufacturing network with facilities in the United States, Canada, Japan, Taiwan, Malaysia, South Korea and China. Because we work in an industry where contamination control is paramount, we maintain Class 100 to Class 10,000 cleanrooms for manufacturing and assembly. We believe that our worldwide advanced manufacturing capabilities are important competitive advantages. These include:

- engineered polymer conversion and processing;
- advanced membrane modification and cleaning;
- chemical distillation, synthesis and purification;
- gas delivery systems;
- high-purity gas handling and transfilling;
- high-purity materials packaging;
- membrane casting;
- cartridge manufacturing and assembly;
- specialty coating capabilities;
- solids and powders compounding and handling;
- graphite synthesis;
- blow molding;
- rotational molding;
- machining; and
- assembly.

We have made significant investments in systems and equipment to create innovative products and tool designs, including metrology and 3D printing capabilities for rapid analysis and production prototype of products. In addition, we use contract manufacturers for certain of our gas purification systems and certain electronic materials products both in the U.S. and Asia.

**RAW MATERIALS**

Our products are made from a wide variety of raw materials that are generally available from multiple sources of supply. However, while we seek to have several sources of supply for raw materials, certain materials included in our products, such as certain filtration membranes in our MC segment, petroleum coke and specialty and commodity chemicals in our SCEM segment and polymer resins in our AMH segment, are obtained from a single source or a limited group of suppliers or from suppliers in a single country. We have entered into multi-year supply agreements with a number of suppliers for the purchase of raw materials in the interest of supply assurance and to control costs.

**GOVERNMENTAL REGULATION**

Our operations are subject to federal, state and local regulatory requirements relating to environmental, waste management and health and safety matters, including measures relating to the release, use, storage, treatment, transportation, discharge, disposal and remediation of contaminants, hazardous substances and wastes, as well as practices and procedures applicable to the construction and operation of our plants. Although some risk of costs and liabilities related to these matters is inherent in our business, as with many similar businesses, we believe that our business is operated in substantial compliance with applicable regulations. However, new, modified or more stringent requirements or enforcement policies could be adopted, which could adversely affect us. While we expect that capital expenditures will be necessary to ensure that any new manufacturing facility is in compliance with environmental and health and safety laws, we do not expect these expenditures to be material.

**EMPLOYEES**

As of December 31, 2019, we had approximately 5,300 employees. Given the variability of business cycles in the semiconductor industry and the quick response time required by our customers, it is critical that we be able to quickly adjust the size of our production staff to maximize efficiency. Therefore, we use skilled temporary labor as required.

None of our employees are represented by a labor union or covered by a collective bargaining agreement other than statutorily mandated programs in certain European countries.

**OUR HISTORY**

The Company was incorporated in Delaware on March 17, 2005 in connection with a merger between Entegris, Inc., a Minnesota corporation, and Mykrolis Corporation, a Delaware corporation. On April 30, 2014, the Company acquired ATMI, based in Danbury, CT. Entegris has been helping its customers solve their critical materials challenges and enhance their manufacturing yields for over 50 years, tracing its corporate origins back to Fluoroware, Inc., which began operating in 1966.

**AVAILABLE INFORMATION**

Our Internet address is www.entegris.com. On this web site, under the "Investors-Financial Information-SEC Filings" section, we post the following filings as soon as reasonably practicable after they are electronically filed with, or furnished to, the U.S. Securities and Exchange Commission (SEC): our annual, quarterly, and current reports on Forms 10-K, 10-Q, and 8-K; our proxy statements; any amendments to those reports or statements, and Form SD. All such filings are available on our web site

free of charge. The SEC also maintains a web site (www.sec.gov) that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. The content on our website, and any other website, as referred to in this Form 10-K is not incorporated by reference into this Form 10-K unless expressly noted.

**Item 1A. Risk Factors.**

In addition to the other information in this Annual Report on Form 10-K, the following risk factors should be carefully considered in evaluating us and our common stock. Any of the following risks, many of which are beyond our control, could materially and adversely affect our financial condition, results of operations or cash flows, or cause our actual results to differ materially from those projected in any forward-looking statements. We may also face other risks and uncertainties that are not presently known, are not currently believed to be material, or are not identified below because they are common to all businesses. Past financial performance may not be a reliable indicator of future performance and historical trends should not be used to anticipate results or trends in future periods. For more information, see “Cautionary Statement” in Item 7 of this Annual Report on Form 10-K.

**Risks Related to Our Business and Industry**

***Declines in the semiconductor industry or worldwide economic conditions may cause demand for our products to decrease and may adversely affect our business.***

Declines in industry or worldwide economic conditions may adversely affect our business. Our revenue is primarily dependent upon demand from semiconductor manufacturers, which is largely driven by the current and anticipated demand for electronic products that utilize semiconductors. Despite recent increases in demand for semiconductors in applications such as smartphones, cloud computing, the Internet of Things, and artificial intelligence, the semiconductor industry has historically been, and is likely to continue to be, highly cyclical with periodic significant downturns, resulting in significantly decreased demand for products such as ours. We have previously experienced significant revenue deterioration and operating losses due to severe downturns in the semiconductor industry, which often occur suddenly. The semiconductor industry is also affected by seasonal shifts in demand. We are unable to predict the timing, duration or severity of any future downturns in the semiconductor industry, and we could underperform the market or our peers.

During downturns and periods of soft demand, our revenue is reduced, and we typically experience greater pricing pressure and shifts in product and customer mix, which often adversely affect our gross margin and net income. Even moderate seasonality can cause our operating results to fluctuate significantly from one period to the next. Uncertain and volatile economic, political or business conditions in any of our key sales regions can cause or exacerbate negative trends in business and consumer spending and have historically impacted customer demand for our products. These conditions can cause material adverse changes in our results of operations and financial condition, including:

- a decline in demand for our products, which, given our limited backlog, will have an immediate impact on our revenues;
- an increase in reserves for accounts receivable due to our customers’ inability to pay us;
- an increase in write-offs for excess or obsolete inventory that we cannot sell;
- greater challenges in forecasting operating results, making business decisions, and identifying and prioritizing business risks; and
- additional cost reduction efforts, including additional restructuring activities, which may adversely affect our ability to capitalize on opportunities.

Furthermore, to remain competitive, we must maintain a satisfactory level of engineering, research and development, invest in our infrastructure and maintain the ability to respond to any increases in demand and, as a result, a lower volume of sales can have a large and disproportionate impact on our profitability.

***The industries we serve are constantly evolving, and any failure to manage our business effectively during periods of rapid change may adversely affect our business performance and results of operations.***

Intense competition in the semiconductor industry often leads to rapid changes in products and technology, and those changes can significantly alter demand for our products. Changes in demand may arise from factors such as advances in fabrication processes, new and emerging technologies, end-user demand, customers’ production capacity and customers’ capacity utilization. The amount and mix of spending on different products and solutions can have a significant impact on our results of operations.

We regularly reassess our allocation of resources in response to the changing business environment. To meet rapidly changing demand, we must accurately forecast demand for each of our products and effectively manage our resources and production capacity across our various businesses, and we may incur unexpected or additional costs to align our operations with demand. If we do not adequately adapt to changes in our business environment, we may lack the infrastructure and resources to scale up our business to meet customer expectations and compete successfully during a period of growth, or we may expand our capacity too rapidly, resulting in excess fixed costs. Even with effective allocation of resources and management of costs,

during periods of decreasing demand, our gross margins and earnings will usually be adversely impacted. Especially during transitional periods, resource allocation decisions can have a significant impact on our future performance, particularly if we have not accurately anticipated the correct mix of industry changes. Our success will depend, to a significant extent, on our management's ability to identify and respond to these challenges effectively.

Our ability to increase sales of our products, particularly our capital equipment products, depends in part upon our ability in a very short timeframe to ramp up our manufacturing capacity and to mobilize our supply chain. If we are unable to expand our manufacturing capacity on a timely basis, manage the expansion effectively and obtain larger quantities of raw materials, our customers could obtain such products from our competitors, which would reduce our market share. Additionally, we typically operate our business on a just-in-time shipment basis with a modest level of inventory, ordering supplies and planning production based on internal demand forecasts. The failure to accurately forecast demand for our products, in terms of both volume and product type, has in the past led to, and may in the future lead to, delays in product shipments and disappointment of customer expectations, as well as an increased risk of excess and obsolete inventory.

***Our revenues and operating results are variable.***

Our revenues and operating results may fluctuate significantly from quarter to quarter or year to year due to a number of factors, many of which are outside our control. We manage our expenses based in part on our expectations of future revenues. Because some of our expenses are relatively fixed in the short term, a change in the timing of revenue or the amount of profit we generate from a small number of transactions can unfavorably affect operating results in a particular period. Factors that may cause our financial results to fluctuate unpredictably include:

- economic conditions in the semiconductor industry;
- the size and timing of customer orders;
- consolidation of our customers could impact their purchasing decisions and negatively affect our revenues;
- procurement shortages;
- the failure of our suppliers or outsource providers to perform their obligations;
- manufacturing difficulties;
- customer cancellations of or delays in shipments, installations or customer acceptances;
- our customers' rate of replacement of our consumable products;
- changes in average selling prices, customer mix, and product mix;
- our ability to develop, introduce, and market new, enhanced, and competitive products in a timely manner;
- our competitors' introduction of new products;
- legal or technical challenges to our products or technologies;
- disruptions in transportation, communication, demand, information technology, or supply, including strikes, acts of God, wars, terrorist activities, and natural or man-made disasters;
- legal, tax, accounting, or regulatory changes (including changes in import/export regulations and tariffs) or changes in the interpretation or enforcement of existing requirements;
- changes in our estimated tax rate; and
- foreign currency exchange rate fluctuations.

***We depend on single and limited source suppliers and an interruption in our ordinary sources of supply could affect our ability to manufacture our products and have an adverse effect on our results of operations.***

We rely on single or limited source suppliers for raw materials, such as plastic polymers, filtration membranes, petroleum coke and other materials, which are critical to the manufacturing of our products. If we were to lose any one of these sources, it could be difficult for us to find an alternative supplier and we would need to qualify this new source through our customers' rigorous qualification processes. Although we seek to reduce our dependence on sole and limited source suppliers, the partial or complete loss of any of these sources could interrupt our manufacturing operations and result in a material adverse effect on our results of operations**.**

At times, we have experienced a limited supply of certain raw materials, which has resulted in delays, lost revenue, increased costs and risks associated with qualifying products made from such new raw materials with our customers. Events such as an industry-wide increase in demand for, or the discontinuation of, raw materials used in our products could harm our ability to

acquire sufficient quantities and our manufacturing operations may be interrupted. For example, in 2019, we experienced a disruption in the supply of certain ceramic material for use in our coatings business in our SCEM division when the supplier was unable to produce these materials at the required specifications. In response, we worked collaboratively with the supplier to determine the root cause and to solve the manufacturing issue, reestablishing the supply of these materials. Although we were able to reestablish our supply of this raw material, we may be unable to do so in the future or with other raw materials, in which case raw materials shortages may adversely affect our operations. Additionally, our suppliers may not have the capacity to meet increases in our demand for raw materials, in turn, making it difficult for us to meet demand from our customers. Furthermore, prices for our raw materials can vary widely. While we have long-term arrangements with certain key suppliers that fix our price for the purchase of certain raw materials, if the cost of our raw materials increases and we are unable to correspondingly increase the sales price of our products or find other cost savings, our profit margins will decline.

***We are exposed to the risks of operating a global business as a significant amount of our sales and manufacturing activity occur outside the United States.***

Sales to customers outside the United States accounted for approximately 76%, 78% and 79% of our net sales in 2019, 2018 and 2017, respectively. We anticipate that international sales will continue to account for a majority of our net sales. In addition, a number of our key domestic customers derive a significant portion of their revenues from sales in international markets. We also manufacture a significant portion of our products outside the United States and are dependent on international suppliers for many of our parts and raw materials. We intend to continue to pursue opportunities in both sales and manufacturing internationally. Our international operations are subject to a number of risks and potential costs that could adversely affect our revenue and profitability, including:

- unanticipated government actions, laws, rules, regulations and policies, such as “trade wars,” tariffs, sanctions or other changes in international trade requirements that affect our business and that of our customers and suppliers, any of which that could impose additional costs on our operations, and limit our ability to operate our business;
- challenges in hiring and integrating workers in different countries;
- challenges in managing a diverse workforce with different experience levels, languages, cultures, customs, business practices and worker expectations, along with differing employment practices and labor issues;
- challenges of maintaining appropriate business processes, procedures and internal controls and complying with legal, environmental, health and safety, anti-bribery, anti-corruption and other regulatory requirements that vary by jurisdiction;
- challenges in developing relationships with local customers, suppliers and governments;
- fluctuating pricing and availability of raw materials and supply chain interruptions;
- expense and complexity of complying with U.S. and foreign import and export regulations, including the ability to obtain required import and export licenses;
- fluctuations in interest rates and currency exchange rates, including the relative strength or weakness of the U.S. dollar against foreign currency including Japanese yen, euro, Taiwanese dollar, Korean won, Chinese yuan, Singapore dollar or Malaysian ringgit, which could cause our sales and profitability to decline;
- liability for foreign taxes assessed at rates higher than those applicable to our domestic operations;
- customer or government efforts to encourage operations and sourcing in a particular country, such as Korea and China, including efforts to develop and grow local competitors, requiring local manufacturing, and providing special incentives to government-backed local customers to buy from local competitors, even if their products are inferior to ours; and
- political and economic instability and uncertainty, which may result in severely diminished liquidity and credit availability, rating downgrades of sovereign debt, declining valuation of certain investments, declines in consumer confidence, declines in economic growth, and volatility in unemployment rates, and uncertainty about economic stability.

In the past, these factors have disrupted our operations and increased our costs, and we expect that these factors will continue to do so in the future.

***Tariffs, trade restrictions and other protectionist measures resulting from international trade disputes or strained international relations could have an adverse impact on our operations.***

Tariffs, export controls, additional taxes, trade barriers or sanctions, particularly those arising or that may arise out of U.S.-China relations, may increase costs of raw materials and our manufacturing costs, decrease margins, reduce the competitiveness of our products, or inhibit our ability to sell products or purchase necessary equipment and supplies, which could have a material adverse effect on our business, results of operations, or financial conditions. For example, effective October 30, 2018, the U.S. Department of Commerce restricted exports to a Chinese semiconductor manufacturing company and may impose further restrictions on this or other semiconductor manufacturers or industry participants. In 2019, U.S. and China implemented several rounds of tariff increases and retaliations. Also in 2019, trade tensions between Japan and Korea resulted in trade restrictions on several chemicals sold from Japan to Korea that are used in the production of advanced semiconductors. While these particular events did not have a direct material adverse effect on our revenue, other restrictions could impact our ability to serve customers in the regions in which we operate, which could reduce our revenue. In addition, the importation of gas canisters and chemicals viewed as dangerous has come under increased regulatory scrutiny by governmental officials in China. As a result, we have established partnerships with local suppliers. However, this increased regulation may impair the ability of our SCEM segment to import those products into China and may cause us to lose sales. Furthermore, there have historically been strained relations between China and Taiwan, Japan and Korea and there are continuing tensions between North Korea and other countries, including South Korea and the United States. Any adverse developments in those relations could significantly disrupt the worldwide production of semiconductors, which may lead to reduced sales of our products.

***A significant amount of our sales is concentrated on a limited number of key customers and, therefore, our net sales and profitability may materially decline if we lost one or more of these customers.***

Sales to a limited number of large customers constitute a significant portion of our overall revenue, shipments, cash flows, collections, and profitability. Our top ten customers accounted for 43%, 44% and 47% of our net sales in 2019, 2018 and 2017, respectively. Our customers could stop using our products in their manufacturing processes with limited advance notice to us and we would have limited or no contractual remedy for them doing so. The cancellation, reduction or deferral of purchases of our products by even a single customer could significantly reduce our revenues in any particular quarter. If we were to lose any of our significant customers, if our products are not specified for these customers' products or production processes, or if we suffer a material reduction in their purchase orders, our revenue could decline and our business, financial condition and results of operations could be materially and adversely affected. Due to the long design and development cycle and lengthy customer product qualification periods required for most of our new products, we may be unable to replace these customers quickly, if at all.

Furthermore, the semiconductor industry has been undergoing, and is expected to continue to undergo, consolidation. If any of our customers merge or are acquired, we may experience lower overall sales from the merged or combined companies. In addition, our principal customers also hold considerable purchasing power and may be able to negotiate sales terms that result in decreased pricing, increased costs, and/or lower margins for us, and limitations on our ability to share jointly developed technology with others.

***If we are unable to anticipate and respond to rapid technological change and customer requirements by continuing to innovate and introduce new and enhanced products and solutions, our business could be seriously harmed.***

The semiconductor industry is subject to rapid technological change, changing customer requirements and frequent new product introductions. In our industry, the first company to introduce an innovative product meeting an identified customer need will often have a significant advantage over competing products. For this reason, we make significant cash expenditures to research, develop, engineer and market new products and make significant capital investments in technology and manufacturing capacity in advance of future business developing and without any purchase commitment from our customers. We incurred $121.1 million, $118.5 million and $107.0 million for engineering, research and development expense in 2019, 2018 and 2017, respectively, to support new product and technology development. Following development, it may take a number of years for sales of a new product to reach a substantial level, if ever. If a product concept does not progress beyond the development stage or only achieves limited acceptance in the marketplace, we may not receive a direct return on our expenditures, we may lose market share and our revenue and our profitability may decline. For example, in the past, we incurred significant impairment charges for capital expenditures relating to developing the capability to manufacture shippers and FOUPs for 450 mm wafers, for which major semiconductor manufacturers announced that they would not initiate manufacturing in the foreseeable future.

We believe that our future success will depend upon our ability to continue to develop mission-critical solutions to maximize our customers' manufacturing yields and enable higher performance semiconductor devices. A failure to successfully anticipate and respond to technological changes by developing, marketing and manufacturing new products or enhancements to our existing products could harm our business prospects and significantly reduce our sales. For example, as 3D NAND technology advances to higher densities, the conventional process used to etch critical features no longer works. Recognizing the need for a new chemistry, we developed a series of prototype formulations for highly selective nitride etch and developed a specialized liquid filter to remove contaminants but maintain the critical components in the chemistry that make it function. While we

believe we are well positioned for selection as process-of-record for these certain etch processes and we are preparing for rapid, high-volume ramp once the final selection is made, we may not be selected by the customer and may not generate significant revenue from these solutions. We cannot assure you that the new products and technology we choose to develop and market in the ordinary course of our business will be successful. In addition, if new products have reliability or quality problems, we may experience reduced orders, higher manufacturing costs, delays in acceptance and payment, additional service and warranty expense, and damage to our reputation.

***Competition from new or existing companies could harm our financial condition, results of operations and cash flow.***

We operate in a highly competitive industry. Our competitors include many domestic and foreign companies, some of which have substantially greater manufacturing, financial, research and development, and marketing resources than we do. In addition, some of our competitors may have better-established customer relationships than we do, which may enable them to have their products specified for use more frequently and more quickly by these customers. We also face competition from smaller, regional companies, which focus on serving those customers in their same region. Another source of competition is from the manufacturing engineering teams of our customers, who continually evaluate the benefits of internal manufacturing versus outsourcing. If we are unable to maintain our competitive position, we could experience downward pressure on prices, fewer customer orders, reduced margins, the inability to take advantage of new business opportunities and a loss of market share, any of which could have a material adverse effect on our results of operations. Further, we expect that existing and new competitors will improve the design of their existing products and will introduce new products with enhanced performance characteristics. The introduction of new products or more efficient production of existing products by our competitors could diminish our market share and increase pricing pressure on our products.

***We may acquire other businesses, form joint ventures or divest businesses, which could negatively affect our financial performance.***

We intend to continue to engage in business combinations, acquisitions, joint ventures, investments or other types of collaborations to address gaps in our product offerings, adjust our business and product portfolio to meet our ongoing strategic objectives, diversify into complementary markets, increase our scale or accomplish other strategic objectives. These transactions involve numerous risks to our business, financial condition and operating results, including but not limited to:

- experiencing difficulty in identifying suitable acquisition candidates and completing selected transactions at appropriate valuations, in a timely manner, on a cost-effective basis or at all, due to substantial competition for acquisition targets;
- inability to successfully integrate any acquisitions into our existing business operations;
- failure to realize the anticipated synergies or other benefits of any such transaction;
- entering into markets in which we have no or limited prior experience;
- finding acquirors and obtaining adequate value in connection with divesting businesses that no longer meet our objectives;
- inability to complete proposed transactions due to failure to obtain regulatory or other approvals;
- requirements imposed by government regulators in connection with their review of a transaction, which may include, among other things, divestitures and restrictions on the conduct of our existing business or the acquired business;
- undertaking multiple transactions at the same time in order to take advantage of acquisition opportunities that do arise, which could strain our ability to effectively execute and integrate such transactions;
- diversion of management’s attention from our day-to-day business due to dedication of significant management resources to such transactions;
- employee uncertainty and lack of focus during integration process that may also disrupt our business;
- the risk of litigation or claims associated with a proposed or completed transaction;
- challenges associated with managing new, more diverse and more widespread operations, projects and people, potentially located in regions where we have not historically conducted or operated our business;
- dependence on unfamiliar or less secure supply chains and inefficient scale of the acquired entity;
- despite our due diligence, we could assume unknown, underestimated or contingent liabilities, such as potential environmental, health and safety liabilities of the acquired company;
- an acquired technology or product may have inadequate or invalid intellectual property protection or may be subject to claims of infringement by a third party, which may result in lower than anticipated revenue or claims for damages;

- we could experience negative effects on our reported results of operations from dilutive results from operations and/or from future potential impairment of acquired assets, including goodwill, related to future acquisitions;

- an acquired company may have inadequate or ineffective internal control over financial reporting, disclosure controls and procedures, cybersecurity, privacy, environmental, health and safety, anti-bribery, anti-corruption, human resource, or other policies or practices;

- reductions in cash balances or increases in debt obligations to finance activities associated with a transaction, which reduce the availability of cash flow for general corporate or other purposes, including share repurchases and dividends; and

- difficulties in retaining key employees or customers of an acquired business.

For example, an inability to realize the full extent of, or any of, the anticipated benefits of the Anow, MPD Chemical and DSC acquisitions we completed in 2019, as well as any delays encountered in the integration process, could have an adverse effect on our business and results of operations, which may adversely affect the value of the shares of our common stock.

***Manufacturing interruptions or delays could adversely affect our business, financial condition and results of operations.***

Our manufacturing processes are complex and require the use of expensive and technologically sophisticated equipment and materials. These processes are frequently modified to improve manufacturing yields and product quality. We have, on occasion, experienced manufacturing difficulties, such as critical equipment breakdowns or the introduction of impurities in the manufacturing process. Any future manufacturing difficulties could cause lower yields, make our products unmarketable and/or delay deliveries to customers. In addition, any modification to the manufacturing process of our products could require that the affected product be re-qualified by our customers, which can increase our costs and delay our ability to sell this product to our customers. These and other manufacturing difficulties may result in the loss of sales and exposure to warranty and product liability claims.

Some of our products are manufactured at only one or two facilities in different countries. A disruption at these facilities could impact sales of those products until another facility could commence or expand production of those products. We have in the past moved, and we may in the future move, the manufacture of certain products from one plant to another. If we fail to transfer and re-establish the manufacturing processes in the destination plant efficiently and effectively, we may not be able to meet customer demand, we may lose credibility with our customers and our business may be harmed. Even if we successfully move our manufacturing processes, we may not achieve any anticipated cost savings or efficiencies.

***Our operations use hazardous materials, which expose us to various risks, including potential liability for personal injury and potential remediation obligations.***

Our operations involve, and we are exposed to the risks associated with, the use and manufacture of hazardous materials. In particular, we manufacture specialty chemicals, which is inherently hazardous and may result in accidents, and store and transport hazardous raw materials, products and waste in, to and from various facilities. Potential risks which may disrupt our operations or expose us to significant losses and liabilities include explosions and fires, chemical spills and other discharges or releases of toxic or hazardous substances or gases, and pipeline and storage tank leaks and ruptures. Those hazards may result in liability for personal injury and loss of life, damage to property and contamination of the environment, suspension of operations, the imposition of civil or criminal fines, penalties and other sanctions, cleanup costs, claims by governmental entities or third-parties, reputational harm, increase in our insurance costs or otherwise adversely impact our results of operations. Moreover, a failure of one of our products at a customer site could interrupt the business operations of the customer. For example, while we believe that our SDS and VAC delivery systems are the safest available in the industry to transport, store and deliver toxic gases, any leakage could cause serious damage, including injury or death to any person exposed to those toxic gases, potentially creating significant product liability exposure for us. Our insurance may be inadequate to satisfy any such liabilities, and our financial results or financial condition could be adversely affected.

***Loss of any of our key personnel could harm our business, and our inability to attract and retain new qualified personnel could inhibit our ability to operate and grow our business successfully.***

Many of our key personnel have significant experience in the semiconductor industry and deep technical expertise. The loss of the services of any of our key employees or an inability to attract, train and retain qualified and skilled employees, specifically research and development and engineering personnel, could inhibit our ability to operate and grow our business successfully. As the semiconductor industry has experienced growth in recent years, competition among industry participants for qualified talent, particularly those with significant industry experience, has intensified. As a result, the difficulty and costs associated with attracting and retaining key employees has risen and may continue to rise.

***If we fail to obtain, protect and enforce intellectual property rights, our business and prospects could be harmed.***

Our future success and competitive position depend in part upon our ability to obtain, maintain and enforce intellectual property rights. We rely on patent, trade secret and trademark law to protect many of our major product platforms. Although we have filed applications for additional patents, our pending applications may not be approved. Moreover, any patents that we own or obtain may not provide us with any competitive advantage, and these patents may be challenged, invalidated, circumvented, rendered unenforceable or otherwise compromised by third parties. We may not develop additional proprietary technology. In addition, any failure to obtain intellectual property protection in the international jurisdictions we serve could expose us to increased competition, which could limit our growth and future revenue. Although we enter into confidentiality agreements with our employees and certain third parties to protect our proprietary information and technology, these agreements may be inadequate to protect our interests, and we may not have adequate remedies for any breach. Furthermore, third parties may be able to replicate or obtain our confidential and proprietary information and technology through lawful means, and they may also be able to design around our patents. Any weakness in our ability to protect our intellectual property could adversely affect our business, financial condition and results of operations.

Third parties may misappropriate our intellectual property rights, and disputes as to ownership of intellectual property rights may arise. We may institute litigation in order to enforce our patents, copyrights or other intellectual property rights, to protect our trade secrets, to determine the validity and scope of the proprietary rights of others or to defend against claims of infringement. Such litigation could result in substantial costs and diversion of resources and could negatively affect our sales, profitability and prospects regardless of whether we are able to successfully enforce our rights. For example, since 2015, we have had a pending litigation where we enforced our patent rights against Gudeng Precision Inc., Ltd. for their infringing acts related to reticle pods. We continue to vigorously defend our patents and rights, which will incur costs. We may initiate other costly patent litigation against our competitors or other third parties in order to protect and/or perfect our intellectual property rights. We cannot predict how any existing or future litigation will be resolved or what impact it may have on us.

Our commercial success also depends, in part, on our ability to avoid infringing or misappropriating any patents or other proprietary rights of third parties. If we infringe or misappropriate a third party's patent or other proprietary rights, we could be required to pay damages to such third party, alter our products or processes, obtain a license from the third party or cease utilizing such proprietary rights, including making or selling products utilizing such proprietary rights. If we are required to obtain a license from a third party, we may be unable to do so on commercially acceptable terms or at all.

***Our results of operations could be adversely affected by climate change, natural catastrophes or public health crises, in the locations in which we, our customers or our suppliers operate.***

We have manufacturing and other operations in locations subject to severe weather and natural catastrophes, such as typhoons in Taiwan and China, earthquakes and tsunamis in Japan, hurricanes in east Texas (Hurricane Harvey) and in Florida (Hurricane Irma), each in 2017, wildfires in California in 2017 and 2018 and in Colorado in 2012 and flooding in Arkansas in 2019. Our suppliers and customers also have operations in locations exposed to similar dangers. A natural disaster could disrupt our operations, or our customers' or suppliers' operations and could adversely affect our results of operations and financial condition. Although we have continuity plans designed to mitigate the impact of natural disasters on our operations, those plans may be insufficient, and any catastrophe may disrupt our ability to manufacture and deliver products to our customers, resulting in an adverse impact on our business and results of operations. Also, climate change poses both regulatory and physical risks that could harm our results of operations or affect the way we conduct our businesses. For example, new or modified regulations could require us to spend substantial funds to enhance our environmental compliance efforts. In addition, our global operations expose us to risks associated with public health crises, such as pandemics and epidemics, which could harm our business and cause our operating results to suffer. For example, December 2019 and January 2020, an outbreak of a new strain of coronavirus in Wuhan, China has resulted in travel disruption and has effected certain companies' operations in China. At this point, the extent to which the coronavirus may impact our results is uncertain.

***We may be subject to information technology system failures, network disruptions and breaches in data security, which could damage our reputation and adversely affect our financial condition, results of operations and cash flows.***

In the ordinary course of our business, we collect and store sensitive data, including our financial information, intellectual property, confidential information, proprietary business information and personally identifiable information of our employees and third parties, as well as similar information of our customers, suppliers and business partners. We maintain this information both in our data centers and on our networks. The secure processing, maintenance and transmission of this information is critical to our operations. All information systems are subject to disruption, breach or failure. While we have implemented network security procedures, virus protection software, intrusion prevention systems, access control, emergency recovery processes and internal control measures, we have experienced, and expect to continue to be subject to, cybersecurity threats and incidents ranging from employee error or misuse, to individual attempts to gain unauthorized access to our systems, to sophisticated and targeted measures known as advanced persistent threats. Despite our precautions, information technology system failures, network disruptions and breaches of data security could cause disruption in our operations, issues with customer communication and order management, the unintentional disclosure of sensitive information, the disruption in our

transaction processing or undermine the integrity of our disclosures controls and procedures and our internal control over our financial reporting, which could affect our reputation, result in significant liabilities and expenses, adversely affect our ability to report our financial results in a timely manner and could have a material adverse effect on our financial condition, results of operations and cash flows.

Moreover, new laws and regulations, such as the European Union's General Data Protection Regulation that became effective in May 2018, and the California Consumer Privacy Act that became effective on January 1, 2019, add to the complexity of our compliance obligations, which increases our compliance costs, and a failure to comply with such laws and regulations could result in significant penalties.

***We are subject to a variety of environmental laws and regulations that could cause us to incur significant liabilities and expenses.***

Failure to comply with the wide variety of federal, state, local and non-U.S. regulatory requirements relating to the release, use, storage, treatment, transportation, discharge, disposal and remediation, of, and human exposure to, hazardous chemicals could result in future liabilities or the suspension of production or shipment. These requirements have tended to become stricter over time. For example, the Frank R. Lautenberg Chemical Safety for the 21st Century Act modified the Toxic Control Substances Act, or TSCA, by requiring the Environmental Protection Agency, or the EPA, to prioritize and evaluate the environmental and health risks of existing chemicals and provided the EPA with greater authority to regulate chemicals posing unreasonable risks. According to this statute, the EPA is required to make an affirmative finding that a new chemical will not pose an unreasonable risk before such chemical can go into production. As a result, TSCA has been updated so that it operates in a similar fashion to the Registration, Evaluation, and Authorization of Chemicals, or REACH, legislation in Europe. Regulations similar to REACH have been enacted in South Korea and Taiwan. These laws and regulations, among others, increase the complexity and costs of transporting our products from the country in which they are manufactured to our customers. Any further changes to these and similar regulations in the countries in which we operate or sell into could restrict our ability to expand, build or acquire new facilities, require us to acquire costly control equipment, cause us to incur expenses associated with remediation of contamination, cause us to modify our manufacture or shipping processes, or otherwise increase our cost of doing business and have a negative impact on our financial condition, results of operations and cash flows.

***We are exposed to various risks from our regulatory environment.***

We are subject to various risks related to new, different, inconsistent, or even conflicting laws, rules, and regulations that may be enacted by legislative or executive bodies and/or regulatory agencies in the countries where we operate; disagreements or disputes related to international trade; and the interpretation and application of laws, rules, and regulations. As a public company with global operations, we are subject to the laws of multiple jurisdictions and the rules and regulations of various governing bodies, including those related to export controls, financial and other disclosures, corporate governance, privacy, anti-corruption, such as the Foreign Corrupt Practices Act and other local laws prohibiting corrupt payments to governmental officials, conflict minerals or other social responsibility legislation, immigration or travel regulations, and antitrust regulations, among others. Each of these laws, rules, and regulations imposes costs on our business, including financial costs and potential diversion of our management's attention associated with compliance, and may present risks to our business, including potential fines, restrictions on our actions, and reputational damage if we are unable to fully comply.

To maintain high standards of corporate governance and public disclosure, we intend to invest appropriate resources to comply with evolving standards. Changes in or ambiguous interpretations of laws, regulations, and standards may create uncertainty regarding compliance matters. Efforts to comply with new and changing regulations have resulted in, and are likely to continue to result in, increased administrative expenses and a diversion of management's time and attention from revenue-generating activities to compliance activities. If we are found by a court or regulatory agency not to be in compliance with the laws and regulations, our business, financial condition, and/or results of operations could be adversely affected.

***Changes in taxation or adverse tax rulings could adversely affect our results of operations.***

We have facilities in many foreign countries and are subject to taxation at various rates and audit by multiple taxing authorities. Our results of operations could be affected by changes in tax rates or audits by the taxing authorities in the countries in which we operate or in the countries from which we purchase raw materials, changes in laws and regulations governing calculation and location of earned profit and taxation thereof, changes in laws and regulations affecting our ability to realize deferred tax assets on our balance sheet and changes in laws and regulations relating to the repatriation of cash into the United States. Each quarter we forecast our tax liability based on our forecast of our performance for the year in each tax jurisdiction. If our performance forecast changes, our forecasted tax liability would also likely change.

We have undertaken a number of complex internal reorganizations of our foreign subsidiaries in order to rationalize and streamline our foreign operations, focus our management efforts on certain local opportunities and take advantage of favorable business conditions in certain localities. Although we exercised diligence in undertaking these internal reorganizations, these reorganizations, or any future internal reorganization, could nonetheless result in adverse tax consequences in one or more tax

jurisdictions, which could adversely impact our profitability from foreign operations and result in a material reduction in our results of operations.

The U.S. Tax Cuts and Jobs Act of 2017, or the Tax Cuts and Jobs Act, significantly changed how the U.S. taxes corporations, including limitations on the deductibility of interest expense and executive compensation, and the imposition or acceleration of taxation on certain foreign income, each of which may increase our tax expense. Both the Tax Cuts and Jobs Act and subsequent regulations and interpretations require complex computations to be performed that were not previously required in U.S. tax law, significant judgments to be made in interpretation of the Tax Cuts and Jobs Act, significant estimates in calculations, and the preparation and analysis of information not previously relevant or regularly produced. The U.S. Treasury Department, the IRS, and other standard-setting bodies could interpret or issue guidance on how the Tax Cuts and Jobs Act will be applied or otherwise administered that is different from our interpretation. As additional clarification and guidance is issued regarding the Tax Cuts and Jobs Act, we may make adjustments to amounts that we have recorded, which may materially impact our provision for income taxes in the period in which the adjustments are made.

Various other jurisdictions, including members of the Organization for Economic Cooperation and Development, are considering changes to their tax laws, including provisions intended to address base erosion and profit shifting by taxpayers. Any tax reform adopted in these or other countries may exacerbate the risks described above.

**Risks Related to Our Indebtedness**

***We have a substantial amount of indebtedness, which could adversely affect our ability to obtain financing in the future and react to changes in our business.***

As of December 31, 2019, we have approximately an aggregate principal amount of $946.0 million indebtedness outstanding, including our 4.625% senior unsecured notes due April 1, 2026, or the Notes, and our senior secured term loan facility due 2025, or the Term Loan Facility. In addition, we have approximately $300 million of unutilized capacity under our senior secured revolving credit facility due 2023, or the Revolving Facility. We refer to the Term Loan Facility and the Revolving Facility as the Credit Facilities, and the credit agreement that governs the Credit Facilities as the Credit Agreement.

Our debt could have important consequences, including:

- limiting our ability to obtain additional financing to fund future working capital, capital expenditures, acquisitions or other general corporate purposes;
- requiring a substantial portion of our cash flow to be dedicated to debt service payments instead of other purposes;
- increasing our vulnerability to adverse changes in general economic, industry and competitive conditions;
- exposing us to increased interest expense for borrowings with variable interest rates, including borrowings under the Credit Facilities; and
- placing us at a disadvantage compared to other, less leveraged competitors or competitors with comparable debt having more favorable terms.

***Despite our current level of indebtedness, we may incur substantially more debt, which could exacerbate the risks to our financial condition described above.***

We may incur significant additional secured and unsecured indebtedness in the future. Although the indenture governing the Notes, or the Indenture, and the Credit Agreement restrict our ability to incur additional indebtedness, the restrictions have a number of significant qualifications and exceptions. For example, the Credit Agreement provides that we can request additional loans and commitments up to the greater of $400 million or 100% of our EBITDA, as well as additional amounts if our secured net leverage ratio is less than a specified ratio. Further, these restrictions do not prevent us from incurring monetary obligations that do not constitute indebtedness. If we add new indebtedness and other monetary obligations to our current debt levels, the related risks that we now face would intensify.

***We may be unable to generate sufficient cash to service our indebtedness and may be forced to take other actions, which may not be successful, to satisfy our obligations under our indebtedness.***

We may be unable to maintain sufficient cash flow from operating activities to permit us to pay the principal of, premium, if any, and interest on our indebtedness. Our ability to make scheduled payments on or to refinance our debt obligations depends on our financial condition and operating performance and the condition of the capital markets, which are subject to prevailing economic, industry and competitive conditions, as well as many financial, business, legislative, political, regulatory and other factors beyond our control. If our cash flow and capital resources are insufficient to fund our debt service obligations, we could face substantial liquidity problems, be forced to reduce or delay investments and capital expenditures, dispose of material assets or operations, seek additional debt or equity capital or restructure or refinance our indebtedness, any of which could have a material adverse effect on our business, financial position and results of operations.

Any refinancing of our debt could be at higher interest rates and may require us to comply with more onerous covenants, which could further restrict our business operations. We may not be able to implement any refinancing on commercially reasonable terms or at all and, even if successful, a refinancing may not allow us to meet our scheduled debt service obligations. The agreements governing our indebtedness restrict our ability to dispose of assets and use the proceeds of the dispositions, and we may be unable to consummate any dispositions or generate proceeds sufficient to meet our debt service obligations.

If we cannot make scheduled payments on our debt, holders of the Notes and lenders under the Credit Facilities could declare all outstanding principal and interest to be due and payable, the lenders under the Revolving Facility could terminate their commitments to advance further loans, our secured lenders could foreclose against the assets securing their borrowings, and we could be forced into bankruptcy or liquidation.

***The terms of the credit agreement restrict our operations, particularly our ability to respond to changes or raise additional funds.***

The Credit Agreement contains restrictive covenants that impose significant operating and financial restrictions that may limit our ability to take actions that may be in our long-term best interest, including restrictions on our ability to:

- incur additional indebtedness and guarantee indebtedness;
- pay dividends or make other distributions in respect of, or repurchase or redeem, capital stock;
- prepay, redeem or repurchase certain debt;
- make investments, loans, advances and acquisitions;
- sell or otherwise dispose of assets, including capital stock of our subsidiaries;
- enter into transactions with affiliates;
- alter the businesses we conduct; and
- merge or sell all or substantially all of our assets or incur a change of control in our capital stock ownership.

In addition, the restrictive covenants may, depending on the amount of revolving borrowings, unreimbursed letter of credit drawings and undrawn letters of credit, require us to maintain a secured net leverage ratio, which we may be unable to meet. Also, the Indenture contains limited covenants, such as a covenant restricting our ability and certain of our subsidiaries' ability to incur certain debt secured by liens. Our failure to comply with these covenants could result in the acceleration of some or all of our indebtedness, which could lead to bankruptcy, reorganization or insolvency.

**Risks Related to Owning our Common Stock**

***The price of our common stock has been volatile in the past and may be volatile in the future.***

The price of our common stock has been volatile in the past and may be volatile in the future. In 2019, the closing price of our stock on The NASDAQ Global Select Market, or NASDAQ, ranged from a low of $27.43 to a high of $51.21, and, as in past years, the price of our common stock may show greater volatility. The trading price of our common stock is subject to significant volatility in response to numerous factors, many of which are beyond our control or may be unrelated to our operating results, and which may adversely affect the market price of our common stock, including the following:

- the failure to meet the published expectations of securities analysts;
- changes in financial estimates by securities analysts;
- press releases or announcements by, or changes in market values of, comparable companies;
- volatility in the markets for high-technology stocks, general stock market price and volume fluctuations, which are particularly common among securities of high-technology companies;
- stock market price and volume fluctuations attributable to inconsistent trading volume levels;
- the public perception of equity values of publicly traded companies;
- fluctuations in our results of operations; and
- the other risks and uncertainties described in this Annual Report on Form 10-K and in our other filings with the SEC.

Fluctuations in our results could cause our stock price to decline significantly. We believe that period-to-period comparisons of our results of operations may not be meaningful, and you should not rely upon them as indicators of our future performance. Future decreases in our stock price may adversely impact our ability to raise sufficient additional capital in the future, if needed.

***There can be no assurance that we will continue to declare cash dividends or repurchase our shares at all or in any particular amounts.***

Our intent to continue to pay quarterly dividends and to repurchase shares of our common stock is subject to capital availability and periodic determinations by our Board of Directors that such actions are in the best interest of our stockholders and are in compliance with all laws and applicable agreements. Future dividends and share repurchases may also be affected by, among other factors, our views on potential future capital requirements for investments in acquisitions and the funding of our research and development; legal risks; changes in federal and state income tax laws or corporate laws; contractual restrictions, such as financial or operating covenants in our debt arrangements; availability of domestic cash flow; and changes to our business model. Our dividend payments and share repurchases may change from time to time, and we may decide at any time to reduce, suspend or discontinue the payment of dividends or the repurchase of shares. A reduction, suspension or discontinuation of our dividend payments or share repurchases could have a negative effect on the price of our common stock.

***Provisions in our charter documents and Delaware law may delay or prevent an acquisition of us, which could decrease the value of our shares.***

Our restated certificate of incorporation, our by-laws and Delaware law contain provisions that could make it harder for a third party to acquire us without the consent of our board of directors. These provisions include limitations on actions by our stockholders by written consent.

Our restated certificate of incorporation makes us subject to the anti-takeover provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits publicly held Delaware corporations to which it applies from engaging in a “business combination” with an “interested stockholder” for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner. This provision could discourage others from bidding for our shares of common stock and could, as a result, reduce the likelihood of an increase in the price of our common stock that would otherwise occur if a bidder sought to buy our common stock.

Our restated certificate of incorporation provides that our board of directors is authorized to issue from time to time, without further stockholder approval, up to 5,000,000 shares of preferred stock in one or more series and to fix and designate the rights, preferences, privileges and restrictions of the preferred stock, including dividend rights, conversion rights, voting rights, redemption rights and terms of redemption and liquidation preferences. Any shares of preferred stock could have preferences over our common stock with respect to dividends and liquidation rights. Any issuance of preferred stock may have the effect of delaying, deterring or preventing a change in control. Any issuance of preferred stock could decrease the amount of earnings and assets available for distribution to the holders of common stock and could adversely affect the rights and powers, including voting rights, of the holders of common stock. The issuance of preferred stock could have the effect of decreasing the market price of our common stock.

**Item 1B. Unresolved Staff Comments.**

Not Applicable.

**Item 2. Properties.**

Our principal executive offices are located in Billerica, Massachusetts. Information about our principal and certain other facilities is set forth below:

| Location | Principal Function | Approximate Square Feet | Leased/ Owned | Reporting Segment |
|---|---|---|---|---|
| Bedford, Massachusetts | Research & Manufacturing | 80,000 | Owned | MC & SCEM |
| Billerica, Massachusetts[(1)] | Executive Offices, Research & Manufacturing | 175,000 | Leased | MC & SCEM |
| Burnet, TX | Research & Manufacturing | 86,000 | Owned | SCEM |
| Chaska, Minnesota | Executive Offices, Research & Manufacturing | 186,000 | Owned | AMH |
| Colorado Springs, CO | Manufacturing | 82,000 | Owned | AMH |
| Danbury, CT | Research & Manufacturing | 73,000 | Leased | SCEM |
| Decatur, Texas | Manufacturing | 359,000 | Owned | SCEM |
| Hsin-chu, Taiwan | Executive Offices, Sales Research & Manufacturing | 146,330 | Leased | MC, SCEM & AMH |
| JangAn, South Korea | Manufacturing | 127,000 | Owned | SCEM & AMH |
| Kulim, Malaysia | Manufacturing | 195,000 | Owned | SCEM & AMH |
| San Luis Obispo, CA | Manufacturing | 37,000 | Owned | MC |
| San Luis Obispo, CA | Manufacturing | 34,000 | Leased | MC |
| Suwon, South Korea | Executive Offices & Research | 42,000 | Leased | MC & SCEM |
| Yonezawa, Japan | Manufacturing | 185,000 | Owned | MC & AMH |

[(1)] This lease has been extended through September 30, 2026 and is subject to one five-year renewal option.

In addition, we own and lease space for manufacturing, distribution, technical support, sales, service, repair, and general administrative purposes in the United States, Canada, China, Germany, France, Israel, Japan, Malaysia, Singapore, South Korea and Taiwan. Leases for our facilities expire through September 2026. We currently expect to be able to extend the terms of expiring leases or to find suitable replacement facilities on reasonable terms. We believe that our facilities are well-maintained and suitable for their respective operations. We regularly assess the size, capability and location of our global infrastructure and periodically make adjustments based on these assessments.

**Item 3. Legal Proceedings.**

As of December 31, 2019, we were not involved in any legal proceedings that we believe will have a material impact on our consolidated financial position, results of operations or cash flows. From time to time the Company may be a party to litigation involving claims against the Company arising in the ordinary course of our business. We are not aware of any material potential litigation or claims against us which would have a material adverse effect upon our financial statements.

**Item 4. Mine Safety Disclosures.**

Not applicable.

*EXECUTIVE OFFICERS OF THE REGISTRANT*

The following is a list of our Executive Officers and their ages, as of the date of this this Annual Report on Form 10-K.

| Name | Age | Office |
|---|---|---|
| Bertrand Loy | 54 | *President & Chief Executive Officer* |
| Gregory B. Graves | 59 | *Executive Vice President, Chief Financial Officer & Treasurer* |
| Todd Edlund | 57 | *Executive Vice President & Chief Operating Officer* |
| Sue Rice | 61 | *Senior Vice President, Global Human Resources* |
| Corey Rucci | 60 | *Senior Vice President, Business Development* |
| Jim O'Neill | 55 | *Senior Vice President, Chief Technology Officer* |
| Stuart Tison | 56 | *Senior Vice President & General Manager, Specialty Chemicals and Engineered Materials* |
| Clint Haris | 47 | *Senior Vice President & General Manager, Microcontamination Control* |
| William Shaner | 52 | *Senior Vice President & General Manager, Advanced Materials Handling* |
| Bruce W. Beckman | 52 | *Senior Vice President, Finance* |
| Michael D. Sauer | 54 | *Vice President, Controller & Chief Accounting Officer* |

*Bertrand Loy* has been our Chief Executive Officer, President and a director since November 2012. From July 2008 to November 2012, Mr. Loy served as our Executive Vice President and Chief Operating Officer. From August 2005 until July 2008, he served as our Executive Vice President in charge of our global supply chain and manufacturing operations. He served as the Vice President and Chief Financial Officer of Mykrolis (a predecessor to Entegris) from January 2001 until August 2005. Prior to that, Mr. Loy served as the Chief Information Officer of Millipore Corporation during 1999 and 2000. From 1995 until 1999, he served as the Division Controller and Head of Manufacturing for Millipore's Laboratory Water Division. From 1989 until 1995, Mr. Loy served Sandoz Pharmaceuticals (now Novartis) in a variety of strategic planning and finance positions located in Europe, Central America and Japan. Mr. Loy served as a director of BTU International, Inc. (supplier of advanced thermal processing equipment) from June 2010 until its acquisition in January 2015. He has served on the board of directors of Harvard Bioscience, Inc. (scientific equipment) since November 2014 and is now its lead independent director. Since July 2013, he has also been on the board of directors of SEMI, the global industry association representing the electronics manufacturing supply chain, and currently acts as the chairman of the association.

*Gregory B. Graves* has served as our Executive Vice President and Chief Financial Officer since July 2008. Prior to that, he served as Senior Vice President and Chief Financial Officer since April 2007. Prior to April 2007, he served as Senior Vice President, Strategic Planning & Business Development since the effectiveness of the merger with Mykrolis in August 2005. Mr. Graves served as the Chief Business Development Officer of Entegris Minnesota starting in September 2002 and from September 2003 until August 2004 he also served as Senior Vice President of Finance. Prior to joining Entegris Minnesota in September 2002, Mr. Graves held positions in investment banking and corporate development, including at U.S. Bancorp Piper Jaffray from June 1998 to August 2002 and at Dain Rauscher from October 1996 to May 1998. From May 2017 to June 2019, Mr. Graves served as a director of Plug Power Inc. (energy solutions provider).

*Todd Edlund* has been our Executive Vice President and Chief Operating Officer since July 2016. Prior to that, he was our Senior Vice President and Chief Operating Officer since November 2014. After the merger with ATMI in April 2014, Mr. Edlund served as Senior Vice President and General Manager of our Critical Materials Handling business and prior to that merger, he was the Vice President and General Manager of our Contamination Control Solutions division since December 2007. He served as the Vice President and General Manager of our Liquid Systems business unit from 2005 to 2007, and prior to that, as Entegris Minnesota's Vice President of Sales for semiconductor markets from 2003 to 2005. Prior to 2003, Mr. Edlund held a variety of positions with our predecessor companies since 1995.

*Sue Rice* has been our Senior Vice President of Global Human Resources in September 2017. Prior to that, Ms. Rice served as Senior Vice President and Chief Human Resources Officer for Thermo Fisher Scientific from 2013 to 2017, Region Vice President HR Asia Pacific & Emerging Markets from 2009 to 2013 and Group Vice President, HR Analytical Technologies Group from 2006 to 2009. Prior to that, Ms. Rice held senior human resource positions with Fidelity Human Resources Services Company and Sherbrooke Associates.

*Jim O'Neill* has been our Senior Vice President, Chief Technology Officer since September 2019, having previously served as our Vice President, Chief Technology Officer since April 2014 when he joined Entegris as part of our acquisition of ATMI. At ATMI, Dr. O'Neill was Senior Vice President of Electronic Materials from January 2012 to April 2014. Prior to that, he held numerous technical and leadership roles in semiconductor research and development with over 23 years at IBM.

*Corey Rucci* has served as our Senior Vice President, Business Development since January 2018, having served as Vice President, Business Development since February 2014. Prior to that, he served as Vice President and General Manager of our Specialty Materials Division since 2011 and as General Manager of Poco Graphite, Inc. (POCO) since 2008 when we acquired POCO. Prior to joining Entegris, Mr. Rucci served POCO as the President and Chief Operating Officer since 2007, Chief Operating Officer since 2005, Chief Financial Officer since 2001 and Vice President of Business Development since 1998. Prior to that, he worked at UNOCAL Corp. for 17 years in a variety of accounting, marketing and business development roles.

*Stuart Tison* has been our Senior Vice President, Specialty Chemicals and Engineered Materials since July 2016. Prior to that, Mr. Tison served as Vice President, Specialty Gas Solutions since February 2015, as Vice President, Business Development since January 2010 and as Vice President, Corporate Development since July 2007. Prior to that, he served Celerity, Inc. as Vice President, Engineering and served Entegris predecessor companies Mykrolis and Millipore in a variety of sales, marketing, business development and engineering roles.

*Clint Haris* has been our Senior Vice President, Microcontamination Control since July 2016. Prior to that, Mr. Haris served as our Vice President, Liquid Microcontamination Control since August 2014. Prior to joining Entegris, Mr. Haris served in a variety of executive roles at Brooks Automation Inc. including Senior Vice President, Life Science Systems from 2010 to 2014 and Senior Vice President and General Manager, Systems Solutions from 2009 to 2010.

*William Shaner* has been our Senior Vice President, Advanced Materials Handling since July 2016. Prior to that, Mr. Shaner served as our Senior Vice President, Global Operations since February 2014 and, prior to that, as our Vice President and General Manager, Microenvironments division since 2007. He has served in a variety of sales, marketing, business development and engineering roles since joining Entegris in 1995.

*Bruce W. Beckman* has been our Senior Vice President, Finance since February 2018. Prior to that, Mr. Beckman served as Vice President, Finance since joining Entegris in April 2015. From 1990 to 2015, Mr. Beckman worked in numerous capacities for General Mills, Inc., including Vice President, Finance, Meals Division from July 2012 to January 2015, Director of Corporate Planning & Analysis from July 2008 to July 2012 and Director of Internal Controls from 2003 to 2005.

*Michael D. Sauer* has been our Vice President, Controller and Chief Accounting Officer since June 2012. Prior to that, he served as the Corporate Controller since 2008. From the time of the merger with Mykrolis in August 2005 until April 2008, Mr. Sauer served as Director of Treasury and Risk Management. Mr. Sauer joined Fluoroware, Inc., a predecessor to Entegris Minnesota in 1988 and held a variety of finance and accounting positions until 2001 when he became the Director of Business Development for Entegris Minnesota, the successor to Fluoroware, serving in that position until the merger with Mykrolis.

**PART II**

**Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.**

***Market Information and Holders:***

Entegris' Common Stock, $0.01 par value, trades on the NASDAQ Global Select Market under the symbol "ENTG". As of February 3, 2020, there were 999 shareholders of record.

***Dividend Policy:***

Holders of the Company's common stock are entitled to receive dividends when and if they are declared by the Company's Board of Directors. The Company's Board of Directors declared a cash dividend of $0.07 per share during the first and second quarters and $0.08 in the third and fourth quarters of 2019, which totaled $40.8 million.

On January 15, 2020, the Company's Board of Directors declared a quarterly cash dividend of $0.08 per share to be paid on February 19, 2020 to shareholders of record as of January 29, 2020.

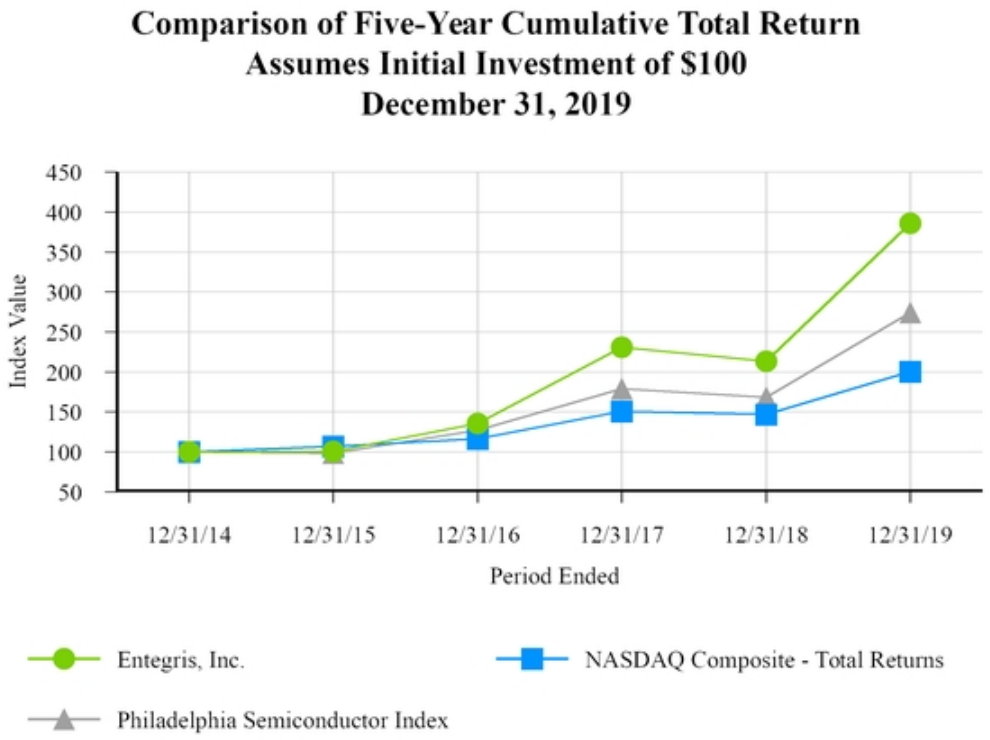
Future dividend declarations, if any, as well as the record and payment dates for such dividends, are subject to the final determination of our board of directors. Furthermore, the credit agreement governing the Credit Facilities contains restrictions that may limit our ability to pay dividends.

***Issuer Sales of Unregistered Securities During the Past Three Years:***

None

***Comparative Stock Performance***

The following graph compares the cumulative total shareholder return on the common stock of Entegris, Inc. from December 31, 2014 through December 31, 2019 with the cumulative total return of (1) The NASDAQ Composite Index, and (2) The Philadelphia Semiconductor Index, assuming $100 was invested at the close of trading December 31, 2014 in Entegris, Inc. common stock, the NASDAQ Composite Index and the Philadelphia Semiconductor Index and that all dividends are reinvested.



| | December 31, 2014 | December 31, 2015 | December 31, 2016 | December 31, 2017 | December 31, 2018 | December 31, 2019 |
|---|---|---|---|---|---|---|
| Entegris, Inc. | $100.00 | $100.45 | $135.50 | $231.01 | $213.50 | $386.16 |
| NASDAQ Composite | 100.00 | 106.96 | 116.45 | 150.96 | 146.67 | 200.50 |
| Philadelphia Semiconductor Index | 100.00 | 98.38 | 127.23 | 178.82 | 168.01 | 274.30 |

***Issuer Purchases of Equity Securities:***

On February 13, 2018, the Company's Board of Directors authorized a repurchase program covering up to an aggregate of $100 million of the Company's common stock, during a period of twenty-four months, in open market transactions and in accordance with one or more pre-arranged stock trading plans to be established in accordance with Rule 10b5-1 under the Securities Exchange Act of 1934, as amended. On November 19, 2018, the Company's Board of Directors authorized the repurchase of up to an additional $250 million in aggregate principal amount of the Company's common stock. The authorization was in addition to the amount remaining under the share repurchase program previously authorized in February 2018.

The following table provides information concerning shares of the Company's Common Stock $0.01 par value purchased during the three months ended December 31, 2019:

| Period | (a) Total Number of Shares Purchased | (b) Average Price Paid per Share | (c) Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs | (d) Maximum Number (or Approximate Dollar Value) of Shares that May Yet Be Purchased Under the Plans or Programs |
|---|---|---|---|---|
| September 29 through November 2, 2019 | 125,000 | $47.60 | 125,000 | $110,391,791 |
| November 3 through November 30, 2019 | 95,000 | $47.85 | 95,000 | $105,845,995 |
| December 1 through December 31, 2019 | 91,890 | $49.02 | 91,890 | $101,341,291 |
| Total | 311,890 | | 311,890 | $101,341,291 |

The Company issues common stock awards under its equity incentive plans. In the consolidated financial statements, the Company treats shares of common stock withheld for tax purposes on behalf of its employees in connection with the vesting or exercise of the awards as common stock repurchases because they reduce the number of shares that would have been issued upon vesting or exercise. These withheld shares of common stock are not considered common stock repurchases under the Company's authorized common stock repurchase plan and accordingly are not included in the common stock repurchase totals in the preceding table.

**Item 6. Selected Financial Data.**

The table that follows presents selected financial data for each of the last five years from the Company's consolidated financial statements and should be read in conjunction with the Company's Consolidated Financial Statements and the related Notes and with "Management's Discussion and Analysis of Financial Condition and Results of Operations" included elsewhere in this Annual Report on Form 10-K. The selected financial data set forth below as of December 31, 2019 and 2018 and for the years ended December 31, 2019, 2018 and 2017 are derived from our audited financial statements included in this Annual Report on Form 10-K. All other selected financial data set forth below is derived from our audited financial statements not included in this Annual Report on Form 10-K. Our historical results are not necessarily indicative of our results of operations to be expected in the future.

| *(In thousands, except per share amounts)* | Year ended December 31, 2019[1] [6] | Year ended December 31, 2018[2] [5] | Year ended December 31, 2017 | Year ended December 31, 2016 | Year ended December 31, 2015 |
|---|---|---|---|---|---|
| **Operating Results** | | | | | |
| Net sales | $ 1,591,066 | $ 1,550,497 | $ 1,342,532 | $ 1,175,270 | $ 1,081,121 |
| Gross profit | 711,653 | 719,831 | 608,985 | 508,691 | 470,231 |
| Selling, general and administrative expenses | 284,807 | 246,534 | 216,194 | 201,901 | 198,914 |
| Engineering, research and development expenses | 121,140 | 118,456 | 106,951 | 106,991 | 105,900 |
| Amortization of intangible assets | 66,428 | 62,152 | 44,023 | 44,263 | 47,349 |
| Operating income | 239,278 | 292,689 | 241,817 | 155,536 | 118,068 |
| Income before income taxes and equity in net loss of affiliate | 318,049 | 254,432 | 184,731 | 119,999 | 92,185 |
| Income tax expense | 63,189 | 13,677 | 99,665 | 22,852 | 10,202 |
| Net income | 254,860 | 240,755 | 85,066 | 97,147 | 80,296 |
| **Earnings Per Share Data** | | | | | |
| Diluted earnings per share | $ 1.87 | $ 1.69 | $ 0.59 | $ 0.68 | $ 0.57 |
| Weighted average shares outstanding – diluted | 136,568 | 142,610 | 143,518 | 142,050 | 141,121 |
| **Operating Ratios – % of net sales** | | | | | |
| Gross profit | 44.7% | 46.4% | 45.4% | 43.3% | 43.5% |
| Selling, general and administrative expenses | 17.9 | 15.9 | 16.1 | 17.2 | 18.4 |
| Engineering, research and development expenses | 7.6 | 7.6 | 8.0 | 9.1 | 9.8 |
| Amortization of intangible assets | 4.2 | 4.0 | 3.3 | 3.8 | 4.4 |
| Operating income | 15.0 | 18.9 | 18.0 | 13.2 | 10.9 |
| Income before income taxes and equity in net loss of affiliate | 20.0 | 16.4 | 13.8 | 10.2 | 8.5 |
| Effective tax rate[3] | 19.9 | 5.4 | 54.0 | 19.0 | 11.1 |
| Net income[4] | 16.0 | 15.5 | 6.3 | 8.3 | 7.4 |
| **Cash Flow Statement Data** | | | | | |
| Depreciation and amortization | $ 141,403 | $ 127,268 | $ 102,231 | $ 99,886 | $ 101,654 |
| Capital expenditures | 112,355 | 110,153 | 93,597 | 65,260 | 71,977 |
| Net cash provided by operating activities | 382,298 | 312,576 | 293,373 | 207,555 | 120,918 |
| Net cash used in investing activities | (385,840) | (485,944) | (112,455) | (66,686) | (63,638) |
| Net cash (used in) provided by financing activities | (126,820) | 34,411 | 27,251 | (81,747) | (92,787) |
| **Balance Sheet and Other Data** | | | | | |
| Current assets | $ 932,397 | $ 1,029,338 | $ 1,057,608 | $ 800,131 | $ 708,787 |
| Current liabilities | 264,433 | 269,668 | 290,971 | 261,571 | 175,550 |
| Working capital | 667,964 | 759,670 | 766,637 | 538,560 | 533,237 |
| Current ratio | 3.53 | 3.82 | 3.63 | 3.06 | 4.04 |
| Long-term debt, including current maturities[7] | 936,484 | 938,863 | 674,380 | 584,677 | 656,044 |
| Shareholders' equity | 1,165,889 | 1,012,025 | 993,018 | 899,218 | 802,883 |
| Total assets | 2,516,086 | 2,317,641 | 1,976,172 | 1,699,532 | 1,646,697 |
| Return on average shareholders' equity – % | 23.4% | 24.0% | 9.0% | 11.4% | 10.4% |
| Shares outstanding at end of year | 134,728 | 135,977 | 141,283 | 141,320 | 140,716 |

[1]Reflects the adoption of the new accounting standard in fiscal year 2019 related to leases. See Note 10 of the Consolidated Financial Statements.
[2]Reflects the adoption of the new accounting standard in fiscal year 2018 related to revenue.
[3]In 2018, our effective tax rate benefited from the reduction of the U.S. statutory federal tax rate and other provisions of the Tax Cuts and Jobs act. In 2017, our effective tax rate increased due to the recognition of the one-time mandatory repatriation transition tax on the net accumulated earnings and profits of the Company's foreign subsidiaries.
[4] In 2019, the Company received net proceeds of $122.0 million resulting from the termination of the merger agreement with Versum (see note 9 to the Company's consolidated financial statements).
[5]SAES Pure Gas business and Particle Sizing Systems, LLC have been included in our consolidated results of operations starting on the acquisition date of June 25, 2018 and January 22, 2018, respectively.
[6] Hangzhou Anow Microfiltration Co., Ltd., MPD Chemicals, Digital Specialty Chemicals Limited have been included in our consolidated results of operations starting on the acquisition date of September 17, 2019, July 15, 2019 and March 8, 2019, respectively.
[7] In 2018, the Company obtained a new $700 million senior secured credit facility. The Company used a portion of the proceeds to repay and terminate its previous credit facilities. See Note 8 of the Consolidated Financial Statements.

**Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.**

*The following discussion and analysis of the Company's consolidated financial condition and results of operations should be read along with the consolidated financial statements and the accompanying notes included elsewhere in this Annual Report on Form 10-K. This discussion contains forward-looking statements that involve numerous risks and uncertainties, including, but not limited to, those described in Item 1A. "Risk Factors" and the "Cautionary Statements" sections of this Item 7 below. You should review Item 1A "Risk Factors" of this Annual Report on Form 10-K for a discussion of important factors that could cause actual results to differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.*

**Cautionary Statements**

This Annual Report on Form 10-K and the documents incorporated by reference in this Annual Report on Form 10-K contain "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. The words "believe," "expect," "anticipate," "intend," "estimate," "forecast," "project," "should," "may," "will," "would" or the negative thereof and similar expressions are intended to identify such forward-looking statements. These forward-looking statements may include statements about future period guidance or projections; the Company's performance relative to its markets; market and technology trends, including the duration and drivers of any growth trends; the development of new products and the success of their introductions; the focus of the Company's engineering, research and development projects; the Company's ability to execute on its business strategies; the Company's capital allocation strategy, which may be modified at any time for any reason, including share repurchases, dividends, debt repayments and potential acquisitions; the effect of the Tax Cuts and Jobs Act; the impact of the acquisitions the Company has made and commercial partnerships the Company has established; future capital and other expenditures, including estimates thereof; the Company's expected tax rate; the impact, financial or otherwise, of any organizational changes; the impact of accounting pronouncements; quantitative and qualitative disclosures about market risk; and other matters. These forward-looking statements are based on current management expectations and assumptions only as of the date of this Annual Report on Form 10-K, are not guarantees of future performance and involve substantial risks and uncertainties that are difficult to predict and that could cause actual results to differ materially from the results expressed in, or implied by, these forward-looking statements. These risks and uncertainties include, but are not limited to, the risk factors and additional information described in this Annual Report on Form 10-K under the caption "Risk Factors," elsewhere in this Annual Report on Form 10-K and in the Company's other periodic filings. Except as required under the federal securities laws and the rules and regulations of the SEC, the Company undertakes no obligation to update publicly any forward-looking statements or information contained herein, which speak as of their respective dates.

**Overview**

*This overview is not a complete discussion of the Company's financial condition, changes in financial condition and results of operations; it is intended merely to facilitate an understanding of the most salient aspects of its financial condition and operating performance and to provide a context for the detailed discussion and analysis that follows, and must be read in its entirety in order to fully understand the Company's financial condition and results of operations.*

The Company is a leading global developer, manufacturer and supplier of microcontamination control products, specialty chemicals and advanced materials handling solutions for manufacturing processes in the semiconductor and other high-technology industries. We leverage our unique breadth of capabilities to create value for our customers by developing mission-critical solutions to maximize manufacturing yields, reduce manufacturing costs and enable higher device performance.

Our technology portfolio includes advanced materials and high-purity chemistries, with optimized packaging and delivery systems and in-process filtration and purification solutions that ensure high-value liquid chemistries and gases are free from contaminants use. Our standard customized productions and solutions enable the highest levels of purity and performance that are essential to the manufacture of semiconductors, flat panel displays, light emitting diodes, or LEDs, high-purity chemicals, solar cells, gas lasers, optical and magnetic storage devices, and critical components for aerospace, glass manufacturing and biomedical applications. The majority of our products are consumed at various times throughout the manufacturing process, with demand driven in part by the level of semiconductor and other manufacturing activity.

Our business is organized and operated in three operating segments, which align with the key elements of the advanced semiconductor manufacturing ecosystem. The Specialty Chemicals and Engineered Materials, or SCEM, segment provides high-performance and high-purity process chemistries, gases, and materials, and safe and efficient delivery systems to support semiconductor and other advanced manufacturing processes. The Microcontamination Control, or MC, segment offers solutions to filter and purify critical liquid chemistries and gases used in semiconductor manufacturing processes and other high-technology industries. The Advanced Materials Handling, or AMH, segment develops solutions to monitor, protect, transport, and deliver critical liquid chemistries, wafers and other substrates for a broad set of applications in the semiconductor industry and other high-technology industries. While these segments have separate products and technical know-how, they share common business systems and processes, technology centers, and strategic and technology roadmaps. We leverage our

expertise from these three segments and complementary product portfolios to create new and increasingly integrated solutions for our customers.

**Key operating factors** Key factors, which management believes have the largest impact on the overall results of operations of the Company, include:

- ***Level of sales*** Since a significant portion of the Company's product costs (except for raw materials, purchased components and direct labor) are largely fixed in the short-to-medium term, an increase or decrease in sales affects gross profits and overall profitability significantly. Also, increases or decreases in sales and operating profitability affect certain costs such as incentive compensation and commissions, which are highly variable in nature. The Company's sales are subject to the effects of industry cyclicality, technological change, substantial competition, pricing pressures and foreign currency fluctuation.

- ***Variable margin on sales*** The Company's variable margin on sales is determined by selling prices and the costs of manufacturing and raw materials. This is affected by a number of factors, which include the Company's sales mix, purchase prices of raw material (especially polymers, membranes, stainless steel and purchased components), domestic and international competition, direct labor costs, and the efficiency of the Company's production operations, among others.

- ***Fixed cost structure*** The Company's operations include a number of large fixed or semi-fixed cost components, which include salaries, indirect labor and benefits, facility costs, lease expenses, and depreciation and amortization. It is not possible to vary these costs easily in the short-term as volumes fluctuate. Accordingly, increases or decreases in sales volume can have a large effect on the usage and productivity of these cost components, resulting in a large impact on the Company's profitability.

**Overall Summary of Financial Results for the Year Ended December 31, 2019**

Total net sales for the year ended December 31, 2019 were $1,591.1 million, up $40.6 million, or 3%, from sales of $1,550.5 million for the year ended December 31, 2018.

Exclusive of net sales associated with acquisitions and divestitures of $87.6 million and unfavorable foreign currency translation effects of $4.5 million, the Company's sales decreased by $42.6 million to $1,507.9 million, or 3%, reflecting a decrease in overall demand for the Company's products from semiconductor industry customers, particularly in the sale of fluid handling products, liquid chemistry filtration solutions and certain specialty materials products.

The Company announced organizational changes in the third quarter of 2019 intended to enable us to be more responsive to our customers, increase our competitiveness, allow for scalable growth and result in cost savings. These changes were primarily focused on optimizing our customer-facing organization. As a result of this announcement, the Company recorded restructuring charges within cost of goods sold, selling, general and administrative (SG&A) and engineering, research and development of $1.0 million, $6.1 million and $1.4 million, respectively, for the twelve months ended December 31, 2019. The actions associated with the restructuring plan, including employee separations, were completed by the end of 2019, and the Company does not anticipate any additional material charges for the following year relating to the restructuring costs.

The Company's gross profit declined by $8.2 million for the year ended December 31, 2019, to $711.7 million, down from $719.8 million for the year ended December 31, 2018. Accordingly, the Company reported a 44.7% gross margin rate compared to 46.4% in 2018. The gross profit and gross margin decrease reflects lower factory utilization associated with weaker sales levels and an unfavorable sales mix.

The Company's selling, general and administrative (SG&A) and engineering, research and development (ER&D) expenses increased in 2019, mainly reflecting higher deal costs, the cost of integration activities and restructuring charges.

On January 28, 2019, the Company and Versum announced that they had entered into an Agreement and Plan of Merger, dated as of January 27, 2019 (the "Merger Agreement"), pursuant to which they agreed to combine in a merger of equals. On April 8, 2019, Versum announced that its Board of Directors had received a proposal from Merck KGaA to acquire Versum and that its Board of Directors had deemed such proposal as a "Superior Proposal" defined in the merger agreement. On April 12, 2019, the Company received a termination notice from Versum terminating the Merger Agreement. In accordance with the terms of the Merger Agreement, Entegris received a $140.0 million termination fee from Versum in the second quarter of 2019. Also in the second quarter of 2019, the Company paid a fee of $18.0 million to the third-party financial adviser it had engaged to assist with the transaction.

As a result of the aforementioned and other factors discussed below, net income for 2019 was $254.9 million, or $1.87 per diluted share, compared to net income of $240.8 million, or $1.69 per diluted share, in 2018.

On March 8, 2019, the Company acquired Digital Specialty Chemicals Limited (DSC), which provides advanced materials to the specialty chemical, technology and pharmaceutical industries. The total purchase price of the acquisition was $64.1 million, net of cash acquired. The Company funded the acquisition from its available cash.

On July 15, 2019, the Company acquired MPD Chemicals, a provider of advanced materials to the specialty chemical, technology, and life sciences industries. The Company acquired MPD Chemicals for approximately $161.0 million, net of cash acquired, subject to revision for customary working capital adjustments. The Company funded the acquisition from its available cash.

On September 17, 2019, the Company acquired Hangzhou Anow Microfiltration Co., Ltd., (Anow) a filtration company for diverse industries including semiconductor, pharmaceutical, and medical. The Company acquired Anow for $72.8 million, net of cash acquired. The Company funded the acquisition from its available cash.

During 2019, the Company's operating activities provided cash flow of $382.3 million. Cash and cash equivalents, and short-term investments were $351.9 million at December 31, 2019 compared with $482.1 million at December 31, 2018. The Company had long-term borrowings, including current maturities, of $936.5 million at December 31, 2019 compared with $938.9 million at December 31, 2018.

**Critical Accounting Policies**

Management's discussion and analysis of financial condition and results of operations are based upon the Company's consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these consolidated financial statements requires the Company to make estimates, assumptions and judgments that affect the reported amounts of assets, liabilities, revenues and expenses and related disclosure of contingent assets and liabilities. At each balance sheet date, management evaluates its estimates, including, but not limited to, those related to long-lived assets (property, plant and equipment, and identified intangible assets), goodwill, income taxes and business combinations. The Company bases its estimates on historical experience and various other assumptions that are believed to be reasonable under the circumstances. If management made different judgments or utilized different estimates, this could result in material differences in the amount and timing of the Company's results of operations for any period. In addition, actual results could be different from the Company's current estimates, possibly resulting in increased future charges to earnings.

The critical accounting policies that are most significantly affected by estimates, assumptions and judgments used in the preparation of the Company's consolidated financial statements are discussed below.

**Impairment of Long-Lived Assets** As of December 31, 2019, the Company had $479.5 million of net property, plant and equipment and $334.0 million of net intangible assets. The Company routinely considers whether indicators of impairment of the value of its long-lived assets, particularly its manufacturing equipment, and its intangible assets, are present. A long-lived asset (or asset group) must be tested for recoverability whenever events or changes in circumstances (triggering events) indicate that its carrying amount may not be recoverable. The following are examples of such events or changes in circumstances:

a. A significant decrease in the market price of a long-lived asset (or asset group);

b. A significant adverse change in the extent or manner in which a long-lived asset (or asset group) is being used or in its physical condition;

c. A significant adverse change in legal factors or in the business climate that could affect the value of a long-lived asset (or asset group), including an adverse action or assessment by a regulator;

d. An accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of a long-lived asset (or asset group);

e. A current-period operating or cash flow loss combined with a history of operating or cash flow losses or a projection or forecast that demonstrates continuing losses associated with the use of a long-lived asset (or asset group); and

f. A current expectation that, more likely than not, a long-lived asset (or asset group) will be sold or otherwise disposed of significantly before the end of its previously estimated useful life.

If any such indicators are present, it is determined whether the sum of the estimated undiscounted cash flows attributable to the asset group in question is less than its carrying value. If less, an impairment loss is recognized based on the excess of the carrying amount of the assets in the group over its respective fair value. Fair value is determined by discounting estimated future cash flows, appraisals or other methods deemed appropriate. If the asset groups determined to be impaired are to be held and used, the Company recognizes an impairment charge to the extent the fair value attributable to the asset group is less than the assets' carrying value. The fair value of the assets then becomes the assets' new carrying value, which is depreciated or amortized over the remaining estimated useful life of the assets.

The Company's long-lived assets are grouped with other assets and liabilities at the lowest level (asset groups) for which the identifiable cash flows are largely independent of the cash flows of other assets and liabilities. As described above, the evaluation of the recoverability of long-lived assets requires the Company to make significant estimates and assumptions. These estimates and assumptions primarily include, but are not limited to, the identification of the asset group at the lowest level of independent cash flows, the primary asset of the group and long-range forecasts of revenue and costs, reflecting management's assessment of general economic and industry conditions, operating income, depreciation and amortization and working capital requirements.

Due to the inherent uncertainty involved in making estimates, actual results could differ from those estimates. In addition, changes in the underlying assumptions would have a significant impact on the conclusion that an asset group's carrying value is recoverable, or the determination of any impairment charge if it was determined that the asset values were indeed impaired. The Company regularly monitors circumstances and events to determine whether asset impairment testing is warranted. It is possible that in the future the Company may conclude that there is impairment of certain of its long-lived assets, and that significant impairment charges of long-lived assets may occur in future periods.

**Goodwill** Goodwill is not subject to amortization and is tested for impairment annually and whenever events or changes in circumstances indicate that impairment may have occurred. The Company performs its annual impairment test as of August 31. The Company first assesses qualitative factors to determine whether it is more likely than not (that is, a likelihood of more than 50%) that the fair value of a reporting unit is less than its carrying amount, including goodwill. If, after assessing qualitative factors, the Company determines that it is more likely than not that the fair value of a reporting unit is less than its carrying amount, then a two-step impairment test is performed to identify potential goodwill impairment and measure the amount of goodwill impairment loss to be recognized, if any.

As of August 31, 2019, the Company's assessment of qualitative factors informed its conclusion that it was more likely than not that a goodwill impairment did not occur. The significant qualitative factors considered include a significant increase in the Company's share price, increasing revenues and operating cash flow for each of the Company's reporting units combined with solid demand in the semiconductor industry driven by the Internet of Things, 5G, autonomous car and artificial intelligence/machine learning applications. The Company noted that a significant number of its very largest customers purchase from all of the Company's reporting units. For example, approximately 25 customers, accounting for approximately 56% of net sales, purchase from all of the Company's reporting units.

**Income Taxes** In the preparation of the Company's consolidated financial statements, the income tax expense, deferred tax assets and liabilities, and reserves for unrecognized tax benefits reflect management's best assessment of estimated current and future taxes to be paid. The Company is subject to income taxes in both the United States and numerous foreign jurisdictions. Significant judgments and estimates are required in determining consolidated income tax expense.

Deferred income taxes arise from temporary differences between the tax basis of assets and liabilities and their reported amounts in the consolidated financial statements, which will result in taxable or deductible amounts in the future. In evaluating the Company's ability to recover its deferred tax assets within the jurisdiction from which they arise, management considers all available positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax-planning strategies, and results of recent operations. In projecting future taxable income, the Company begins with historical results and incorporates assumptions about the amount of future state, federal and foreign pretax operating income adjusted for items that do not have tax consequences. The assumptions about future taxable income require significant judgment and are consistent with the plans and estimates management is using to manage the underlying business. In evaluating the objective evidence that historical results provide, the Company considers three years of cumulative operating income.

The Company has deferred tax assets related to certain state and foreign credit carryforwards and net operating loss carryforwards of $22.3 million and $18.8 million as of December 31, 2019 and 2018, respectively. Management believes it is more likely than not that the benefit from a portion of these carryforwards will not be realized. In recognition of this risk, the Company provided a valuation allowance of $20.1 million and $18.1 million as of December 31, 2019 and 2018, respectively, relating to these carryforwards. If the Company's assumptions change and it determines it will be able to realize these carryforwards, the tax benefits relating to any reversal of the valuation allowance on the deferred tax assets will be recognized as a reduction of income tax expense.

The calculation of tax liabilities involves dealing with uncertainties in the application of complex tax laws and regulations in a multitude of jurisdictions across our global operations. A tax benefit from an uncertain tax position may be recognized when it is more likely than not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, on the basis of the technical merits. Resolution of these uncertainties in a manner inconsistent with management's expectations could have a material impact on the Company's financial condition and operating results.

**Business Acquisitions**

The Company accounts for acquired businesses using the acquisition method of accounting which requires that the assets acquired and liabilities assumed be recorded at the date of acquisition at their respective fair values. The judgments made in determining the estimated fair value assigned to each class of assets acquired and liabilities assumed, as well as asset lives, can materially impact net income. Accordingly, for significant items, the Company typically obtains assistance from a third-party valuation firm.

There are several methods that can be used to determine the fair value of assets acquired and liabilities assumed in a business combination. For intangible assets, the Company normally utilizes the "income method." This method starts with a forecast of all of the expected future net cash flows attributable to the subject intangible asset. These cash flows are then adjusted to present value by applying an appropriate discount rate that reflects the risk factors associated with the cash flow streams. Depending on the asset valued, the key assumptions included one or more of the following: (1) future revenue growth rates, (2) future gross margin, (3) future selling general and administrative expense, (4) royalty rates, and (5) discount rates.

Estimating the useful life of an intangible asset also requires judgment. For example, different types of intangible assets will have different useful lives, influenced by the nature of the asset, competitive environment, and rate of change in the industry. Certain assets may even be considered to have indefinite useful lives. All of these judgments and estimates can significantly impact the determination of the amortization period of the intangible asset, and thus net income.

**Results of Operations**

**Year ended December 31, 2019 compared to year ended December 31, 2018**

The following table sets forth the results of operations and the relationship between various components of operations, stated as a percent of net sales, for the years ended December 31, 2019 and 2018.

| | 2019 | | 2018 | |
|---|---|---|---|---|
| *(Dollars in thousands)* | | % of net sales | | % of net sales |
| Net sales | $ 1,591,066 | 100.0 % | $ 1,550,497 | 100.0 % |
| Cost of sales | 879,413 | 55.3 | 830,666 | 53.6 |
| Gross profit | 711,653 | 44.7 | 719,831 | 46.4 |
| Selling, general and administrative expenses | 284,807 | 17.9 | 246,534 | 15.9 |
| Engineering, research and development expenses | 121,140 | 7.6 | 118,456 | 7.6 |
| Amortization of intangible assets | 66,428 | 4.2 | 62,152 | 4.0 |
| Operating income | 239,278 | 15.0 | 292,689 | 18.9 |
| Interest expense | 46,962 | 3.0 | 34,094 | 2.2 |
| Interest income | (4,652) | (0.3) | (3,839) | (0.2) |
| Other (income) expense, net | (121,081) | (7.6) | 8,002 | 0.5 |
| Income before income taxes | 318,049 | 20.0 | 254,432 | 16.4 |
| Income tax expense | 63,189 | 4.0 | 13,677 | 0.9 |
| Net income | $ 254,860 | 16.0 | $ 240,755 | 15.5 |

**Net sales** For the year ended December 31, 2019, net sales were $1,591.1 million, up $40.6 million, or 3%, from sales for the year ended December 31, 2018. An analysis of the factors underlying the increase in net sales is presented in the following table:

| *(In thousands)* | |
|---|---|
| Net sales in 2018 | $ 1,550,497 |
| Increase, net associated with acquired businesses and divestiture | 95,003 |
| Decrease associated with volume and pricing | (42,574) |
| Decrease associated with divestiture | (7,377) |
| Decrease associated with effect of foreign currency translation | (4,483) |
| Net sales in 2019 | $ 1,591,066 |

The Company's sales increase was primarily due to sales associated with the Company's recent acquisitions of $95.0 million, offset primarily by the absence of sales associated with a divestiture of an entity in 2018 and net unfavorable foreign currency translation effects of $4.5 million, mainly due to the weakening of the Korean won, Euro and Taiwanese dollar relative to the

U.S. dollar. Exclusive of these factors, sales decreased $42.6 million, or 3% to $1,508 million for the year, mainly from a decreased customer demand from the semiconductor market compared to the year ago.

Sales percentage on a geographic basis for the years ended December 31, 2019 and 2018 and the percentage increase (decrease) in sales for the year ended December 31, 2019 compared to the sales for the year ended December 31, 2018 were as follows:

| | Year ended | | |
|---|---|---|---|
| | December 31, 2019 | December 31, 2018 | Percentage increase (decrease) in sales |
| Taiwan | 19% | 19% | 7 % |
| North America | 24% | 22% | 10 % |
| South Korea | 15% | 16% | 1 % |
| Japan | 13% | 14% | (2)% |
| China | 13% | 13% | 5 % |
| Europe | 8% | 9% | (4)% |
| Southeast Asia | 7% | 8% | (12)% |

The increase in sales for North America and China was primarily driven by sales from acquisitions. The increase in sales from Taiwan was primarily driven from strong recovery from a major customer in 2019 compared to 2018. The decrease in sales from Europe relates to the absence of sales from the divestiture of a business in the fourth quarter of 2018. The decrease in sales from Southeast Asia relates to lower sales of specialty materials products.

Demand drivers for the Company's business primarily consist of semiconductor fab utilization and production (unit-driven) as well as capital spending for new or upgraded semiconductor fabrication equipment and facilities (capital-driven). The Company analyzes sales of its products by these two key drivers. Sales of unit-driven products represented 70% of total sales and sales of capital-driven products represented 30% of total sales in both 2019 and 2018.

**Gross profit** Gross profit for 2019 decreased by $8.2 million, to $711.7 million, a decrease of 1% from $719.8 million for 2018. The gross margin rate for 2019 was 44.7% versus 46.4% for 2018. The gross profit and gross margin decrease reflects lower factory utilization associated with weaker sales levels and an unfavorable sales mix. The gross profit and gross margin figures include an incremental cost of sales charge of $7.5 million and $6.9 million, respectively, associated with the sale of inventory acquired in recent business acquisitions for the years ended December 31, 2019 and 2018 and $1.3 million and $0.5 million of restructuring charges for the year ended December 31, 2019 and 2018, respectively. Excluding those charges, the Company's gross profit and gross margin for the year ended December 31, 2019 and 2018 were $720.5 million and $727.2 million, respectively, and 45.3% and 46.9%, respectively.

**Selling, general and administrative expenses**

Selling, general and administrative expense (SG&A) consists primarily of payroll and related expenses for the sales and administrative staff, professional fees (including accounting, legal and technology costs and expenses), and sales and marketing costs. SG&A expenses for 2019 increased $38.3 million, or 16%, to $284.8 million from $246.5 million in 2018. SG&A expenses, as a percent of net sales, increased to 17.9% from 15.9% a year earlier, reflecting primarily from the increase in deal and integration costs.

An analysis of the factors underlying the increase in SG&A is presented in the following table:

| *(In thousands)* | | |
|---|---|---|
| Selling, general and administrative expenses in 2018 | $ | 246,534 |
| Deal costs | | 21,043 |
| Severance and restructuring costs | | 9,193 |
| Integration costs | | 6,695 |
| Professional fees | | 2,715 |
| Travel costs | | (2,192) |
| Other increases, net | | 819 |
| Selling, general and administrative expenses in 2019 | $ | 284,807 |

**Engineering, research and development expenses**

Engineering, research and development (ER&D) expenses consist of expenses for the support of current product lines and the development of new products and manufacturing technologies. These expenses were $121.1 million and $118.5 million in 2019 and 2018, respectively. ER&D expenses as a percent of net sales were 7.6% in both 2019 and 2018.

An analysis of the factors underlying the increase ER&D is presented in the following table:

| *(In thousands)* | | |
|---|---|---|
| Engineering, research and development expense in 2018 | $ | 118,456 |
| Employee costs | | 3,769 |
| Severance and restructuring costs | | 1,965 |
| Project related costs | | (5,698) |
| Other increases, net | | 2,648 |
| Engineering, research and development expense in 2019 | $ | 121,140 |

The Company's overall ER&D efforts will continue to focus on the support or extension of current product lines, the development of its technologies to create differentiated and high-value products for the most advanced and demanding semiconductor applications and leveraging its unique and diverse technology portfolio to develop innovative, integrated solutions for unmet customer needs. The Company expects ER&D costs to stay relatively stable as a percentage of net sales.

**Amortization of intangible assets** Amortization of intangible assets was $66.4 million in 2019 compared to $62.2 million for 2018. The increase reflects the additional amortization expense of $6.6 million associated with the Company's recent 2019 and 2018 acquisitions as discussed in note 3 to the consolidated financial statements, offset primarily by the elimination of amortization expense of $2.0 million for identifiable developed technology and customer relationship assets acquired in the Poco acquisition.

**Interest expense** Interest expense was $47.0 million and $34.1 million in the years ended December 31, 2019 and 2018, respectively. Interest expense includes interest associated with debt outstanding and the amortization of debt issuance costs associated with such borrowings. The increase primarily reflects higher average debt levels in 2019 and a $1.6 million charge related the adjustment of the fair value of the fixed deferred payment owed to the sellers of its DSC acquisition. The Company entered into a settlement agreement to accelerate a fixed deferred payment of $16.1 million to no later than March 8, 2020. The Company adjusted the fair value of the fixed deferred payment from its fair value to the stated value resulting in the additional aforementioned charge.

**Interest income** Interest income was $4.7 million and $3.8 million in the years ended December 31, 2019 and 2018, respectively. The increase reflects higher average U.S. cash levels earning a higher rate of interest.

**Other (income) expense, net** Other income, net, was $121.1 million in 2019 compared to other expense, net, of $8.0 million in 2018.

In 2019, other income, net consisted mainly of net proceeds received of $122.0 million resulting from the termination of the merger agreement with Versum (see note 9 to the Company's consolidated financial statements).

In 2018, other expense, net, included foreign currency transaction losses of $4.4 million, a loss of extinguishment of debt of $2.3 million associated with the redemption of the Company's senior secured term loan facility due 2021 and asset-based revolving credit facility (see note 8 to the Company's consolidated financial statements) and penalty charges of $1.1 million.

**Income tax expense** The Company recorded income tax expense of $63.2 million in 2019 compared to income tax expense of $13.7 million in 2018. The Company's effective tax expense rate was 19.9% in 2019, compared to an effective tax rate of 5.4% in 2018.

The increase in the effective tax rate in 2019 from 2018 reflects several factors. The increase in the effective tax rate is primarily due to a $25.1 million benefit related to foreign tax credit generation and a $9.4 million benefit related to a dividends received deduction based on restructuring to simplify the legal entity structure in 2018 which did not recur in 2019. Additionally, the tax rate in 2019 includes a discrete tax charge of $9.4 million related to the reversal of the dividend received deduction benefit recorded in 2018. This discrete charge was recorded based on the issuance of final regulations during the second quarter of 2019. The discrete charge was partially offset by a benefit of $5.3 million recorded in the third quarter of 2019 based on the filing of the federal tax return. Additionally, in the second quarter 2019, the Company received a termination fee from Versum Materials, Inc. based on the termination of the Versum Merger Agreement. As a result of the termination fee, the Company released a valuation allowance on federal capital loss carryforwards and recorded a discrete benefit of $2.9 million.

**Net income** Net income was $254.9 million, or $1.87 per diluted share, in 2019 compared to net income of $240.8 million, or $1.69 per diluted share, in 2018. The increase reflects the Company's aforementioned operating results described in greater detail above.

**Non-GAAP Financial Measures Information** The Company's consolidated financial statements are prepared in conformity with accounting principles generally accepted in the United States (GAAP). The Company also utilizes certain non-GAAP financial measures as a complement to financial measures provided in accordance with GAAP in order to better assess and

reflect trends affecting the Company's business and results of operations. See "Non-GAAP Information" included below in this section for additional detail, including the reconciliation of the Company's non-GAAP measures to the most directly comparable GAAP measures.

The Company's non-GAAP financial measures are Adjusted EBITDA and Adjusted Operating Income, together with related percentage changes, and non-GAAP Earnings Per Share (EPS).

Adjusted EBITDA was flat at $436.8 million in 2019, compared to $436.1 million in 2018. Adjusted EBITDA, as a percent of net sales, was 27.5% in 2019 compared to 28.1% in 2018. Adjusted Operating Income decreased 2% to $361.8 million in 2019, compared to $371.0 million in 2018. Adjusted Operating Income, as a percent of net sales, was 22.7% in 2019 compared to 23.9% in 2018. Non-GAAP Earnings Per Share increased 2% to $1.93 in 2019, compared to $1.89 in 2018. The decline in the Adjusted EBITDA and Adjusted Operating Income as a percentage of net sales reflects the decrease in gross profit. In addition, Non-GAAP Earnings Per Share was positively affected by lower diluted weighted average shares outstanding from the stock repurchases during 2019.

**Segment Analysis**

The Company reports its financial performance based on three reporting segments. In the first quarter of 2019, the Company changed its definition of segment profit to include inter-segment sales. Prior quarter information has been recast to reflect the change in the Company's definition of segment profit. See note 16 to the consolidated financial statements for additional information on the Company's three segments.

The following table and discussion concern the results of operations of the Company's three reportable segments for the years ended December 31, 2019 and 2018.

| *(In thousands)* | 2019 | 2018 |
|---|---|---|
| Specialty Chemicals and Engineered Materials | | |
| Net sales | $ 526,519 | $ 530,241 |
| Segment profit | 98,327 | 127,080 |
| Microcontamination Control | | |
| Net sales | $ 633,664 | $ 553,838 |
| Segment profit | 194,398 | 166,852 |
| Advanced Materials Handling | | |
| Net sales | $ 458,290 | $ 493,404 |
| Segment profit | 75,173 | 92,327 |

**Specialty Chemicals and Engineered Materials (SCEM)**

For the year ended December 31, 2019, SCEM net sales decreased to $526.5 million, down 1%, from $530.2 million in the comparable period last year. The sales decrease was mainly due to decreased sales of specialty materials, specialty gases and surface prep and integration products, partially offset by $10.9 million of sales from the acquisition of DSC in the first quarter of 2019, $16.7 million sales from the acquisition of MPD in the third quarter of 2019 and improved sales from advanced deposition products.

SCEM reported a segment profit of $98.3 million for the year ended December 31, 2019, down 23%, compared to a $127.1 million segment profit in the year-ago period. The decrease in the SCEM's profit in 2019 was primarily due to decreased sales, an incremental cost of sales charge of $6.9 million associated with the sale of inventory acquired in recent business acquisitions, unfavorable product mix and higher operating expenses of 3% mainly due to higher employee costs and R&D spending.

**Microcontamination Control (MC)**

For the year ended December 31, 2019, MC net sales increased to $633.7 million, up 14%, from $553.8 million in the comparable period last year. The sales increase was due to the acquisition of SPG in the second quarter of 2018, which contributed an additional $61.3 million of sales, $5.1 million of sales from the acquisition of Anow in the third quarter of 2019, and improved sales from liquid chemistry filters for wet, etch and clean applications and photolithography products, partially offset by weakened sales from gas microcontamination products.

MC reported a segment profit of $194.4 million for the year ended December 31, 2019, up 17%, compared to a $166.9 million segment profit in the year-ago period. The increase in MC's profit in 2019 reflects increased sales, partially offset by higher operating expenses of 8%, primarily due to higher employee costs, increased R&D spending and SPG operating infrastructure.

**Advanced Materials Handling (AMH)**

For the year ended December 31, 2019, AMH net sales decreased 7% to $458.3 million, from $493.4 million in 2018. This decrease was mainly due to decreased sales of fluid handling products, liquid packaging and dispense products, wafer and reticle handling products and wafer shipping products.

AMH reported a segment profit of $75.2 million for the year ended December 31, 2019, down 19% compared to a $92.3 million segment profit in the year-ago period. The decrease in the AMH's profit in 2019 was primarily due to lower sales.

**Unallocated general and administrative expenses**

Unallocated general and administrative expenses for the year ended December 31, 2019 totaled $62.2 million compared to $31.4 million for the year ended December 31, 2018. The $30.8 million increase mainly reflects the deal and integration costs of $27.7 million in the discussion of SG&A above.

**Results of Operations**

**Year ended December 31, 2018 compared to year ended December 31, 2017**

The following table sets forth the results of operations and the relationship between various components of operations, stated as a percent of net sales, for the years ended December 31, 2018 and 2017. The Company's historical financial data was derived from its consolidated financial statements and related notes included elsewhere in this annual report.

| | 2018 | | 2017 | |
|---|---|---|---|---|
| *(Dollars in thousands)* | | % of net sales | | % of net sales |
| Net sales | $ 1,550,497 | 100.0 % | $ 1,342,532 | 100.0 % |
| Cost of sales | 830,666 | 53.6 | 733,547 | 54.6 |
| Gross profit | 719,831 | 46.4 | 608,985 | 45.4 |
| Selling, general and administrative expenses | 246,534 | 15.9 | 216,194 | 16.1 |
| Engineering, research and development expenses | 118,456 | 7.6 | 106,951 | 8.0 |
| Amortization of intangible assets | 62,152 | 4.0 | 44,023 | 3.3 |
| Operating income | 292,689 | 18.9 | 241,817 | 18.0 |
| Interest expense | 34,094 | 2.2 | 32,343 | 2.4 |
| Interest income | (3,839) | (0.2) | (715) | (0.1) |
| Other expense, net | 8,002 | 0.5 | 25,458 | 1.9 |
| Income before income taxes | 254,432 | 16.4 | 184,731 | 13.8 |
| Income tax expense | 13,677 | 0.9 | 99,665 | 7.4 |
| Net income | $ 240,755 | 15.5 | $ 85,066 | 6.3 |

**Net sales** For the year ended December 31, 2018, net sales were $1,550.5 million, up $208.0 million, or 15%, from sales for the year ended December 31, 2017. An analysis of the factors underlying the increase in net sales is presented in the following table:

| *(In thousands)* | |
|---|---|
| Net sales in 2017 | $ 1,342,532 |
| Organic growth associated with volume and pricing | 119,820 |
| Increase associated with acquired businesses | 79,980 |
| Increase associated with effect of foreign currency translation | 8,165 |
| Net sales in 2018 | $ 1,550,497 |

The Company's sales increase was due to strong across-the-board demand for the Company's products from semiconductor industry customers, reflecting both higher industry fab utilization and semiconductor industry capital spending compared to the year-ago period. This sales increase reflected improved sales of fluid handling products, liquid chemistry filtration solutions and certain specialty materials products. Exclusive of the sales of the acquired businesses of $80.0 million of revenue for 2018 and the favorable currency translation effects of $8.2 million for the year, mainly due to the strengthening of the Japanese yen, Korean won and Euro relative to the U.S. dollar, the Company's sales grew 9% in 2018 when compared to 2017.

On a geographic basis, in 2018, total sales to Taiwan were 19%, to North America were 22%, to South Korea were 16%, to Japan were 14%, to China were 13%, to Europe were 9% and to Southeast Asia were 7%. In 2017, total sales to Taiwan were 22%, to North America were 21%, to South Korea were 16%, to Japan were 13%, to China were 11%, to Europe were 9%, and to Southeast Asia were 8%. From 2017 to 2018, net sales to customers in South Korea, China, Europe, North America, Japan and Southeast Asia increased 12%, 37%, 15%, 21%, 24%, and 7%, respectively, while net sales to customers in Taiwan were flat.

Demand drivers for the Company's business primarily consist of semiconductor fab utilization and production (unit-driven) as well as capital spending for new or upgraded semiconductor fabrication equipment and facilities (capital-driven). The Company

analyzes sales of its products by these two key drivers. Sales of unit-driven products represented 70% of total sales and sales of capital-driven products represented 30% of total sales in 2018. This compares to a unit-driven to capital-driven ratio of 74%:26% for 2017 as a result of the acquisition of the Pure Gas business in 2018.

**Gross profit** Gross profit for 2018 increased by $110.8 million, to $719.8 million, an increase of 18% from $609.0 million for 2017. The gross margin rate for 2018 was 46.4% versus 45.4% for 2017. The gross profit and gross margin improvements reflect the improved factory utilization associated with strong sales levels and a slightly favorable sales mix. These factors were partly offset by an incremental cost of sales charge of $6.9 million associated with the sale of inventory acquired in the SAES Pure Gas business acquisition and price erosion for certain products in response to normal competitive pressures. In addition, the gross profit and gross margin figures include impairment charges of $0.4 million and $6.1 million for the year ended December 31, 2018 and 2017, respectively, related to equipment-related and severance related to organization realignment charges.

**Selling, general and administrative expenses**

Selling, general and administrative expense (SG&A) consists primarily of payroll and related expenses for the sales and administrative staff, professional fees (including accounting, legal and technology costs and expenses), and sales and marketing costs. SG&A expenses for 2018 increased $30.3 million, or 14%, to $246.5 million from $216.2 million in 2017. SG&A expenses, as a percent of net sales, decreased to 15.9% from 16.1% a year earlier, reflecting the increase in net sales.

An analysis of the factors underlying the increase in SG&A is presented in the following table:

| *(In thousands)* | | |
|---|---|---|
| Selling, general and administrative expenses in 2017 | $ | 216,194 |
| Deal costs | | 5,121 |
| Integration costs | | 3,237 |
| Employee costs | | 15,181 |
| Professional fees | | 2,842 |
| Travel costs | | 2,164 |
| Impairment charge related to acquired intangible assets recorded in prior year | | (3,866) |
| Other increases, net | | 5,661 |
| Selling, general and administrative expenses in 2018 | $ | 246,534 |

**Engineering, research and development expenses**

Engineering, research and development (ER&D) expenses related to the support of current product lines and the development of new products and manufacturing technologies was $118.5 million and $107.0 million in 2018 and 2017, respectively. ER&D expenses as a percent of net sales were 7.6% compared to 8.0% a year ago, reflecting the increase in net sales, offset by the increase in ER&D expenditures levels, primarily due to higher employee costs of $7.8 million and project costs of $3.5 million.

The Company’s overall ER&D efforts will continue to focus on the support or extension of current product lines, the development of its technologies to create differentiated and high-value products for the most advanced and demanding semiconductor applications and leveraging its unique and diverse technology portfolio to develop innovative, integrated solutions for unmet customer needs. The Company expects ER&D costs to stay relatively stable as a percentage of net sales.

**Amortization of intangible assets** Amortization of intangible assets was $62.2 million in 2018 compared to $44.0 million for 2017. The increase reflects the the additional amortization expense associated with the PSS acquisition completed in the first quarter of 2018 and the SPG acquisition completed in the second quarter of 2018.

**Interest expense** Interest expense was $34.1 million and $32.3 million in the years ended December 31, 2018 and 2017, respectively. Interest expense includes interest associated with debt outstanding and the amortization of debt issuance costs associated with such borrowings. The increase in 2018 reflects higher average debt levels.

**Interest income** Interest income was $3.8 million and $0.7 million in the years ended December 31, 2018 and 2017, respectively. The increase reflects higher average U.S. cash levels earning a higher rate of interest.

**Other expense, net** Other expense, net, was $8.0 million in 2018 compared to other expense, net, of $25.5 million in 2017.

In 2018, other expense, net, included a loss of extinguishment of debt of $2.3 million associated with the redemption of the Company’s senior secured term loan facility due 2021 and asset-based revolving credit facility (see note 8 to the Company’s consolidated financial statements), foreign currency transaction losses of $4.4 million and penalty charges of $1.1 million.

In 2017, other expense, net, included an impairment charge of $2.8 million, a loss of extinguishment of debt of $20.7 million associated with the redemption of the Company’s 2022 Notes (see note 8 to the Company’s consolidated financial statements), and foreign currency transaction losses of $2.3 million.

**Income tax expense** The Company recorded income tax expense of $13.7 million in 2018 compared to income tax expense of $99.7 million in 2017. The Company's effective tax expense rate was 5.4% in 2018, compared to an effective tax rate of 54.0% in 2017.

The decrease in the effective tax rate in 2018 from 2017 reflects several factors. The decrease in the effective rate is primarily due to the reduction in the U.S. corporate tax rate from 35% in 2017 to 21% in 2018. Additionally, in 2018, the Company recorded a $25.1 million benefit related to foreign tax credit generation and a $9.4 million benefit related to a dividend received deduction based on a restructuring to simplify its legal entity structure. In 2017, the effective tax rate increased due to the recognition of the one-time mandatory repatriation transition tax of $73.0 million on the net accumulated earnings and profits of the Company's foreign subsidiaries and $4.0 million of incremental tax related to no longer asserting that a significant portion of the Company's undistributed earnings are considered indefinitely invested overseas. The increase was partially offset by the remeasurement of the U.S. deferred taxes of $10.3 million to reflect the lower U.S. federal tax rate.

The $9.4 million tax benefit for the dividends received deduction was based on the Company's assessment of the treatment under the provisions of the Tax Cuts and Jobs Act. Congress or the Department of Treasury may provide legislative or regulatory updates which would change the Company's assessment. If legislative or regulatory updates are issued related to this item, the timing of which is uncertain, the Company may be required to recognize additional tax expense up to the full amount of the $9.4 million in the period such updates are issued.

**Net income** Net income was $240.8 million, or $1.69 per diluted share, in 2018 compared to net income of $85.1 million, or $0.59 per diluted share, in 2017. The decrease reflects the Company's aforementioned operating results described in greater detail above.

**Non-GAAP Measures Information** The Company's consolidated financial statements are prepared in conformity with accounting principles generally accepted in the United States (GAAP). The Company also utilizes certain non-GAAP financial measures as a complement to financial measures provided in accordance with GAAP in order to better assess and reflect trends affecting the Company's business and results of operations. See "Non-GAAP Information" included below in this section for additional detail, including the reconciliation of GAAP measures to the Company's non-GAAP measures.

The Company's non-GAAP financial measures are Adjusted EBITDA and Adjusted Operating Income, together with related measures thereof, and non-GAAP Earnings Per Share (EPS).

Adjusted EBITDA increased 22% to $436.1 million in 2018, compared to $357.1 million in 2017. Adjusted EBITDA, as a percent of net sales, was 28.1% in 2018 compared to 26.6% in 2017. Adjusted Operating Income increased 24% to $371.0 million in 2018, compared to $298.9 million in 2017. Adjusted Operating Income, as a percent of net sales, was 23.9% in 2018 compared to 22.3% in 2017. Non-GAAP Earnings Per Share increased 31% to $1.89 in 2018, compared to $1.44 in 2017. The improvement in the Adjusted EBITDA and Adjusted Operating Income reflects the increase in net sales and related increase in gross profit. In addition, Non-GAAP Earnings Per Share was positively affected by a lower adjusted effective tax rate.

**Segment Analysis**

The Company reports its financial performance based on three reporting segments. In the first quarter of 2019, the Company changed its definition of segment profit to include inter-segment sales. Prior quarter information has been recast to reflect the change in the Company's definition of segment profit. See note 16 to the consolidated financial statements for additional information on the Company's three segments.

The following table and discussion concern the results of operations of the Company's three reportable segments for the years ended December 31, 2018 and 2017.

| *(In thousands)* | 2018 | 2017 |
|---|---|---|
| Specialty Chemicals and Engineered Materials | | |
| Net sales | $ 530,241 | $ 485,470 |
| Segment profit | 127,080 | 109,571 |
| Microcontamination Control | | |
| Net sales | $ 553,838 | $ 436,812 |
| Segment profit | 166,852 | 134,439 |
| Advanced Materials Handling | | |
| Net sales | $ 493,404 | $ 444,743 |
| Segment profit | 92,327 | 69,043 |

**Specialty Chemicals and Engineered Materials (SCEM)**

For the year ended December 31, 2018, SCEM net sales increased to $530.2 million, up 9%, from $485.5 million in the comparable period last year. The sales increase primarily reflects strong product sales for specialty gases and specialty materials.

SCEM reported a segment profit of $127.0 million for the year ended December 31, 2018, up 16%, compared to a $109.6 million segment profit in the year-ago period. The increase in the SCEM's profit in 2018 was primarily due to increased sales, partially offset by higher operating expenses of 8% mainly due to higher employee costs and R&D spending.

**Microcontamination Control (MC)**

For the year ended December 31, 2018, MC net sales increased to $553.8 million, up 27%, from $436.8 million in the comparable period last year. The sales increase primarily reflects strength in photolithography applications, liquid chemistry filters for wet, etch and clean driven by strong industry tool shipments, and the acquisition of SPG in the second quarter of 2018, which contributed $62.4 million of sales.

MC reported a segment profit of $166.9 million for the year ended December 31, 2018, up 24%, compared to a $134.4 million segment profit in the year-ago period. The increase in MC's profit in 2018 reflects increased sales, partially offset by higher operating expenses of 21%, primarily due to higher employee costs, increased R&D spending and SPG operating infrastructure.

**Advanced Materials Handling (AMH)**

For the year ended December 31, 2018, AMH net sales increased 11% to $493.4 million, from $444.7 million in 2017. The increase primarily reflects strong sales of fluid handling products and liquid packaging and dispense products, and the acquisition of PSS in the first quarter of 2018, which contributed $16.0 million of sales.

AMH reported a segment profit of $92.3 million for the year ended December 31, 2018, up 34% compared to a $69.0 million segment profit in the year-ago period. The increase in the AMH's profit in 2018 was due to higher sales, partially offset by a 9% increase in operating expenses primarily related to higher employee costs and the absence of $7.1 million of impairment and severance related to organizational realignment from 2017.

**Unallocated general and administrative expenses**

Unallocated general and administrative expenses for the year ended December 31, 2018 totaled $31.4 million compared to $27.2 million for the year ended December 31, 2017. The $4.2 million increase mainly reflects the deal and integration costs of $8.4 million in the discussion of SG&A above, partially offset by the absence of $3.9 million of impairment charges related to certain acquired intangible assets recorded in 2017.

**Quarterly Results of Operations**

The following table presents selected data from the Company's consolidated statements of operations for the eight quarters ended December 31, 2019. This unaudited information has been prepared on the same basis as the audited consolidated financial statements appearing elsewhere in this annual report. All adjustments that management considers necessary for the fair presentation of the unaudited information have been included in the quarters presented.

**QUARTERLY STATEMENTS OF OPERATIONS DATA**

| | 2018 | | | | 2019 | | | |
|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| *(In thousands)* | | | | | | | | |
| Net sales | $ 367,199 | $ 383,059 | $ 398,597 | $ 401,642 | $ 391,047 | $ 378,874 | $ 394,147 | $ 426,998 |
| Gross profit | 175,997 | 182,378 | 181,716 | 179,740 | 177,393 | 166,274 | 170,350 | 197,636 |
| Selling, general and administrative expenses | 58,269 | 65,200 | 62,358 | 60,707 | 82,254 | 64,150 | 71,232 | 67,171 |
| Engineering, research and development expenses | 27,586 | 30,231 | 29,964 | 30,675 | 28,991 | 30,624 | 31,173 | 30,352 |
| Amortization of intangible assets | 11,669 | 12,014 | 21,419 | 17,050 | 18,657 | 16,591 | 15,152 | 16,028 |
| Operating income | 78,473 | 74,933 | 67,975 | 71,308 | 47,491 | 54,909 | 52,793 | 84,085 |
| Net income | 57,562 | 54,349 | 48,060 | 80,784 | 32,658 | 123,997 | 40,767 | 57,438 |

| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|---|---|---|---|
| *(Percent of net sales)* | | | | | | | | |
| Net sales | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Gross profit | 47.9 | 47.6 | 45.6 | 44.8 | 45.4 | 43.9 | 43.2 | 46.3 |
| Selling, general and administrative expenses | 15.9 | 17.0 | 15.6 | 15.1 | 21.0 | 16.9 | 18.1 | 15.7 |
| Engineering, research and development expenses | 7.5 | 7.9 | 7.5 | 7.6 | 7.4 | 8.1 | 7.9 | 7.1 |
| Amortization of intangibles | 3.2 | 3.1 | 5.4 | 4.2 | 4.8 | 4.4 | 3.8 | 3.8 |
| Operating income | 21.4 | 19.6 | 17.1 | 17.8 | 12.1 | 14.5 | 13.4 | 19.7 |
| Net income | 15.7 | 14.2 | 12.1 | 20.1 | 8.4 | 32.7 | 10.3 | 13.5 |

The Company's quarterly results of operations have been, and will likely continue to be, subject to significant fluctuations due to a myriad of factors, many of which are beyond the Company's control. The variability in sales, and its corresponding effect on gross profit, are generally the most important factors underlying the changes in the Company's operating income and net income over the past eight quarters.

**Liquidity and Capital Resources**

We consider the following when assessing our liquidity and capital resources:

| *In thousands* | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Cash and cash equivalents | $ 351,911 | $ 482,062 |
| Working capital | 667,964 | 759,670 |
| Total debt | 936,484 | 938,863 |

The Company has historically financed its operations and capital requirements through cash flow from its operating activities, long-term loans, lease financing and borrowings under domestic and international short-term lines of credit.

**In summary, our cash flows for each period were as follows:**

| Years ended *(in thousands)* | December 31, 2019 | December 31, 2018 | December 31, 2017 |
|---|---|---|---|
| Net cash provided by operating activities | $ 382,298 | $ 312,576 | $ 293,373 |
| Net cash used in investing activities | (385,840) | (485,944) | (112,455) |
| Net (used in) provided by cash financing activities | (126,820) | 34,411 | 27,251 |
| (Decrease) increase in cash and cash equivalents | $ (130,151) | $ (143,346) | $ 219,019 |

**Operating activities**

Cash provided by operating activities is net income adjusted for certain non-cash items and changes in assets and liabilities.

For 2019 compared to 2018, the $69.7 million increase in cash provided by operating activities was primarily due to higher net income, depreciation and changes in working capital. Depreciation expense increased due to higher levels of capital spending in recent years. Changes in working capital for 2019 were driven by income taxes and inventories, offset by accounts payable and other accrued liabilities. The change for taxes was primarily the result in 2018 tax credits that were utilized against a one time toll charge accrual recorded in 2017. The change for inventory is due to lower production activity in 2019 compared to 2018. The decrease in accounts payable and accrued liabilities is due to lower accrued bonuses in 2019 and lower payables due to timing of payments.

For 2018 compared to 2017, the $19.2 million increase in cash provided by operating activities was primarily due to higher net income, offset by changes in working capital. Changes in working capital were driven by inventory and taxes. The increases in inventory were primarily the result of increased sales and production activity. The change for taxes was primarily related to a one time toll charge accrual recorded in 2017 as result of the tax reform and the utilization of tax credits against this accrual in 2018.

**Investing activities**

Investing cash flows consist primarily of capital expenditures, cash used for acquisitions and proceeds from sales of property and equipment.

The decrease in cash used in investing activities in 2019 compared to 2018 was primarily due to lower cash paid on acquisitions. This was partially offset by increased capital expenditures and lower proceeds from sales of property and equipment.

The increase in cash used in investing activities in 2018 compared to 2017 was primarily due to higher cash paid on acquisitions and increased capital expenditures.

Acquisition of property and equipment totaled $112.4 million, which primarily reflected investments in equipment and tooling. Capital expenditures in 2019 generally reflected more normalized capital spending levels. The Company expects its capital expenditures in 2020 to be approximately $120 million.

On March 8, 2019, the Company acquired DSC, which provides advanced materials to the specialty chemical, technology and pharmaceutical industries. The total purchase price of the acquisition was $64.1 million, net of cash acquired. The transaction is described in further detail in note 3 to the Company’s consolidated financial statements.

On July 15, 2019, the Company acquired MPD Chemicals, a provider of advanced materials to the specialty chemical, technology, and life sciences industries. The Company acquired MPD Chemicals for approximately $161.0 million, subject to revision for customary working capital adjustments. The transaction is described in further detail in note 3 to the Company’s consolidated financial statements.

On September 17, 2019, the Company acquired Anow, a filtration company for diverse industries including semiconductor, pharmaceutical, and medical. The Company acquired Anow for $72.8 million, net of cash acquired. The transaction is described in further detail in note 3 to the Company’s consolidated financial statements.

**Financing activities**

Financing cash flows consist primarily of repurchases of common stock, payment of dividends to stockholders, issuance and repayment of short-term and long-term debt, and proceeds from the sale of shares of common stock through employee equity incentive plans.

In 2019, there was $126.8 million of cash used in financing activities compared to $34.4 million cash provided by financing activities in 2018. The change was primarily due to net long-term debt activity, which was a use of cash of $4.0 million in 2019 compared to a source of cash of $266.2 million in 2018, primarily offset by decreased repurchases of common stock. During 2019, we repurchased $80.3 million of common stock under our authorized common stock repurchase program, compared to $173.8 million in 2018. Our total dividend payments were $40.6 million in 2019 compared to $39.6 million in 2018. We have paid a cash dividend in each of the past 9 quarters. In Q1 2020, the Board declared a quarterly cash dividend of $0.08 per share of common stock, payable on February 19, 2020 to stockholders of record on January 29, 2020.

The increase in cash provided by financing activities in 2018 compared to 2017 was primarily due to net long-term debt activity, which was a source of cash of $266.2 million compared to a source of cash of $90.0 million in 2017 and the absence of $16.2 million of debt extinguishment costs of in 2017 related to the redemption of the Company’s senior secured term loan facility due 2021, primarily, offset by increased repurchases of common stock. During 2018, we repurchased $173.8 million of common stock under our authorized common stock repurchase program, compared to $28.0 million in 2017. Also, offsetting the increase were dividend payments of $39.6 million in 2018 compared to $9.9 million in 2017. The Board declared its first quarterly dividend in the fourth quarter of 2017.

**Other Liquidity and Capital Resources Considerations**

In October 2019, the Company amended its credit and guaranty agreement (the "Credit Agreement") dated as of November 6, 2018. The amendment changed the agency bank from Goldman Sachs Bank USA, as administrative agent and collateral agent, a to Morgan Stanley, and adds two additional lenders to the Company's Credit Agreement. There was no change to the total commitment or the term length for either the Term Loan Facility or the Revolving Facility as defined in note 8 to the Company's consolidated financial statement under Senior Secured Credit Facilities. However, the amendment changed the amount committed for each of the previous lenders.

The Company's Term Loan Facility has a principal amount of $396 million outstanding that matures on November 6, 2025 and bears an interest rate of 3.80% at December 31, 2019.

The Company's Revolving Facility has a senior secured revolving commitment facility in an aggregate amount of $300 million maturing November 6, 2023. The Revolving Facility bears interest at a rate per annum equal to, at the Company's option, a base rate (such as prime rate or LIBOR) plus, an applicable margin. At December 31, 2019, the only outstanding amounts under the Revolving Facility were undrawn outstanding letters of credit of $0.2 million.

We have $550 million aggregate principal amount of 4.625% senior unsecured notes due February 10, 2026 outstanding.

Through December 31, 2019, the Company was in compliance with all applicable financial covenants included in the terms of its credit facilities.

The Company also has lines of credit with two banks that provide for borrowings of Japanese yen for the Company's Japanese subsidiary equivalent to an aggregate of approximately $11.0 million. There were no outstanding borrowings under these lines of credit at December 31, 2019.

As of December 31, 2019, the Company's sources of available funds were its cash and cash equivalents of $351.9 million, funds available under the Revolving Facility and international credit facilities and cash flow generated from operations. As of December 31, 2019, the amount of cash and cash equivalents held in certain of our foreign operations totaled approximately $180.4 million. As of December 31, 2019, we had not repatriated any of these funds to the U.S. However, to the extent we repatriate these funds to the U.S., we will be required to pay income taxes in certain U.S. states and applicable foreign withholding taxes on those amounts during the period when such repatriation occurs. We have accrued taxes for the tax effect of repatriating the funds to the U.S.

The Company believes its existing balances of domestic cash and cash equivalents and operating cash flows will be sufficient to meet the Company's domestic cash needs arising in the ordinary course of business for the next twelve months. If available liquidity is not sufficient to meet the Company's operating and debt service obligations as they come due, management would need to pursue alternative arrangements through additional equity or debt financing in order to meet the Company's cash requirements. There can be no assurance that any such financing would be available on commercially acceptable terms, or at all.

**New Accounting Pronouncements**

**Recently adopted accounting pronouncements** Refer to note 1 to the Company's consolidated financial statements for a discussion of accounting pronouncements implemented in 2019. Other than the adoption of ASU 2016-02 *Leases*, there were no recently issued accounting pronouncements adopted in 2019.

**Recently issued accounting pronouncements** Refer to note 1 of the Company's consolidated financial statements for a discussion of accounting pronouncements recently issued but not yet adopted.

**Contractual Obligations**

The following table summarizes the maturities of the Company's significant financial obligations as of December 31, 2019:

| *(In thousands)* | Total | 2020 | 2021 | 2022 | 2023 | 2024 | Thereafter |
|---|---|---|---|---|---|---|---|
| Long-term debt[1] | $ 946,000 | $ 4,000 | $ 4,000 | $ 4,000 | $ 4,000 | $ 4,000 | $ 926,000 |
| Interest[2] | 256,422 | 40,482 | 40,330 | 40,178 | 40,026 | 39,874 | 55,532 |
| Pension obligations | 6,036 | 40 | 225 | 113 | 201 | 399 | 5,058 |
| Capital purchase obligations[3] | 27,064 | 27,064 | — | — | — | — | — |
| Supply purchase obligations[4] | 15,785 | 7,506 | 7,506 | 773 | — | — | — |
| Operating leases | 67,548 | 12,407 | 10,221 | 6,909 | 6,055 | 5,052 | 26,904 |
| Total | $ 1,318,855 | $ 91,499 | $ 62,282 | $ 51,973 | $ 50,282 | $ 49,325 | $ 1,013,494 |
| | | | | | | | |
| Unrecognized tax benefits[5] | | | | | | | |

[1]Debt obligations are classified based on their stated maturity date, regardless of their classification on the Company's consolidated balance sheets.
[2]Interest projections on both variable and fixed rate long-term debt are based on interest rates effective as of December 31, 2019 and do not include $9.5 million for net unamortized discounts and debt issuance costs.
[3]Capital purchase obligations represent commitments for the construction or purchase of property, plant and equipment. They were not recorded as liabilities on the Company's consolidated balance sheet as of December 31, 2019, as the Company had not yet received the related goods or taken title to the property.
[4]Supply purchase obligations represent commitments, including take-or-pay contracts, that are not presented as capital purchase commitments above.
[5]The Company had $16.2 million of total gross unrecognized tax benefits at December 31, 2019. The timing of any payments associated with these unrecognized tax benefits will depend on a number of factors. Accordingly, the Company cannot make reasonably reliable estimates of the amount and period of potential cash settlements, if any, with taxing authorities and are not included in the table above.

**Non-GAAP Information** The Company's consolidated financial statements are prepared in conformity with accounting principles generally accepted in the United States (GAAP).

The Company also provides certain non-GAAP financial measures as a complement to financial measures provided in accordance with GAAP in order to better assess and reflect trends affecting the Company's business and results of operations. These non-GAAP financial measures include Adjusted EBITDA and Adjusted Operating Income together with related measures thereof, and non-GAAP Earnings Per Share (EPS), as well as certain other supplemental non-GAAP financial measures included in the discussion of the Company's financial results.

Adjusted EBITDA, a non-GAAP financial measure, is defined by the Company as net income before (1) income tax expense, (2) interest expense, (3) interest income, (4) other (income) expense, net, (5) charge for fair value write-up of acquired inventory sold, (6) deal costs, (7) integration costs, (8) severance and restructuring costs, (9) impairment of equipment and intangibles, (10) loss on sale of subsidiary, (11) amortization of intangible assets and (12) depreciation. Adjusted Operating Income, another non-GAAP financial measure, is defined by the Company as Adjusted EBITDA exclusive of the depreciation addback noted above. The Company also utilizes non-GAAP financial measures whereby Adjusted EBITDA and Adjusted Operating Income are each divided by the Company's net sales to derive Adjusted EBITDA Margin and Adjusted Operating Margin, respectively.

Non-GAAP EPS, a non-GAAP financial measure, is defined by the Company as net income before (1) charge for fair value write-up of inventory sold, (2) deal costs, (3) integration costs, (4) severance and restructuring costs, (5) impairment of equipment and intangibles, (6) loss on debt extinguishment and modification, (7) Versum termination fee, net, (8) loss on sale of subsidiary, (9) amortization of intangible assets, (10) the tax effect of those adjustments to net income and discrete tax items, (11) the tax effect of legal entity restructuring and (12) the Tax Cuts and Jobs Act, divided by diluted weighted average shares outstanding.

The Company provides supplemental non-GAAP financial measures to better understand and manage its business and believes these measures provide investors and analysts additional and meaningful information for the assessment of the Company's ongoing results. Management also uses these non-GAAP measures to assist in the evaluation of the performance of its business segments and to make operating decisions.

Management believes the Company's non-GAAP measures help indicate the Company's baseline performance before certain gains, losses or other charges that may not be indicative of the Company's business or future outlook and offer a useful view of business performance in that the measures provide a more consistent means of comparing performance. The Company believes the non-GAAP measures aid investors' overall understanding of the Company's results by providing a higher degree of transparency for such items and providing a level of disclosure that will help investors understand how management plans, measures and evaluates the Company's business performance. Management believes that the inclusion of non-GAAP measures provides greater consistency in its financial reporting and facilitates investors' understanding of the Company's historical operating trends by providing an additional basis for comparisons to prior periods.

Management uses Adjusted EBITDA and Adjusted Operating Income to assist it in evaluations of the Company's operating performance by excluding items that management does not consider as relevant in the results of its ongoing operations. Internally, these non-GAAP measures are used by management for planning and forecasting purposes, including the preparation of internal budgets; for allocating resources to enhance financial performance; for evaluating the effectiveness of operational strategies; and for evaluating the Company's capacity to fund capital expenditures, secure financing and expand its business.

In addition, and as a consequence of the importance of these non-GAAP financial measures in managing its business, the Company's Board of Directors uses non-GAAP financial measures in the evaluation process to determine management compensation.

The Company believes that certain analysts and investors use Adjusted EBITDA, Adjusted Operating Income and non-GAAP EPS as supplemental measures to evaluate the overall operating performance of firms in the Company's industry. Additionally, lenders or potential lenders use Adjusted EBITDA measures to evaluate the Company's creditworthiness.

The presentation of non-GAAP financial measures is not meant to be considered in isolation, as a substitute for, or superior to, financial measures or information provided in accordance with GAAP. Management strongly encourages investors to review the Company's consolidated financial statements in their entirety and to not rely on any single financial measure.

Management notes that the use of non-GAAP measures has limitations:

First, non-GAAP financial measures are not standardized. Accordingly, the methodology used to produce the Company's non-GAAP financial measures is not computed under GAAP and may differ notably from the methodology used by other companies. For example, the Company's non-GAAP measure of Adjusted EBITDA may not be directly comparable to EBITDA or an adjusted EBITDA measure reported by other companies.

Second, the Company's non-GAAP financial measures exclude items such as amortization and depreciation that are recurring. Amortization of intangibles and depreciation have been, and will continue to be for the foreseeable future, a significant recurring expense with an impact upon the Company's results of operations, notwithstanding the lack of immediate impact upon cash flows.

Third, there is no assurance the Company will not have future restructuring activities, gains or losses on sale of equity investments, contingent consideration fair value adjustments or similar items and, therefore, may need to record additional charges (or credits) associated with such items, including the tax effects thereon. The exclusion of these items from the Company's non-GAAP measures should not be construed as an implication that these costs are unusual, infrequent or non-recurring.

Management considers these limitations by providing specific information regarding the GAAP amounts excluded from these non-GAAP financial measures and evaluating these non-GAAP financial measures together with their most directly comparable financial measures calculated in accordance with GAAP. The calculations of Adjusted EBITDA, Adjusted Operating Income, and non-GAAP EPS, and reconciliations between these financial measures and their most directly comparable GAAP equivalents are presented below in the accompanying tables.

The reconciliation of GAAP measures to Adjusted Operating Income and Adjusted EBITDA for the years ended December 31, 2019, 2018 and 2017 are presented below:

| *In thousands* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Net sales | $ 1,591,066 | $ 1,550,497 | $ 1,342,532 |
| Net income | $ 254,860 | $ 240,755 | $ 85,066 |
| Adjustments to net income | | | |
| Income tax expense | 63,189 | 13,677 | 99,665 |
| Interest expense | 46,962 | 34,094 | 32,343 |
| Interest income | (4,652) | (3,839) | (715) |
| Other (income) expense, net | (121,081) | 8,002 | 25,458 |
| GAAP – Operating income | 239,278 | 292,689 | 241,817 |
| Charge for fair value write-up of acquired inventory sold | 7,544 | 6,868 | — |
| Deal costs | 26,164 | 5,121 | — |
| Integration costs | 9,932 | 3,237 | — |
| Severance and restructuring costs | 12,494 | 460 | 2,700 |
| Impairment of equipment and intangibles [1] | — | — | 10,400 |
| Loss on sale of subsidiary | — | 466 | — |
| Amortization of intangible assets | 66,428 | 62,152 | 44,023 |
| Adjusted operating income | 361,840 | 370,993 | 298,940 |
| Depreciation | 74,975 | 65,116 | 58,208 |
| Adjusted EBITDA | $ 436,815 | $ 436,109 | $ 357,148 |
| Net income - as a % of net sales | 16.0% | 15.5% | 6.3% |
| Adjusted operating margin | 22.7% | 23.9% | 22.3% |
| Adjusted EBITDA – as a % of net sales | 27.5% | 28.1% | 26.6% |

[1]Includes product line impairment charges of $5,330 classified as cost of sales for the years ended December 31, 2017.

Includes intangible impairment charge of $3,866 classified as selling, general and administrative expense for the year ended December 31, 2017.

Includes product line impairment charge of $320 classified as selling, general and administrative expense for the year ended December 31, 2017.

Includes product line impairment charge of $884 classified as engineering, research and development expense for the year ended December 31, 2017.

The reconciliation of GAAP measures to Non-GAAP Earnings per share for the years ended December 31, 2019, 2018 and 2017 are presented below:

| *In thousands, except per share data* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Net income | $ 254,860 | $ 240,755 | $ 85,066 |
| Adjustments to net income: | | | |
| Charge for fair value write-up of acquired inventory sold | 7,544 | 6,868 | — |
| Deal costs | 26,575 | 5,121 | — |
| Integration costs | 9,932 | 3,237 | — |
| Severance and restructuring costs | 12,494 | 460 | 2,700 |
| Impairment of equipment and intangibles[1] | — | — | 13,200 |
| Loss on debt extinguishment and modification | 1,980 | 2,319 | 20,687 |
| Versum termination fee, net | (122,000) | — | — |
| Loss on sale of subsidiary | — | 466 | — |
| Amortization of intangible assets | 66,428 | 62,152 | 44,023 |
| Tax effect of adjustments to net income and discrete tax items [2] | (3,124) | (17,812) | (26,046) |
| Tax effect of legal entity restructuring | 9,398 | (34,478) | — |
| Tax effect of Tax Cuts and Jobs Act | — | 683 | 66,713 |
| Non-GAAP net income | $ 264,087 | $ 269,771 | $ 206,343 |
| Diluted earnings per common share | $ 1.87 | $ 1.69 | $ 0.59 |
| Effect of adjustments to net income | $ 0.07 | $ 0.20 | $ 0.85 |
| Diluted non-GAAP earnings per common share | $ 1.93 | $ 1.89 | $ 1.44 |

[1]Includes product line impairment charges of $5,330 classified as cost of sales for the years ended December 31, 2017..

Includes intangible impairment charge of $3,866 classified as selling, general and administrative expense for the year ended December 31, 2017.

Includes product line impairment charge of $320 classified as selling, general and administrative expense for the year ended December 31, 2017.

Includes product line impairment charge of $884 classified as engineering, research and development expense for the year ended December 31, 2017.

Includes product line impairment charge of $2,800 classified as other expense for the year ended December 31, 2017.

[2]The tax effect of the non-GAAP adjustments was calculated using the applicable marginal tax rate during the respective years.

**Item 7A. Quantitative and Qualitative Disclosure About Market Risks**

Entegris' principal financial market risks are sensitivities to interest rates and foreign currency exchange rates. The Company's interest-bearing cash equivalents and variable rate debt are subject to interest rate fluctuations. The Company's cash equivalents are instruments with maturities of three months or less. A 100 basis point change in interest rates would potentially increase or decrease annual net income by approximately $0.3 million annually.

The cash flows and results of operations of the Company's foreign-based operations are subject to fluctuations in foreign exchange rates. We have sales denominated in the South Korean Won, New Taiwan Dollar, Chinese Renmibi, Canadian Dollar Malayisan Ringgit, Singapore Dollar, Euro, Israeli Shekel and the Japanese Yen. Approximately 22.6% of the Company's sales are denominated in these currencies. Financial results therefore will be affected by changes in currency exchange rates. If all foreign currencies were to see a 10% reduction versus the U.S. dollar during the year ended December 31, 2019 the operating income would be negatively impacted by approximately $36.0 million.

The Company occasionally uses derivative financial instruments to manage the foreign currency exchange rate risks associated with its foreign-based operations. At December 31, 2019, the Company had no net exposure to any foreign currency forward contracts.

**Item 8. Financial Statements and Supplementary Data.**

The information called for by this item is set forth in the Consolidated Financial Statements covered by the Report of Independent Registered Public Accounting Firm at the end of this report.

**Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.**

This item is not applicable.

**Item 9A. Controls and Procedures.**

**Evaluation of Disclosure Controls and Procedures**

Based on management's evaluation (with the participation of our principal executive officer and principal financial officer), as of the end of the period covered by this report, our principal executive officer and principal financial officer have concluded that our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act)), are effective to provide reasonable assurance that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in SEC rules and forms, and is accumulated and communicated to management, including our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure.

**Changes in Internal Control Over Financial Reporting**

There were no changes to our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the quarter ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

**Management Report on Internal Control Over Financial Reporting**

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of consolidated financial statements for external purposes in accordance with GAAP.

Management assessed our internal control over financial reporting as of December 31, 2019. Management based its assessment on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework). Management's assessment included evaluation of elements such as the design and operating effectiveness of key financial reporting controls, process documentation, accounting policies, and our overall control environment.

The Company acquired Digital Specialty Chemicals Limited (DSC), MPD Chemicals (MPD) and Hangzhou Anow Microfiltration Co., Ltd. (Anow) on March 8, 2019, July 15, 2019 and September 17, 2019, respectively. None of DSC, MPD and Anow is significant to the Company's financial statements. The Company is continuing to integrate DSC, MPD and Anow into the Company's internal control over financial reporting, and the foregoing evaluation of the effectiveness of the Company's internal control over financial reporting and has excluded total assets of approximately $324 million and net sales of approximately $33 million related to the DSC, MPD and Anow in the assessment of those disclosure controls and procedures of DSC, MPD and Anow that are subsumed by internal control over financial reporting.

Based on its assessment, management has concluded that our internal control over financial reporting was effective as of the end of the fiscal year to provide reasonable assurance regarding the reliability of financial reporting and the preparation of consolidated financial statements for external reporting purposes in accordance with GAAP. We reviewed the results of management's assessment with the Audit Committee of our Board of Directors.

KPMG LLP, the independent registered public accounting firm which audited the consolidated financial statements included in this annual report, has issued an attestation report on our internal control over financial reporting.

**Inherent Limitations on Effectiveness of Controls**

Our management, including our principal executive officer and principal financial officer, does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well-designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. The design of a control system must reflect the fact that there are resource constraints, and the

benefits of controls must be considered relative to their costs. Further, because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, have been detected.

## Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors

Entegris, Inc.:

*Opinion on Internal Control Over Financial Reporting*

We have audited Entegris, Inc. and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2019 and 2018, and the related consolidated statements of operations, comprehensive income, equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and related notes (collectively, the consolidated financial statements), and our report dated February 7, 2020 expressed an unqualified opinion on those consolidated financial statements.

The Company acquired Digital Specialty Chemicals Limited, MPD Chemicals, and Hangzhou Anow Microfiltration Co. Ltd. during 2019, and management excluded from its assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2019, the Company's internal control over financial reporting associated with total assets of $324 million and total revenues of $33 million included in the consolidated financial statements of the Company as of and for the year ended December 31, 2019. Our audit of internal control over financial reporting of the Company also excluded an evaluation of the internal control over financial reporting of Digital Specialty Chemicals Limited, MPD Chemicals, and Hangzhou Anow Microfiltration Co. Ltd.

*Basis for Opinion*

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control Over Financial Reporting appearing under Item 9A of the Company's December 31, 2019 Annual Report on Form 10-K. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

*Definition and Limitations of Internal Control Over Financial Reporting*

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG LLP

Minneapolis, Minnesota
February 7, 2020

**Item 9B. Other Information.**

**Amendment to Executive Change of Control Termination Agreement with Mr. Loy**

In connection with the annual review of the compensation of our executive officers in February 2020, the Management Development & Compensation Committee of our Board of Directors (the "Compensation Committee") reviewed, in consultation with Frederic W. Cook & Co., Inc., the independent compensation advisory firm retained by the Compensation Committee, current practices of other companies in our peer group with respect to compensation payable to the chief executive officer upon termination of employment following a change of control by the company without cause or by the executive for good reason. The Compensation Committee noted that our current arrangement with Bertrand Loy, our President and Chief Executive Officer, for termination of employment by us without cause or by Mr. Loy for good reason within 24 months after a change of control provides for, among other things, certain cash severance payments based on two years of compensation, consistent with the most common practice for chief executive officers of companies in our peer group. The Compensation Committee noted, however, that a substantial number of peer companies provide cash severance payments based on three years of compensation. In light of this background, and after considering consolidation in our industry generally, our recent experience with the terminated transaction with Versum Materials, Inc., our performance relative to our peers, Mr. Loy's role in achieving that performance and the importance of retaining Mr. Loy's services, the Compensation Committee concluded that the severance amounts payable to Mr. Loy upon termination of employment by us without cause or by the executive for good reason within 24 months after a change of control should generally be increased from two years of compensation to three years of compensation.

Accordingly, on February 5, 2020, we entered into an amendment to Mr. Loy's change of control termination agreement, which increased the amount of the lump-sum severance payment that he would receive upon a termination of employment by us without cause (as defined in the change of control termination agreement) or by him for good reason (as defined in the change of control termination agreement) within 24 months after a change of control. Under Mr. Loy's amended change of control termination agreement, his lump-sum severance payment would equal the sum of three times (rather than two times) his base salary plus three times (rather than two times) the greater of his highest annual bonus during the three years before termination of his employment or his target bonus for the year of termination. The amendment to Mr. Loy's change of control termination agreement also extended his existing non-competition and non-solicitation obligations from a period of two years after termination of employment to a period of three years after termination of employment.

## PART III

### Item 10. Directors, Executive Officers and Corporate Governance.

Except as set forth below, the information required by this Item 10 has been omitted from this report, and is incorporated by reference to our definitive Proxy Statement for the Entegris, Inc. Annual Meeting of Stockholders, which is currently scheduled to be held on April 29, 2020, and to be filed with the Securities and Exchange Commission pursuant to Regulation 14A within 120 days after the end of our 2019 fiscal year.

Information called for by this item with respect to registrant's executive officers is set forth under "Executive Officers of the Registrant" in Part I of this report.

In 2005, our Board of Directors adopted a code of business ethics, The Entegris, Inc. Code of Business Ethics applicable to all of our executives, directors and employees as well as a set of corporate governance guidelines, which have been updated from time to time. The Entegris, Inc. Code of Business Ethics, the Corporate Governance Guidelines and the charters for our Audit & Finance Committee, Governance & Nominating Committee and our Management Development & Compensation Committee all appear on our website at http://www.Entegris.com under "Investors - Corporate Governance". The Entegris, Inc. Code of Business Ethics, Corporate Governance Guidelines and committee charters are also available in print to any shareholder that requests a copy. Copies may be obtained by contacting our Assistant Secretary through our corporate headquarters. The Company intends to comply with the requirements of Item 5.05 of Form 8-K with respect to any amendment to or waiver of the provisions of the Entegris, Inc. Code of Business Ethics applicable to the registrant's Chief Executive Officer, Chief Financial Officer, Chief Accounting Officer or Controller by posting notice of any such amendment or waiver at the same location on our website.

### Item 11. Executive Compensation.

The information required by this Item 11 has been omitted from this report, and is incorporated by reference to our definitive Proxy Statement for the Entegris, Inc. Annual Meeting of Stockholders to be held on April 29, 2020, and to be filed with the Securities and Exchange Commission pursuant to Regulation 14A within 120 days after the end of our 2019 fiscal year.

### Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

***Securities Authorized for Issuance Under Equity Compensation Plans:***

As of December 31, 2019, our equity compensation plan information is as follows:

**Equity Compensation Plan Information**

| Plan category | Number of securities to be issued upon exercise of outstanding options, warrants and rights (a) | Weighted-average exercise price of outstanding options, warrants and rights (1) (b) | Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (2) (3) (c) |
|---|---|---|---|
| Equity compensation plans approved by security holders | 3,153,824 | $ 21.39 | 9,911,101 |
| Equity compensation plans not approved by security holders | — | — | — |
| Total | 3,153,824 | $ 21.39 | 9,911,101 |

(1) The weighted average exercise price does not take into account the shares issuable upon vesting of outstanding restricted stock units, which have no exercise price.

(2) These shares are available under the 2010 Stock Plan for future issuance for stock options, restricted stock units, performance shares and stock awards in accordance with the terms of the 2010 Stock Plan.

(3) Includes 1,699,619 shares remaining available for issuance as of December 31, 2019 under the Employee Stock Purchase Plan.

The other information called for by this Item 12 has been omitted from this report, and is incorporated by reference to our definitive Proxy Statement for the Entegris, Inc. Annual Meeting of Stockholders to be held on April 29, 2020, and to be filed with the Securities and Exchange Commission pursuant to Regulation 14A within 120 days after the end of our 2019 fiscal year.

### Item 13. Certain Relationships and Related Transactions, and Director Independence.

The information required by this Item 13 has been omitted from this report, and is incorporated by reference to our definitive Proxy Statement for the Entegris, Inc. Annual Meeting of Stockholders to be held on April 29, 2020, and to be filed with the Securities and Exchange Commission pursuant to Regulation 14A within 120 days after the end of our 2019 fiscal year.

**Item 14. Principal Accountant Fees and Services.**

The information required by this Item 14 has been omitted from this report, and is incorporated by reference to our definitive Proxy Statement for the Entegris, Inc. Annual Meeting of Stockholders to be held on April 29, 2020, and to be filed with the Securities and Exchange Commission pursuant to Regulation 14A within 120 days after the end of our 2019 fiscal year.

## PART IV

**Item 15. Exhibits and Financial Statement Schedules.**

(a) The following documents are filed as a part of this report:

1. **Financial Statements.** The Consolidated Financial Statements listed under Item 8 of this report and in the Index to Consolidated Financial Statements on page F-1 of this report are incorporated by reference herein.

2. **Exhibits.**

***A.*** The following exhibits are incorporated by reference:

| Reg. S-K Item 601(b) Reference | Document Incorporated | Referenced Document on file with the Commission |
|---|---|---|
| (2) | Purchase Agreement, dated as of June 6, 2018, by and among Entegris, Inc., Entegris (Shanghai) Microelectronics Trading Company Limited and SAES Getters S.p.A. | Exhibit 2.1 to Entegris, Inc. Current Report on Form 8-K filed on June 7, 2018. |
| (3) | Amended and Restated Certificate of Incorporation of Entegris, Inc., as amended | Exhibit 3.1 to Entegris, Inc. Annual Report on Form 10-K for the fiscal year ended December 31, 2011 |
| (3) | By-Laws of Entegris, Inc., as amended December 17, 2008 | Exhibit 3 to Entegris, Inc. Annual Report on Form 10-K for the fiscal year ended December 31, 2008 |
| (4) | Form of certificate representing shares of Common Stock, $.01 par value per share | Exhibit 4.1 to Form S-4 Registration Statement of Entegris, Inc. and Eagle DE, Inc. (No. 333-124719) |
| (4) | Indenture, dated as of November 10, 2017, by and among the Company, certain of subsidiaries of the Company and Wells Fargo Bank, National Association Bank, as trustee, including the form of note representing the 2026 Notes | Exhibit 4.1 to Entegris, Inc. Current Report on Form 8-K filed with the Securities and Exchange Commission on November 13, 2017 |
| (10) | Credit and Guaranty Agreement dated as of November 6, 2018, among Entegris, Inc., Certain Subsidiaries of Entegris, Inc., as Guarantors, the Lenders Party Hereto and Goldman Sachs Bank USA, as Administrative Agent and Collateral Agent | Exhibit 10.1 to Entegris, Inc. Current Report on Form 8-K filed with the Securities and Exchange Commission on November 6, 2018. |
| (10) | Amendment No. 1, dated as of February 8, 2019, among Entegris, Inc., as borrower, each lender party thereto, and Goldman Sachs Bank USA, as administrative agent and collateral agent. | Exhibit 10.1 to Entegris, Inc. Current Report on Form 8-K filed with the Securities and Exchange Commission on February 8, 2019 |
| (10) | Pledge and Security Agreement dates as of November 6, 2018, among Entegris, Inc., The Guarantors Party hereto and Goldman Sachs Bank USA, as Collateral Agent | Exhibit 10.1 to Entegris, Inc. Current Report on Form 8-K filed with the Securities and Exchange Commission on November 6, 2018. |
| (10) | Entegris, Inc. – 2010 Stock Plan, as amended* | Exhibit 10.1 to Entegris, Inc. Quarterly Report on Form 10-Q for the period ended July 3, 2010 |
| (10) | Entegris, Inc. Outside Directors' Stock Option Plan* | Exhibit 10.2 to Entegris, Inc. Registration Statement on Form S-1 (No. 333-33668) |
| (10) | Entegris, Inc. Amended and Restated Employee Stock Purchase Plan* | Exhibit 4.1 to Entegris, Inc. Registration Statement on Form S-8 (No. 333-211444) |
| (10) | Second Amended and Restated Entegris Incentive Plan* | Exhibit 10.1 to Entegris, Inc. Current Report on Form 8-K filed with the Securities and Exchange Commission on May 24, 2017 |
| (10) | Trust Agreement between Entegris, Inc. Fidelity Management Trust Company and Entegris Inc. 401(k) Savings and Profit Sharing Plan Trust, dated December 29, 2007. | Exhibit 10.3 to Entegris, Inc. Annual Report on Form 10-K for the fiscal year ended December 31, 2007 |

| | | |
|---|---|---|
| (10) | Entegris, Inc. - 401(k) Savings and Profit Sharing Plan (2017 Restatement)* | Exhibit 10.1 to Entegris, Inc. Annual Report on Form 10-K filed with the Securities and Exchange Commission on February 17, 2017 |
| (10) | Entegris, Inc. 2007 Deferred Compensation Plan* | Exhibit 10.2 to Entegris, Inc. Quarterly Report on Form10-Q for the fiscal period ended June 30, 2007 |
| (10) | Amended and Restated Supplemental Executive Retirement Plan for Key Salaried Employees* | Exhibit 10.2 to Entegris, Inc. Annual Report on Form 10-K for the fiscal year ended December 31, 2008 |
| (10) | Amendment to Amended and Restated SERP* | Exhibit 10.15 to Entegris, Inc. Annual Report on Form 10-K for the fiscal year ended December 31, 2009. |
| (10) | Lease Agreement, dated April 1, 2002 between Nortel Networks HPOCS Inc. and Mykrolis Corporation, relating to Executive office, R&D and manufacturing facility located at 129 Concord Road Billerica, MA | Exhibit 10.1.3 to Mykrolis Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2002 |
| (10) | Amendment of Lease between Entegris, Inc. and KBS Rivertech, LLC dated April 1, 2012 | Exhibit 10.1 to Entegris, Inc. Quarterly Report on Form 10-Q for the period ended June 30, 2012 |
| (10) | Second Amendment of Lease, dated March 8, 2016, between Entegris, Inc. and KBS Rivertech, LLC | Exhibit 10.1 to Entegris, Inc. Current Report on Form 8-K filed with the Securities and Exchange Commission on March 11, 2016 |
| (10) | Fluoropolymer Purchase and Sale Agreement, by and between E.I. Du Pont De Nemours and Company and the Registrant, dated January 1, 2011, as amended | Exhibit 10.2 to Entegris, Inc. Quarterly Report on Form 10-Q for the quarter ended April 2, 2011 |
| (10) | Form of Indemnification Agreement between Entegris, Inc. and each of its executive officers and Directors | Exhibit 10.30 to Entegris, Inc. Annual Report on Form 10-K for the fiscal year ended August 27, 2005 |
| (10) | Form of Executive Change of Control Termination Agreement between Entegris, Inc. and certain of its executive officers* | Exhibit 10.31 to Entegris, Inc. Annual Report on Form 10-K for the fiscal year ended August 27, 2005 |
| (10) | Form of Revised Executive Change of Control Termination Agreement between Entegris, Inc. and certain of its executive officers executed in 2015 (other than those executive officers who executed the form previously filed)* | Exhibit 10.1 to Entegris, Inc. Annual Report on Form 10-K filed with the Securities and Exchange Commission on February 29, 2016 |
| (10) | Entegris, Inc. 2013 Stock Option Grant Agreement* | Exhibit 10.2 to Entegris, Inc. Annual Report on Form 10-K filed with the Securities and Exchange Commission on February 26, 2015 |
| (10) | Entegris, Inc. 2014 Stock Option Grant Agreement* | Exhibit 10.4 to Entegris, Inc. Annual Report on Form 10-K filed with the Securities and Exchange Commission on February 26, 2015 |
| (10) | Entegris, Inc. 2015 Stock Option Grant Agreement* | Exhibit 10.4 to Entegris, Inc. Annual Report on Form 10-K filed with the Securities and Exchange Commission on February 29, 2016 |
| (10) | Entegris, Inc. 2016 RSU Unit Award Agreement* | Exhibit 10.3 to Entegris, Inc. Annual Report on Form 10-K filed with the Securities and Exchange Commission on February 17, 2017 |
| (10) | Entegris, Inc. 2016 Stock Option Grant Agreement* | Exhibit 10.4 to Entegris, Inc. Annual Report on Form 10-K filed with the Securities and Exchange Commission on February 17, 2017 |
| (10) | Entegris, Inc. 2017 Performance Share Award Agreement* | Exhibit 10.1 to Entegris, Inc. Annual Report on Form 10-K filed with the Securities and Exchange Commission on February 15, 2018 |

| | | |
|---|---|---|
| (10) | Entegris, Inc. 2017 RSU Unit Award Agreement* | Exhibit 10.2 to Entegris, Inc. Annual Report on Form 10-K filed with the Securities and Exchange Commission on February 15, 2018 |
| (10) | Entegris, Inc. 2017 Stock Option Grant Agreement* | Exhibit 10.3 to Entegris, Inc. Annual Report on Form 10-K filed with the Securities and Exchange Commission on February 15, 2018 |
| (10) | Entegris, Inc. 2018 Performance Share Award Agreement* | Exhibit 10.1 to Entegris, Inc. Annual Report on Form 10-K filed with the Securities and Exchange Commission on February 11, 2019 |
| (10) | Entegris, Inc. 2018 RSU Unit Award Agreement* | Exhibit 10.2 to Entegris, Inc. Annual Report on Form 10-K filed with the Securities and Exchange Commission on February 11, 2019 |
| (10) | Entegris, Inc. 2018 Stock Option Grant Agreement* | Exhibit 10.3 to Entegris, Inc. Annual Report on Form 10-K filed with the Securities and Exchange Commission on February 11, 2019 |
| (10) | Executive Employment Agreement, effective November 28, 2012, between the Registrant and Bertrand Loy* | Exhibit 10.1 to Entegris, Inc. Annual Report on Form 10-K for the fiscal year ended December 31, 2012 |
| (10) | Amendment No. 1, dated April 26, 2013, to Executive Change in Control Termination Agreement, between Entegris, Inc. and Bertrand Loy* | Exhibit 99.1 to Entegris, Inc. Current Report on Form 8-K filed with the Securities and Exchange Commission on April 26, 2013 |
| (10) | Severance Protection Agreement, dated May 13, 2011 between Entegris, Inc. and Gregory B. Graves* | Exhibit 10.2 to Entegris, Inc. Quarterly Report on Form 10-Q for the period ended July 2, 2011 |
| (10) | Amendment No. 1, dated as of February 23, 2016, to the Severance Protection Agreement by and between Entegris, Inc, and Gregory B. Graves* | Exhibit 10.2 to Entegris, Inc. Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on April 28, 2016 |
| (10) | Separation Agreement and Release, dated as of August 27, 2019, by and between the Company and Gregory Marshall. | Exhibit 10.1 to Entegris, Inc. Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on October 24, 2019 |

* A “management contract or compensatory plan”

***B.*** *The Company hereby files as exhibits to this Annual Report on Form 10-K the following documents:*

**Reg. S-K**

**Item 601(b)**

| Reference | Exhibit No. | Documents Filed Herewith |
|---|---|---|
| (4) | 4.1 | Description of Capital Stock |
| (10) | 10.1 | Entegris, Inc. 2019 Performance Share Award Agreement* |
| (10) | 10.2 | Entegris, Inc. 2019 RSU Unit Award Agreement* |
| (10) | 10.3 | Entegris, Inc. 2019 Stock Option Grant Agreement* |
| (10) | 10.4 | Amendment No.2, dated February 5, 2020, to Executive Change in Control Termination Agreement, between Entegris, Inc. and Bertrand Loy* |
| (10) | 10.5 | Amendment No. 2, dated as of October 31, 2019, among Entegris, Inc., as the borrower, the other credit parties party thereto, the lenders party thereto, the issuing banks party thereto, Goldman Sachs Bank USA, as the predecessor agent, and Morgan Stanley Senior Funding, Inc., as the successor agent. |
| (10) | 10.6 | Amendment No. 1, dated as of October 31, 2019, among Entegris, Inc., as the borrower, the other credit parties party thereto, Goldman Sachs Bank USA, as the predecessor agent, and Morgan Stanley Senior Funding, Inc., as the successor agent. |
| (21) | 21 | Subsidiaries of Entegris, Inc. |
| (23) | 23 | Consent of Independent Registered Public Accounting Firm |
| (24) | 24 | Power of Attorney by the Directors of Entegris, Inc. |
| (31) | 31.1 | Certification required by Rule 13a-14(a) in accordance with Section 302 of the Sarbanes—Oxley Act of 2002. |
| (31) | 31.2 | Certification required by Rule 13a-14(a) in accordance with Section 302 of the Sarbanes—Oxley Act of 2002. |
| (32) | 32.1 | Certification required by Rule 13a-14(b) and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. |
| (32) | 32.2 | Certification required by Rule 13a-14(b) and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. |
| (101) | 101.INS | XBRL Instance Document |
| (101) | 101.SCH | XBRL Taxonomy Extension Schema Document |
| (101) | 101.CAL | XBRL Taxonomy Extension Calculation Linkbase Document |
| (101) | 101.DEF | XBRL Taxonomy Extension Definition Linkbase Document |
| (101) | 101.LAB | XBRL Taxonomy Extension Label Linkbase Document |
| (101) | 101.PRE | XBRL Taxonomy Extension Presentation Linkbase Document |

* A “management contract or compensatory plan”

**Item 16. Form 10-K Summary.**

None.

## SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

**ENTEGRIS, INC.**

Date: February 7, 2020

By /s/ BERTRAND LOY
Bertrand Loy
President & Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

| SIGNATURE | TITLE | DATE |
|---|---|---|
| /s/ BERTRAND LOY<br>Bertrand Loy | President, Chief Executive Officer and Director (Principal executive officer) | February 7, 2020 |
| /s/ GREGORY B. GRAVES<br>Gregory B. Graves | Executive Vice President, Chief Financial Officer & Treasurer (Principal financial officer) | February 7, 2020 |
| /s/ MICHAEL D. SAUER<br>Michael D. Sauer | Vice President, Controller & Chief Accounting Officer (Principal accounting officer) | February 7, 2020 |
| PAUL L.H. OLSON**<br>Paul L.H. Olson | Director, Chairman of the Board | February 7, 2020 |
| MICHAEL A. BRADLEY**<br>Michael A. Bradley | Director | February 7, 2020 |
| R. NICHOLAS BURNS**<br>R. Nicholas Burns | Director | February 7, 2020 |
| JAMES F. GENTILCORE**<br>James F. Gentilcore | Director | February 7, 2020 |
| JAMES P. LEDERER*<br>James P. Lederer | Director | February 7, 2020 |
| AZITA SALEKI-GERHARDT*<br>Azita Saleki-Gerhardt | Director | February 7, 2020 |
| BRIAN F. SULLIVAN**<br>Brian F. Sullivan | Director | February 7, 2020 |

*By /s/ Gregory B. Graves
Gregory B. Graves, Attorney-in-fact

**ENTEGRIS, INC.**
**INDEX TO FINANCIAL STATEMENTS**

## Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors

Entegris, Inc.:

*Opinion on the Consolidated Financial Statements*

We have audited the accompanying consolidated balance sheets of Entegris, Inc. and subsidiaries (the Company) as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive income, equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 7, 2020 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

*Change in Accounting Principle*

As discussed in Note 10 to the consolidated financial statements, the Company has changed its method of accounting for leases in 2019 due to the adoption of FASB Accounting Standard Codification (Topic 842) *Leases*.

*Basis for Opinion*

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

*Critical Audit Matters*

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

*Assessment of the recoverability of long-lived assets used to manufacture new products*

As discussed in Note 1 to the consolidated financial statements, the Company routinely evaluates for indicators of impairment of its long-lived assets. The Company performs asset recoverability tests whenever events and changes in circumstances indicate the carrying amount of an asset group may not be recoverable and recognizes an impairment loss, if any, based on the excess of the carrying amount over fair value. It may take a number of years for sales of a new product to support the recoverability of an asset group, if ever. A product's concept may never progress beyond the development stage or may only achieve limited acceptance in the marketplace. The balance of long-lived assets, which includes long-lived assets used to manufacture new products, as of December 31, 2019 was $864 million, or 34% of total assets.

We identified the assessment of the recoverability of long-lived assets used to manufacture new products as a critical audit matter. There was a high degree of subjectivity in evaluating events or circumstances that may indicate the carrying amount of an asset group may not be recoverable. Additionally, when events or circumstances indicated the carrying amount of an asset group may not be recoverable, a high degree of auditor judgment was required in performing procedures related to future cash flows.

The primary procedures we performed to address this critical audit matter included the following. We tested certain internal controls over the Company's long-lived asset impairment assessment process. This included controls related to the identification of indicators that an asset group may not be recoverable and the determination of future cash flows when indicators of impairment exist. We performed analyses over asset groups with negative gross margin, which included obtaining future business plans and evaluating the Company's identification of indicators of impairment. We evaluated the Company's cash flow assumptions when events or changes in circumstances indicated the carrying amount of an asset group may not be recoverable and an asset recoverability test was performed. Where indicators of impairment existed, we compared the Company's historical cash flow forecasts to actual results to assess the Company's ability to accurately forecast cash flows.

*Assessment of the fair value of acquired customer relationships, developed technology, and trademarks and trade names*

As discussed in Note 3 to the consolidated financial statements, the Company accounts for acquired businesses using the acquisition method of accounting by recording assets and liabilities acquired at their respective fair values. During 2019, the Company acquired Digital Specialty Chemicals Limited, MPD Chemicals, and Hangzhou Anow Microfiltration Co., Ltd. for an aggregate purchase price of $298 million. The Company recorded intangible assets of $105 million during the year related to these acquisitions. The determination of the acquisition date fair value of the customer relationships, developed technology, and trademark and trade name intangible assets required the Company to make significant estimates and assumptions regarding (1) future revenue growth rates, (2) future gross margin, (3) future selling general and administrative expense, (4) royalty rates, and (5) discount rates.

We identified the assessment of the fair value of acquired customer relationships, developed technology, and trademarks and trade names as a critical audit matter. Depending on the asset valued, the key assumptions included one or more of the following: (1) future revenue growth rates, (2) future gross margin, (3) future selling general and administrative expense, (4) royalty rates, and (5) discount rates. Testing the key assumptions that were used to estimate the fair values of individual assets acquired involved a high degree of subjectivity.

The primary procedures we performed to address this critical audit matter included the following. We tested certain internal controls over the Company's intangible asset valuation process, including controls related to the development of the key assumptions discussed above. We evaluated the Company's key future revenue growth rates by comparing them to analyst reports about the Company and its peer companies. We compared the key future revenue growth rates, gross margin and selling general and administrative expense assumptions to historical results of the acquired companies. We evaluated the amount of future estimated cost savings by comparing them to planned actions and historical amounts incurred by the acquired companies. We involved a valuation professional with specialized skills and knowledge who assisted in:

- evaluating each of the Company's selected key royalty rates, by comparing them to royalty rates used in other comparable market transactions,
- evaluating each of the Company's key discount rates, by comparing it against a discount rate range that was independently developed using publicly available data for comparable entities, and
- developing an estimate of the fair value of certain intangible assets acquired using the Company's cash flow forecast and independently developed discount and royalty rates, and comparing the results of our estimate of fair value to the Company's fair value estimate.

/s/ KPMG LLP

We or our predecessor firms have served as the Company's auditor since 1966.

Minneapolis, Minnesota
February 7, 2020

**ENTEGRIS, INC. AND SUBSIDIARIES**

**CONSOLIDATED BALANCE SHEETS**

| *(In thousands, except share and per share data)* | December 31, 2019 | December 31, 2018 |
|---|---|---|
| **ASSETS** | | |
| **Current assets:** | | |
| Cash and cash equivalents | $ 351,911 | $ 482,062 |
| Trade accounts and notes receivable, net | 234,409 | 222,055 |
| Inventories, net | 287,098 | 268,140 |
| Deferred tax charges and refundable income taxes | 24,552 | 17,393 |
| Other current assets | 34,427 | 39,688 |
| **Total current assets** | 932,397 | 1,029,338 |
| Property, plant and equipment, net | 479,544 | 419,529 |
| Other assets: | | |
| Right-of-use assets | 50,160 | — |
| Goodwill | 695,044 | 550,202 |
| Intangible assets, net | 333,952 | 295,687 |
| Deferred tax assets and other noncurrent tax assets | 11,245 | 10,162 |
| Other noncurrent assets | 13,744 | 12,723 |
| **Total assets** | $ 2,516,086 | $ 2,317,641 |
| **LIABILITIES AND EQUITY** | | |
| **Current liabilities:** | | |
| Long-term debt, current maturities | $ 4,000 | $ 4,000 |
| Accounts payable | 84,207 | 93,055 |
| Accrued payroll and related benefits | 62,340 | 78,288 |
| Other accrued liabilities | 87,778 | 62,732 |
| Income taxes payable | 26,108 | 31,593 |
| **Total current liabilities** | 264,433 | 269,668 |
| Long-term debt, excluding current maturities | 932,484 | 934,863 |
| Pension benefit obligations and other liabilities | 37,867 | 31,795 |
| Deferred tax liabilities and other noncurrent tax liabilities | 71,586 | 69,290 |
| Long-term lease liabilities | 43,827 | — |
| Commitments and contingent liabilities | — | — |
| **Equity:** | | |
| Preferred stock, par value $.01; 5,000,000 shares authorized; none issued and outstanding | — | — |
| Common stock, par value $.01; 400,000,000 shares authorized; issued and outstanding shares as of December 31, 2019: 134,929,768 and 134,727,368, respectively; issued and outstanding shares as of December 31, 2018: 136,179,381 and 135,976,981, respectively | 1,349 | 1,362 |
| Treasury stock, common, at cost: 202,400 shares held as of December 31, 2019 and December 31, 2018 | (7,112) | (7,112) |
| Additional paid-in capital | 842,784 | 837,658 |
| Retained earnings | 366,127 | 213,753 |
| Accumulated other comprehensive loss | (37,259) | (33,636) |
| **Total equity** | 1,165,889 | 1,012,025 |
| **Total liabilities and equity** | $ 2,516,086 | $ 2,317,641 |

See the accompanying notes to consolidated financial statements.

**ENTEGRIS, INC. AND SUBSIDIARIES**

**CONSOLIDATED STATEMENTS OF OPERATIONS**

| ***(In thousands, except per share data)*** | **Year ended December 31, 2019** | **Year ended December 31, 2018** | **Year ended December 31, 2017** |
|---|---|---|---|
| Net sales | $ 1,591,066 | $ 1,550,497 | $ 1,342,532 |
| Cost of sales | 879,413 | 830,666 | 733,547 |
| **Gross profit** | 711,653 | 719,831 | 608,985 |
| Selling, general and administrative expenses | 284,807 | 246,534 | 216,194 |
| Engineering, research and development expenses | 121,140 | 118,456 | 106,951 |
| Amortization of intangible assets | 66,428 | 62,152 | 44,023 |
| **Operating income** | 239,278 | 292,689 | 241,817 |
| Interest expense | 46,962 | 34,094 | 32,343 |
| Interest income | (4,652) | (3,839) | (715) |
| Other (income) expense, net | (121,081) | 8,002 | 25,458 |
| **Income before income tax expense** | 318,049 | 254,432 | 184,731 |
| Income tax expense | 63,189 | 13,677 | 99,665 |
| **Net income** | $ 254,860 | $ 240,755 | $ 85,066 |
| | | | |
| Basic net income per common share | $ 1.89 | $ 1.71 | $ 0.60 |
| Diluted net income per common share | $ 1.87 | $ 1.69 | $ 0.59 |
| | | | |
| Weighted average shares outstanding | | | |
| Basic | 135,137 | 141,026 | 141,553 |
| Diluted | 136,568 | 142,610 | 143,518 |

See the accompanying notes to consolidated financial statements.

**ENTEGRIS, INC. AND SUBSIDIARIES**

**CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME**

| ***(In thousands)*** | **Year ended December 31, 2019** | **Year ended December 31, 2018** | **Year ended December 31, 2017** |
|---|---|---|---|
| Net income | $ 254,860 | $ 240,755 | $ 85,066 |
| Other comprehensive (loss) income, net of tax | | | |
| Foreign currency translation adjustments | (3,692) | (10,183) | 29,294 |
| Reclassification of cumulative translation adjustment associated with liquidated and planned sale of subsidiaries | — | — | 1,702 |
| Pension liability adjustments, net of income tax benefit of $(10), $(13), and $(26) for year ended December 31, 2019, 2018, and 2017 | 69 | 59 | (232) |
| Other comprehensive (loss) income | (3,623) | (10,124) | 30,764 |
| Comprehensive income | $ 251,237 | $ 230,631 | $ 115,830 |

See the accompanying notes to consolidated financial statements.

## ENTEGRIS, INC. AND SUBSIDIARIES

## CONSOLIDATED STATEMENTS OF EQUITY

| *(In thousands)* | Common shares outstanding | Common stock | Treasury shares | Treasury stock | Additional paid-in capital | Retained earnings (deficit) | Foreign currency translation adjustments | Defined benefit pension adjustments | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Balance at December 31, 2016** | 141,320 | $ 1,413 | — | $ — | $ 859,778 | $ 92,303 | $ (53,589) | $ (687) | $ 899,218 |
| Shares issued under stock plans | 1,040 | 11 | — | — | (332) | — | — | — | (321) |
| Share-based compensation expense | — | — | — | — | 15,306 | — | — | — | 15,306 |
| Repurchase and retirement of common stock | (1,077) | (11) | — | — | (6,565) | (21,424) | | | (28,000) |
| Dividends declared ($0.07 per share) | — | — | — | — | — | (9,896) | — | — | (9,896) |
| Pension liability adjustment | — | — | — | — | — | — | — | (232) | (232) |
| Foreign currency translation | — | — | — | — | — | — | 29,294 | — | 29,294 |
| Reclassification of cumulative translation adjustment associated with liquidated and planned sale of subsidiaries | — | — | — | — | — | — | 1,702 | — | 1,702 |
| Cumulative effect of change in accounting principle | — | — | — | — | (488) | 1,369 | — | — | 881 |
| Net income | — | — | — | — | — | 85,066 | — | — | 85,066 |
| **Balance at December 31, 2017** | 141,283 | 1,413 | — | — | 867,699 | 147,418 | (22,593) | (919) | 993,018 |
| Shares issued under stock plans | 1,120 | 11 | — | — | (9,120) | — | — | — | (9,109) |
| Share-based compensation expense | — | — | — | — | 17,112 | — | — | — | 17,112 |
| Repurchase and retirement of common stock | (6,224) | (62) | 202 | (7,112) | (38,066) | (134,075) | | | (179,315) |
| Dividends declared ($0.28 per share) | — | — | — | — | 33 | (39,755) | — | — | (39,722) |
| Pension liability adjustment | — | — | — | — | — | — | — | 59 | 59 |
| Foreign currency translation | — | — | — | — | — | — | (10,183) | — | (10,183) |
| Cumulative effect of change in accounting principle | — | — | — | — | — | (590) | — | — | (590) |
| Net income | — | — | — | — | — | 240,755 | — | — | 240,755 |
| **Balance at December 31, 2018** | 136,179 | 1,362 | 202 | (7,112) | 837,658 | 213,753 | (32,776) | (860) | 1,012,025 |
| Shares issued under stock plans | 877 | 9 | — | — | (1,440) | — | — | — | (1,431) |
| Share-based compensation expense | — | — | — | — | 19,629 | — | — | — | 19,629 |
| Repurchase and retirement of common stock | (2,126) | (22) | — | — | (13,084) | (61,681) | | | (74,787) |
| Dividends declared ($0.30 per share) | — | — | — | — | 21 | (40,805) | — | — | (40,784) |
| Pension liability adjustment | — | — | — | — | — | — | — | 69 | 69 |
| Foreign currency translation | — | — | — | — | — | — | (3,692) | — | (3,692) |
| Net income | — | — | — | — | — | 254,860 | — | — | 254,860 |
| **Balance at December 31, 2019** | 134,930 | $ 1,349 | 202 | $ (7,112) | $ 842,784 | $ 366,127 | $ (36,468) | $ (791) | $ 1,165,889 |

See the accompanying notes to consolidated financial statements.

**ENTEGRIS, INC. AND SUBSIDIARIES**

**CONSOLIDATED STATEMENTS OF CASH FLOWS**

| ***(In thousands)*** | Year ended December 31, 2019 | Year ended December 31, 2018 | Year ended December 31, 2017 |
|---|---|---|---|
| **Operating activities:** | | | |
| Net income | $ 254,860 | $ 240,755 | $ 85,066 |
| Adjustments to reconcile net income to net cash provided by operating activities: | | | |
| Depreciation | 74,975 | 65,116 | 58,208 |
| Amortization | 66,428 | 62,152 | 44,023 |
| Share-based compensation expense | 19,629 | 17,112 | 15,306 |
| Provision for deferred income taxes | (14,008) | (11,876) | 1,628 |
| Charge for excess and obsolete inventory | 11,433 | 4,496 | 9,405 |
| Amortization of debt issuance costs | 2,330 | 1,834 | 2,864 |
| Loss on extinguishment of debt | — | 2,429 | 20,687 |
| Other | 9,788 | 9,948 | 16,026 |
| Changes in operating assets and liabilities, net of effects of acquisitions: | | | |
| Trade accounts receivable and notes receivable | (3,164) | (17,473) | (15,401) |
| Inventories | (21,354) | (38,100) | (20,214) |
| Accounts payable and other accrued liabilities | (22,647) | 19,950 | 15,975 |
| Other current assets | 7,784 | (13,677) | (3,330) |
| Income taxes payable, refundable income taxes and noncurrent taxes payable | (3,494) | (30,381) | 64,516 |
| Other | (262) | 291 | (1,386) |
| **Net cash provided by operating activities** | 382,298 | 312,576 | 293,373 |
| **Investing activities:** | | | |
| Acquisition of property and equipment | (112,355) | (110,153) | (93,597) |
| Acquisition of business, net of cash acquired | (277,369) | (380,694) | (20,000) |
| Other | 3,884 | 4,903 | 1,142 |
| **Net cash used in investing activities** | (385,840) | (485,944) | (112,455) |
| **Financing activities:** | | | |
| Proceeds from long-term debt | — | 402,000 | 550,000 |
| Payments of long-term debt | (4,000) | (135,850) | (460,000) |
| Payments for debt issuance costs | — | (7,400) | (7,333) |
| Payments for debt extinguishment costs | — | — | (16,200) |
| Payments for dividends | (40,566) | (39,591) | (9,896) |
| Issuance of common stock from employee stock plans | 7,291 | 5,577 | 5,566 |
| Taxes paid related to net share settlement of equity awards | (8,722) | (14,686) | (5,887) |
| Repurchase and retirement of common stock | (80,321) | (173,781) | (28,000) |
| Other | (502) | (1,858) | (999) |
| **Net cash (used in) provided by financing activities** | (126,820) | 34,411 | 27,251 |
| Effect of exchange rate changes on cash and cash equivalents | 211 | (4,389) | 10,850 |
| **(Decrease) increase in cash and cash equivalents** | (130,151) | (143,346) | 219,019 |
| **Cash and cash equivalents at beginning of year** | 482,062 | 625,408 | 406,389 |
| **Cash and cash equivalents at end of year** | $ 351,911 | $ 482,062 | $ 625,408 |

**Supplemental Cash Flow Information**

| ***(In thousands)*** | Year ended December 31, 2019 | Year ended December 31, 2018 | Year ended December 31, 2017 |
|---|---|---|---|
| Non-cash transactions: | | | |
| Contingent consideration obligation | $ 686 | $ — | $ — |
| Deferred acquisition payments, net | $ 19,848 | $ — | $ — |
| Equipment purchases in accounts payable | $ 11,285 | $ 17,624 | $ 8,608 |
| Repurchase and retirement of common stock to be settled | $ — | $ 5,534 | $ — |
| Capital lease obligations incurred | $ — | $ — | $ 4,768 |
| Dividends payable | $ 349 | $ 131 | $ — |
| Schedule of interest and income taxes paid: | | | |
| Interest paid | $ 41,711 | $ 26,248 | $ 30,392 |
| Income taxes, net of refunds received | $ 77,970 | $ 54,415 | $ 33,330 |

See the accompanying notes to consolidated financial statements.

**ENTEGRIS, INC.**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**

**DECEMBER 31, 2019**

## (1) SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

**Nature of Operations** Entegris, Inc. (Entegris or the Company) is a leading global developer, manufacturer and supplier of microcontamination control products, specialty chemicals and advanced materials handling solutions for manufacturing processes in the semiconductor and other high-technology industries.

**Principles of Consolidation** The consolidated financial statements include the accounts of the Company and its majority-owned subsidiaries. Intercompany profits, transactions and balances have been eliminated in consolidation.

**Use of Estimates and Basis of Presentation** The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States requires management to make judgments, estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. On an ongoing basis, Entegris evaluates its estimates, including those related to receivables, inventories, property, plant and equipment, goodwill, intangible assets, accrued liabilities, income taxes and share-based compensation, among others. Actual results could differ from those estimates.

**Cash and Cash Equivalents** Cash and cash equivalents include cash on hand and highly liquid debt securities with original maturities of three months or less, which are valued at cost and approximates fair value.

**Allowance for Doubtful Accounts** An allowance for uncollectible trade receivables is estimated based on a combination of write-off history, aging analysis and any specific, known troubled accounts. The Company maintains an allowance for doubtful accounts that management believes is adequate to cover expected losses on trade receivables.

**Inventories** Inventories are stated at the lower of cost and net realizable value. Cost is determined by the first-in, first-out (FIFO) method.

**Leases** The Company determines if an arrangement is a lease at inception. Right-of-use (ROU) assets include operating leases. Lease liabilities for operating leases are classified in “Other accrued liabilities” and “Long-term lease liabilities” in our consolidated balance sheet. We do not have material financing leases.

Operating assets and liabilities are recognized at commencement date based on the present value of the lease payments over the lease term. As most of our leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments. We use the implicit rate when readily determinable. The ROU assets includes prepaid lease payments and excludes lease incentives. Lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Lease expense for lease payments is recognized on a straight-line basis over the lease term.

Lease and non-lease components are generally accounted for separately for real estate leases. For non-real estate leases, we account for the lease and non-lease components as a single lease component.

**Property, Plant, and Equipment** Property, plant and equipment are carried at cost and are depreciated on the straight-line method over the estimated useful lives of the assets. When assets are retired or disposed of, the cost and related accumulated depreciation are removed from the accounts, and gains or losses are recognized in the same period. Maintenance and repairs are expensed as incurred, while significant additions and improvements are capitalized. Long-lived assets, including property, plant and equipment, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset or group of assets may not be recoverable based on estimated future undiscounted cash flows. The amount of impairment, if any, is measured as the difference between the net book value and the estimated fair value of the asset(s).

**Fair Value of Financial Instruments** The carrying value of cash equivalents, accounts receivable, accounts payable, accrued payroll and related benefits, and other accrued liabilities approximates fair value due to the short maturity of those instruments.

The fair value of long-term debt, including current maturities, based upon models utilizing market observable (Level 2) inputs and credit risk, was $958 million at December 31, 2019 compared to the carrying amount of long-term debt, including current maturities, of $936 million at December 31, 2019.

**Goodwill and Intangible Assets** Goodwill represents the excess of acquisition costs over the fair value of the net assets of businesses acquired. Goodwill is not subject to amortization, but is tested for impairment annually at August 31, the Company’s annual testing date, and whenever events or changes in circumstances indicate that impairment may have occurred. The Company compares the carrying value of its reporting units, including goodwill, to their fair value. For reporting units in which the assessment indicates that it is more likely than not that the fair value is more than its carrying value, goodwill is not considered impaired. If the carrying value of the reporting unit exceeds fair value, goodwill is considered impaired.

Based on its annual analysis, the Company determined there was no indication of impairment of goodwill and the estimated fair value of each reporting unit substantially exceeded its carrying value.

Amortizable intangible assets include, among other items, patented, unpatented and other developed technology and customer-based intangibles, and are amortized using the straight-line method over their respective estimated useful lives. The Company reviews intangible assets and other long-lived assets for impairment if changes in circumstances or the occurrence of events suggest the remaining value may not be recoverable.

**Derivative Financial Instruments** The Company records derivatives as assets or liabilities on the balance sheet and measures such instruments at fair value. Changes in fair value of derivatives are recorded each period in the Company's consolidated statements of operations.

The Company periodically enters into forward foreign currency contracts to reduce exposures relating to rate changes in certain foreign currencies. Certain exposures to credit losses related to counterparty nonperformance exist. However, the Company does not anticipate nonperformance by the counterparties since they are large, well-established financial institutions. None of these derivatives is accounted for as a hedge transaction. Accordingly, changes in the fair value of forward foreign currency contracts are recorded as other expense (income), net, in the Company's consolidated statements of operations. The fair values of the Company's derivative financial instruments are based on prices quoted by financial institutions for these instruments.

**Foreign Currency Translation** Assets and liabilities of certain foreign subsidiaries are translated from foreign currencies into U.S. dollars at period-end exchange rates, and the resulting gains and losses arising from translation of net assets located outside the U.S. are recorded as a cumulative translation adjustment, a component of accumulated other comprehensive loss in the consolidated balance sheets. Income statement amounts are translated at the weighted average exchange rates for the year. Translation adjustments are not adjusted for income taxes, as substantially all translation adjustments relate to permanent investments in non-U.S. subsidiaries. Gains and losses resulting from foreign currency transactions are included in other expense (income), net, in the Company's consolidated statements of operations.

**Revenue Recognition** Revenue is measured based on consideration specified in a contract with a customer, and excludes any sales incentives and amounts collected on behalf of third parties. The Company recognizes revenue when it satisfies a performance obligation by transferring control over a product or service to a customer.

Taxes assessed by a governmental authority that are both imposed on and concurrent with a specific revenue-producing transaction, that are collected by the Company from a customer, are excluded from revenue.

**Shipping and Handling Costs** Shipping and handling costs incurred are recorded in cost of sales in the Company's consolidated statements of operations.

**Engineering, Research and Development Expenses** Engineering, research and development costs are expensed as incurred.

**Share-based Compensation** The Company measures the cost of employee services received in exchange for the award of equity instruments based on the fair value of the award at the date of grant. Compensation expense is recognized using the straight-line attribution method to recognize share-based compensation over the service period of the award, with adjustments recorded for forfeitures as they occur.

**Income Taxes** The Company accounts for income taxes under the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements. Under this method, deferred tax assets and liabilities are determined on the basis of the differences between the financial statements and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income tax expense in the period that includes the enactment date.

The Company recognizes deferred tax assets to the extent that it believes these assets are more likely than not to be realized. A valuation allowance is recorded to reduce deferred tax assets when it is more likely than not that the Company would not be able to realize all or part of its deferred tax assets. In making such a determination, the Company considers all available positive and negative evidence, including future reversals of existing temporary differences, projected future taxable income, tax-planning strategies, and results of recent operations. If the Company determines that it would be able to realize its deferred tax assets in the future in excess of their net recorded amount, the Company would make an adjustment to the deferred tax asset valuation allowance, which would reduce the provision for income taxes.

The Company's policy for recording interest and penalties associated with audits and unrecognized tax benefits is to record such items as a component of income before taxes. Penalties and interest to be paid or received are recorded in other expense (income), net, in the statement of operations.

**Comprehensive Income (Loss)** Comprehensive income (loss) represents the change in equity resulting from items other than shareholder investments and distributions. The Company's foreign currency translation adjustments, unrealized gains and

losses on available-for-sale investments, and minimum pension liability adjustments are included in accumulated other comprehensive loss. Comprehensive income (loss) and the components of accumulated other comprehensive loss are presented in the accompanying consolidated statements of comprehensive income (loss) and consolidated statements of equity.

**Recent Accounting Pronouncements Adopted in 2019** In February 2016, the FASB established Topic 842, *Leases*, by issuing Accounting Standards Update (ASU) No. 2016-02, which requires lessees to recognize leases on the balance sheet and disclose key information about leasing arrangements. Topic 842 was subsequently amended by ASU No. 2018-01, Land Easement Practical Expedient for Transition to Topic 842; ASU No. 2018-10, Codification Improvements to Topic 842, Leases; and ASU No. 2018-11, Targeted Improvements. The new standard establishes a right-of-use (ROU) model that requires a lessee to recognize a ROU asset and lease liability on the balance sheet for all leases with a term longer than 12 months. Leases will be classified as finance or operating, with classification affecting the pattern and expense recognition in the income statement.

The Company adopted ASU No. 2016-02 using the modified retrospective method. See Note 10 Leases to the consolidated financial statements for further details.

**Recent Accounting Pronouncements Yet to be Adopted** In June 2016, the FASB issued ASU 2016-13, Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments. ASU 2016-13 changes the impairment model for most financial assets and certain other instruments. For trade and other receivables, held-to-maturity debt securities, loans and other instruments, entities will be required to use a new forward-looking “expected loss” model that will replace the current “incurred loss” model and generally will result in the earlier recognition of allowances for losses. The Company is required to adopt this new guidance in the first quarter of fiscal 2020. The Company is reviewing the provisions of the new standard and currently does not expect a material effect on its consolidated financial statements.

**2. REVENUES**

**Revenue Recognition** Revenue is measured based on consideration specified in a contract with a customer, and excludes any sales incentives and amounts collected on behalf of third parties. The Company recognizes revenue when it satisfies a performance obligation by transferring control over a product or service to a customer.

Taxes assessed by a governmental authority that are both imposed on and concurrent with a specific revenue-producing transaction, that are collected by the Company from a customer, are excluded from revenue.

Shipping and handling costs associated with outbound freight after control over a product has transferred to a customer are accounted for as a fulfillment cost and are included in cost of goods sales.

The Company recognizes the incremental costs of obtaining contracts as an expense when incurred if the amortization period of the assets that the Company otherwise would have recognized is one year or less.

When the Company receives consideration, or such consideration is unconditionally due, from a customer prior to transferring goods or services to the customer under the terms of a sales contract, the Company records deferred revenue, which represents a contract liability. Such deferred revenue typically results from advance payments received on sales of the Company’s products. The Company makes the required disclosures below.

The Company does not disclose information about remaining performance obligations that have original expected durations of one year or less.

**Nature of goods and services** The following is a description of principal activities from which the Company generates its revenues. The Company has three reportable segments. For more detailed information about reportable segments, see note 16 to the consolidated financial statements. For each of the three reportable segments, the recognition of revenue regarding the nature of goods and services provided by the segments are similar and described below. The Company recognizes revenue for product sales at a point in time following the transfer of control of such products to the customer, which generally occurs upon shipment or delivery, depending on the terms of the underlying contracts. For product sales contracts that contain multiple performance obligations, the Company allocates the transaction price to each performance obligation identified in the contract based on relative standalone selling prices, or estimates of such prices, and recognizes the related revenue as control of each individual product is transferred to the customer in satisfaction of the corresponding performance obligations.

The Company generally recognizes revenue for sales of services when the Company has satisfied the performance obligation. The payment terms and revenue recognized is based on time and materials.

The Company also enters into arrangements to license its intellectual property. These arrangements typically permit the customer to use a specialized manufacturing process and in return the Company receives a royalty fee. The Company recognizes revenue for a sales-based or usage-based royalty promised in exchange for a license of intellectual property when the subsequent sale or usage occurs.

The Company offers certain customers cash discounts and volume rebates as sales incentives. The discounts and volume rebates are recorded as a reduction in sales at the time revenue is recognized in an amount estimated based on historical experience and contractual obligations. The Company periodically reviews the assumptions underlying its estimates of discounts and volume rebates and adjusts its revenues accordingly.

In addition, the Company offers free product rebates to certain customers. The Company utilizes an adjusted market approach to estimate the stand-alone selling price of the loyalty program and allocates a portion of the consideration received to the free product offering. The free product offering is redeemable upon future purchases of the Company's products. The amount associated with free product rebates is recorded as deferred revenue on the balance sheet and is recognized as revenue when the free product is redeemed or when the likelihood of redemption is remote. The Company has deemed that the amount is immaterial for disclosure. The Company applies the practical expedient in ASU No. 2014-09 and does not disclose information about remaining performance obligations that have original expected durations of one year or less.

The Company provides for the estimated costs of fulfilling its obligations under product warranties at the time the related revenue is recognized. The Company estimates the costs based on historical failure rates, projected repair costs, and knowledge of specific product failures (if any). The specific warranty terms and conditions vary depending upon the product sold and the country in which we do business, but generally include parts and labor over a period generally ranging from 90 days to one year. The Company regularly reevaluates its estimates to assess the adequacy of the recorded warranty liabilities and adjusts the amounts as necessary.

The Company's contracts are generally short-term in nature. Most contracts do not exceed twelve months. Payment terms vary by the type and location of the Company's customers and the products or services offered. The term between invoicing and when payment is due is not significant. For certain products or services and customer types, the Company requires payment before the products or services are delivered to the customer. Those customers that prepay are represented by the contract liabilities below until the performance obligations are satisfied.

The following table provides information about contract liabilities from contracts with customers. The contract liabilities are included in other accrued liabilities balance in the consolidated balance sheet.

| *(In thousands)* | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Contract liabilities - current | $ 13,022 | $ 15,364 |

Significant changes in the contract liabilities balances during the period are as follows:

| *(In thousands)* | 2019 |
|---|---|
| Revenue recognized that was included in the contract liability balance at the beginning of the period | $ (14,716) |
| Increases due to cash received, excluding amounts recognized as revenue during the period | 12,374 |

## (3) ACQUISITIONS

**Hangzhou Anow Microfiltration Co., Ltd.**

On September 17, 2019, the Company acquired Hangzhou Anow Microfiltration Co., Ltd. (Anow), a filtration company for diverse industries including semiconductor, pharmaceutical, and medical. Anow reports into the Microcontamination Control segment of the Company. The acquisition was accounted for under the acquisition method of accounting and the results of Anow are included in the Company's consolidated financial statements as of and since September 17, 2019. Costs associated with the acquisition of Anow were $2.5 million for the year ended December 31, 2019 and were expensed as incurred. These costs are included in selling, general and administrative expenses in the Company's consolidated statement of operations. The acquisition does not constitute a material business combination.

The purchase price for Anow is $72.8 million, net of cash acquired. The purchase price includes (1) cash consideration of $73.0 million, or $69.3 million net of cash acquired, which was funded from the Company's existing cash on hand and (2) $3.5 million deferred payment due to the seller at no earlier than September 18, 2021 at which time either the seller or the Company can exercise its option to receive the deferred payment.

The purchase price of Anow exceeds the net of the acquisition-date fair value of the identifiable assets acquired and the liabilities assumed by $47.7 million. Cash flows used to determine the purchase price included strategic and synergistic benefits (investment value) specific to the Company, which resulted in a purchase price in excess of the fair value of identifiable net assets. This additional investment value resulted in goodwill, which is expected to be non-deductible for income tax purposes.

The following table summarizes the provisional allocation of the purchase price to the fair values assigned to the assets acquired and liabilities assumed at the date of the acquisition and adjusted as of December 31, 2019.

| *(In thousands):* | As of September 17, 2019 | As of December 31, 2019 |
|---|---|---|
| Trade accounts and note receivable, net | $ 3,455 | $ 3,455 |
| Inventories, net | 4,242 | 4,459 |
| Other current assets | 202 | 794 |
| Property, plant and equipment | 8,863 | 8,257 |
| Identifiable intangible assets | 42,179 | 18,949 |
| Right-of-use assets | — | 2,328 |
| Other noncurrent assets | 1,565 | 74 |
| Accounts payable and accrued liabilities | (1,814) | (5,022) |
| Short-term lease liability | — | (88) |
| Long-term lease liability | — | (107) |
| Deferred tax liabilities | (10,890) | (4,742) |
| Other noncurrent liabilities | — | (3,270) |
| Net assets acquired | 47,802 | 25,087 |
| Goodwill | 25,212 | 47,711 |
| Total purchase price, net of cash acquired | $ 73,014 | $ 72,798 |

The Company recognized the following finite-lived intangible assets as part of the acquisition of Anow:

| *(In thousands)* | Amount | Weighted average life in years |
|---|---|---|
| Developed technology | $ 7,370 | 6.5 |
| Trademarks and trade names | 2,197 | 8.0 |
| Customer relationships | 9,382 | 13.0 |
| | $ 18,949 | 10.0 |

The final valuation of assets acquired and liabilities assumed is expected to be completed as soon as possible, but no later than one year from the acquisition date. The allocation of the purchase price to the assets acquired and liabilities assumed is complete with the exception of the value allocated to income tax accounts and intangible assets. To the extent that the Company's estimates require adjustment, the Company will modify the values.

**MPD Chemicals**

On July 15, 2019, the Company acquired MPD Chemicals (MPD), a provider of advanced materials to the specialty chemical, technology, and life sciences industries. MPD reports into the Specialty Chemicals and Engineered Material segment of the Company. The acquisition was accounted for under the acquisition method of accounting and the results of MPD are included in the Company’s consolidated financial statements as of and since July 15, 2019. Costs associated with the acquisition of MPD were $4.0 million for the year ended December, 2019 and were expensed as incurred. These costs are included in selling, general and administrative expense in the Company’s consolidated statement of operations. The acquisition does not constitute a material business combination.

The purchase price for MPD is $161.0 million, net of cash acquired. The purchase price includes (1) cash consideration of $156.5 million (subject to revision for customary working capital adjustments), which was funded from the Company’s existing cash on hand, and (2) a fixed deferred payment of $5.0 million that is due on January 15, 2022, recorded at $4.5 million, which represents the fair value of this fixed deferred payment as of the acquisition date.

The fair value of the fixed deferred payment was determined by taking the present value of this fixed deferred payment based on the term and a discount factor. The fixed deferred payment is reflected in pension benefit obligations and other liabilities in the Company’s consolidated balance sheets.

The purchase price of MPD exceeds the net of the acquisition-date amounts of the identifiable assets acquired and the liabilities assumed by $61.9 million. Cash flows used to determine the purchase price included strategic and synergistic benefits (investment value) specific to the Company, which resulted in a purchase price in excess of the fair value of identifiable net assets. This additional investment value resulted in goodwill, which is expected to be deductible for income tax purposes.

The following table summarizes the provisional allocation of the purchase price to the fair values assigned to the assets acquired and liabilities assumed at the date of the acquisition and adjusted as of December 31, 2019

| *(In thousands):* | As of July 15, 2019 | As of December 31, 2019 |
|---|---|---|
| Trade accounts and note receivable, net | $ 3,575 | $ 3,575 |
| Inventories, net | 21,899 | 8,689 |
| Other current assets | 318 | 313 |
| Property, plant and equipment | 14,571 | 11,465 |
| Identifiable intangible assets | 74,900 | 79,390 |
| Right-of-use assets | 3,677 | 3,621 |
| Accounts payable and accrued liabilities | (2,440) | (2,419) |
| Short-term lease liability | (144) | (88) |
| Long-term lease liability | (4,016) | (4,016) |
| Other noncurrent liabilities | (1,416) | (1,416) |
| Net assets acquired | 110,924 | 99,114 |
| Goodwill | 51,457 | 61,870 |
| Total purchase price, net of cash acquired | $ 162,381 | $ 160,984 |

The allocation of the purchase price to the assets acquired and liabilities assumed is complete with the exception of the value allocated to income tax accounts. To the extent that the Company's estimates require adjustment, the Company will modify the values.

The Company recognized the following finite-lived intangible assets as part of the acquisition of MPD:

| *(In thousands)* | Amount | Weighted average life in years |
|---|---|---|
| Developed technology | $ 12,750 | 11.0 |
| Trademarks and trade names | 620 | 2.0 |
| Customer relationships | 66,020 | 17.0 |
| | $ 79,390 | 16.0 |

**Digital Specialty Chemicals**

On March 8, 2019, the Company acquired Digital Specialty Chemicals Limited (DSC), a Toronto, Canada-based provider of advanced materials to the specialty chemical, technology, and pharmaceutical industries. DSC reports into the Specialty Chemicals and Engineered Materials segment of the Company. The acquisition was accounted for under the acquisition method of accounting and the results of operations of DSC are included in the Company's consolidated financial statements as of and since March 8, 2019. Costs associated with the acquisition of DSC were $2.1 million for the fiscal year ended December 31, 2019 and were expensed as incurred. These costs are included in selling, general and administrative expense in the Company's consolidated statements of operations. The acquisition does not constitute a material business combination.

The purchase price for DSC is $64.1 million, net of cash acquired. The purchase price includes (1) cash consideration of $49.9 million, or $49.4 million net of cash acquired, which was funded from the Company's existing cash on hand, (2) a fixed deferred payment of $16.1 million that is due on March 31, 2022, recorded at $14.0 million representing the fair value of this fixed deferred payment as of the acquisition date, and (3) an earnout-based contingent consideration of $0.7 million based on the operating performance of DSC for a twelve-month period ended March 31, 2021.

The fair value of the fixed deferred payment was determined by taking the present value of this fixed deferred payment based on the term and a discount factor. The fixed deferred payment is reflected in pension benefit obligations and other liabilities in the Company's consolidated balance sheets.

Upon closing the acquisition, the Company recorded a contingent consideration obligation of $0.7 million, which represents the fair value of the earnout-based contingent consideration. This amount was estimated based on a Black Scholes model. Subsequent changes in the fair value of this obligation will be recognized as adjustments to the contingent consideration obligation and reflected within the Company's consolidated statements of operations.

On December 3, 2019, the Company entered into a settlement agreement to accelerate the fixed deferred payment of $16.1 million to no later than March 8, 2020. The Company adjusted the fair value of the fixed deferred payment from its fair value to the full value resulting in an additional $1.6 million charge to interest expense in the consolidated income statement and the liability was adjusted from other long-term liabilities to other accrued liabilities. In addition the acceleration of the fixed deferred payment, it was determined the earnout-based contingent consideration of $0.7 million will never become owed to the sellers under the original purchase agreement. The Company removed the liability and credited selling, general and administrative expenses in the consolidated income statement.

The purchase price of DSC exceeds the net of the acquisition-date amounts of the identifiable assets acquired and the liabilities assumed by $36.5 million. Cash flows used to determine the purchase price included strategic and synergistic benefits (investment value) specific to the Company, which resulted in a purchase price in excess of the fair value of identifiable net assets. This additional investment value resulted in goodwill, which is expected to be non-deductible for income tax purposes.

The following table summarizes the allocation of the purchase price to the fair values assigned to the assets acquired and liabilities assumed at the date of the acquisition and as adjusted as of December 31, 2019:

| *(In thousands):* | As of March 8, 2019 | December 31, 2019 |
|---|---|---|
| Trade accounts and note receivable, net | $ 1,840 | $ 1,840 |
| Inventories, net | 5,523 | 4,307 |
| Other current assets | 1,389 | 1,437 |
| Property, plant and equipment | 16,791 | 16,654 |
| Identifiable intangible assets | 7,976 | 6,870 |
| Right-of-use assets | 79 | 79 |
| Deferred tax asset | 1,104 | 1,066 |
| Other noncurrent assets | — | 28 |
| Accounts payable and accrued liabilities | (2,461) | (2,861) |
| Deferred tax liabilities | (2,861) | (1,802) |
| Long-term lease liability | (37) | (37) |
| Net assets acquired | 29,343 | 27,581 |
| Goodwill | 35,133 | 36,540 |
| Total purchase price, net of cash acquired | $ 64,476 | $ 64,121 |

During the year ended December 31, 2019, the Company finalized its fair value determination of the assets acquired and liabilities assumed. The valuation of the assets acquired and liabilities assumed was based on the information that was available as of the acquisition date, and the expectations and assumptions that have been deemed reasonable by the Company's management.

**Flex Concepts**

On June 26, 2019, the Company acquired Flex Concepts, Inc. (Flex), a technology company focused on single-use fluid handling bags, tubing manifolds and hardware for the life sciences industry. Flex reports into the Advanced Materials Handling segment of the Company. The purchase price of Flex was for cash consideration of $1.9 million. The transaction was accounted for under the acquisition method of accounting and the results of operations of Flex are included in the Company's consolidated financial statements since June 26, 2018. The acquisition does not constitute a material business combination.

During the year ended December 31, 2018, the Company finalized its fair value determinations of the assets acquired and liabilities assumed. The valuation of the assets acquired and liabilities assumed was based on the information that was available as of the acquisition date and the expectations and assumptions that have been deemed reasonable by the Company's management.

**SAES Pure Gas**

On June 25, 2018, the Company acquired the SAES Pure Gas business (SPG), from SAES Getters S.p.A. for approximately $352.7 million in cash, or $341.5 million net of cash acquired, funded from the Company's existing cash on hand. The acquisition was accounted for under the acquisition method of accounting and the results of operations of SPG are included in the Company's consolidated financial statements as of and since June 25, 2018. Direct costs of $4.8 million associated with the acquisition of SPG, consisting mainly of professional and consulting fees, were expensed as incurred for the year ended December 31, 2018. These costs are included in selling, general and administrative expense in the Company's consolidated statements of operations.

SPG, based in San Luis Obispo, California, is a leading provider of high-capacity gas purification systems used in semiconductor manufacturing and adjacent markets, and reports into the Microcontamination Control segment of the Company. This acquisition expanded the gas purification solutions portfolio in our Microcontamination Control segment with high-capacity products suited for bulk chemical purification applications.

The following table summarizes the provisional allocation of the purchase price to the fair values assigned to the assets acquired and liabilities assumed at the date of the acquisition and adjusted as of December 31, 2019.

| *(In thousands):* | As of June 30, 2018 | As of December 31, 2019 |
|---|---|---|
| Trade accounts and notes receivable, net | $ 15,805 | $ 19,173 |
| Inventories, net | 46,073 | 42,758 |
| Other current assets | 424 | 706 |
| Property, plant and equipment, net | 7,345 | 6,653 |
| Identifiable intangible assets | 178,220 | 150,430 |
| Deferred tax asset | — | 734 |
| Other noncurrent assets | 398 | 12 |
| Current liabilities | (26,196) | (26,473) |
| Deferred tax liabilities | (42,110) | (35,271) |
| Other noncurrent liabilities | (1,006) | (1,412) |
| Net assets acquired | 178,953 | 157,310 |
| Goodwill | 162,251 | 184,180 |
| Total purchase price, net of cash acquired | $ 341,204 | $ 341,490 |

The fair value of acquired inventories of $42.8 million is valued at the estimated selling price less the cost of disposal and reasonable profit for the selling effort. The fair value write-up of acquired work-in-process and finished goods inventory was $8.9 million, the amount of which will be amortized over the expected turn of the acquired inventory. Accordingly, a $2.0 million and a $6.9 million incremental cost of sales charge associated with the fair value write-up of inventory acquired in the acquisition of SPG was recorded for the years ended December 31, 2019 and 2018, respectively.

The fair value of acquired property, plant and equipment of $6.7 million is valued at its value-in-use.

The Company recognized the following finite-lived intangible assets as part of the acquisition of SPG:

| *(In thousands)* | Amount | Weighted average life in years |
|---|---|---|
| Developed technology | $ 20,070 | 8.0 |
| Trademarks and trade names | 6,670 | 12.0 |
| Customer relationships | 107,790 | 12.0 |
| Other | 15,900 | 0.9 |
| | $ 150,430 | 10.0 |

The acquired identifiable intangible assets are being amortized on a straight-line basis. The fair value of acquired identifiable intangible assets was determined using the “income approach”. In performing these valuations, the key underlying probability-adjusted assumptions of the discounted cash flows were projected revenues, gross margin expectations, discount rate and operating cost estimates. The valuations were based on the information that was available as of the acquisition date and the expectations and assumptions that have been deemed reasonable by the Company’s management. There are inherent uncertainties and management judgment required in these determinations. The fair value measurements of the assets acquired and liabilities assumed were based on valuations involving significant unobservable inputs, or Level 3 in the fair value hierarchy.

The purchase price of SPG exceeded the net of the acquisition-date amounts of the identifiable assets acquired and the liabilities assumed by $184.2 million. Cash flows used to determine the purchase price included strategic and synergistic benefits (investment value) specific to the Company, which resulted in a purchase price in excess of the fair value of identifiable net assets. The purchase price also included the fair values of other assets that were not identifiable, not separately recognizable under accounting rules (e.g., assembled workforce) or of immaterial value in addition to a going-concern element that represents the Company’s ability to earn a higher rate of return on the group of assets than would be expected on the

separate assets as determined during the valuation process. This additional investment value resulted in goodwill. No amount of goodwill is expected to be deductible for income tax purposes.

During the quarter ended June 29, 2019, the Company finalized its fair value determination of the assets acquired and liabilities assumed. The valuation of the assets acquired and liabilities assumed was based on the information that was available as of the acquisition date, and the expectations and assumptions that have been deemed reasonable by the Company's management.

**Particle Sizing Systems**

On January 22, 2018, the Company acquired Particle Sizing Systems, LLC (PSS), which provides particle sizing instrumentation for liquid applications to the semiconductor and life science industries. The acquired assets and assumed liabilities became part of the Company's Advanced Materials Handling segment. The transaction was accounted for under the acquisition method of accounting and the results of operations of PSS are included in the Company's consolidated financial statements since January 22, 2018. The acquisition does not constitute a material business combination.

The purchase price for PSS was cash consideration of $37.3 million, funded from the Company's existing cash on hand. Costs associated with the acquisition of the product line were not significant and were expensed as incurred.

The purchase price of PSS exceeds the net of the acquisition-date amounts of the identifiable assets acquired and the liabilities assumed by $8.8 million. Cash flows used to determine the purchase price included strategic and synergistic benefits (investment value) specific to the Company, which resulted in a purchase price in excess of the fair value of identifiable net assets. This additional investment value resulted in goodwill, which is expected to be deductible for income tax purposes.

The following table summarizes the final allocation of the purchase price to the fair values assigned to the assets acquired and liabilities assumed at the date of acquisition and adjusted as of December 31, 2018.

| *(In thousands):* | As of March 31, 2018 | As of December 31, 2018 |
|---|---|---|
| Trade accounts and notes receivable, net | $ 3,616 | $ 3,898 |
| Inventories, net | 1,889 | 1,827 |
| Other current assets | 14 | 23 |
| Property, plant and equipment, net | — | 103 |
| Identifiable intangible assets | 20,000 | 25,600 |
| Other noncurrent assets | 21 | 3 |
| Accounts payables | (438) | (294) |
| Other accrued liabilities | (2,799) | (2,667) |
| Net assets acquired | 22,303 | 28,493 |
| Goodwill | 15,353 | 8,804 |
| Total purchase price | $ 37,656 | $ 37,297 |

As of December 31, 2018, the Company finalized its fair value determinations of the assets acquired and liabilities assumed. The valuation of the assets acquired and liabilities assumed was based on the information that was available as of the acquisition date, and the expectations and assumptions that have been deemed reasonable by the Company's management.

Intangible assets, consisting mostly of technology-related intellectual property, generally will be amortized on a straight-line basis over an expected useful life currently estimated at approximately 9.4 years. In performing the valuation of intangible assets, the Company used independent appraisals, discounted cash flows and other factors, as the best evidence of fair value. The key underlying assumptions of the discounted cash flows were projected revenues, gross margin expectations and operating cost estimates. There are inherent uncertainties and management judgment required in these determinations. No assurance can be given that the underlying assumptions will occur as projected. The fair value measurement of the assets acquired and liabilities assumed were based on valuation involving significant unobservable inputs, or Level 3 in the fair value hierarchy.

## (4) TRADE ACCOUNTS AND NOTES RECEIVABLE

Trade accounts and notes receivable from customers at December 31, 2019 and 2018 consist of the following:

| *(In thousands)* | 2019 | 2018 |
|---|---|---|
| Accounts receivable | $ 233,274 | $ 218,098 |
| Notes receivable | 2,280 | 4,850 |
| Total trade accounts and notes receivable | 235,554 | 222,948 |
| Less allowance for doubtful accounts | 1,145 | 893 |
| Trade accounts and notes receivable, net | $ 234,409 | $ 222,055 |

## (5) INVENTORIES

Inventories at December 31, 2019 and 2018 consist of the following:

| *(In thousands)* | 2019 | 2018 |
|---|---|---|
| Raw materials | $ 92,849 | $ 100,770 |
| Work-in-process | 30,856 | 31,412 |
| Finished goods [(a)] | 163,393 | 135,958 |
| Inventories, net | $ 287,098 | $ 268,140 |

[(a)] Includes consignment inventories held by customers for $13.6 million and $12.5 million at December 31, 2019 and 2018, respectively.

## (6) PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment at December 31, 2019 and 2018 consists of the following:

| *(In thousands)* | 2019 | 2018 | Estimated useful lives in years |
|---|---|---|---|
| Land | $ 27,184 | $ 21,913 | |
| Buildings and improvements | 220,563 | 185,175 | 5-35 |
| Manufacturing equipment | 350,664 | 298,529 | 5-10 |
| Canisters and cylinders | 107,108 | 90,790 | 3-12 |
| Molds | 75,482 | 72,089 | 3-5 |
| Office furniture and equipment | 157,770 | 142,818 | 3-8 |
| Construction in progress | 63,197 | 69,437 | |
| Total property, plant and equipment | 1,001,968 | 880,751 | |
| Less accumulated depreciation | 522,424 | 461,222 | |
| Property, plant and equipment, net | $ 479,544 | $ 419,529 | |

The table below sets forth the depreciation expense for the years ended December 31, 2019, 2018 and 2017:

| *(In thousands)* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Depreciation expense | $ 74,975 | $ 65,116 | $ 58,208 |

## (7) GOODWILL AND INTANGIBLE ASSETS

Goodwill activity for each of the Company's reportable segments that carry goodwill, Specialty Chemicals and Engineered Materials (SCEM**),** Microcontamination Control (MC) and Advanced Materials Handling (AMH), for the years ended December 31, 2019 and 2018 is shown below:

| *(In thousands)* | SCEM | MC | AMH | Total |
|---|---|---|---|---|
| December 31, 2017 | $ 304,270 | $ 8,007 | $ 47,411 | $ 359,688 |
| Addition due to acquisitions | — | 183,729 | 9,660 | 193,389 |
| Other, including foreign currency translation | (2,847) | (28) | — | (2,875) |
| December 31, 2018 | 301,423 | 191,708 | 57,071 | 550,202 |
| Addition due to acquisitions | 98,410 | 47,711 | — | 146,121 |
| Purchase accounting adjustments | — | 451 | — | 451 |
| Other, including foreign currency translation | (1,881) | 151 | — | (1,730) |
| December 31, 2019 | $ 397,952 | $ 240,021 | $ 57,071 | $ 695,044 |

As of December 31, 2019, goodwill amounted to approximately $695.0 million, an increase of $144.8 million from the balance at December 31, 2018. The increase in goodwill in 2019 reflects the acquisition of DSC, MPD, and Anow described in note 3 offset by the decrease resulting from foreign currency translation. The increase in goodwill in 2018 reflects the acquisition of SPG, PSS and Flex described in note 3 offset by the decrease resulting from foreign currency translation.

Identifiable intangible assets at December 31, 2019 and 2018 consist of the following:

2019

| *(In thousands)* | Gross carrying Amount | Accumulated amortization | Net carrying value | Weighted average life in years |
|---|---|---|---|---|
| Developed technology | 272,334 | 204,689 | 67,645 | 7.1 |
| Trademarks and trade names | 29,106 | 16,326 | 12,780 | 10.1 |
| Customer relationships | 405,537 | 161,551 | 243,986 | 11.8 |
| Other | 36,303 | 26,762 | 9,541 | 4.1 |
| | $ 743,280 | $ 409,328 | $ 333,952 | 9.7 |

2018

| *(In thousands)* | Gross carrying amount | Accumulated amortization | Net carrying value | Weighted average life in years |
|---|---|---|---|---|
| Developed technology | 248,776 | 176,421 | 72,355 | 7.0 |
| Trademarks and trade names | 25,643 | 14,749 | 10,894 | 10.5 |
| Customer relationships | 328,050 | 133,068 | 194,982 | 10.8 |
| Other | 36,306 | 18,850 | 17,456 | 4.1 |
| | $ 638,775 | $ 343,088 | $ 295,687 | 8.9 |

The table below sets forth the amortization expense for the years ended December 31, 2019, 2018, and 2017:

| *(In thousands)* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Amortization expense | $ 66,428 | $ 62,152 | $ 44,023 |

The amortization expense for each of the five succeeding years and thereafter relating to intangible assets currently recorded in the Company's consolidated balance sheets is estimated to be the following at December 31, 2019:

| *(In thousands)* | 2020 | 2021 | 2022 | 2023 | 2024 | Thereafter | Total |
|---|---|---|---|---|---|---|---|
| Future amortization expense | $ 50,930 | $ 44,297 | $ 43,569 | $ 42,880 | $ 29,976 | $ 122,300 | $ 333,952 |

**(8) DEBT**

Long-term debt at December 31, 2019 and 2018 consists of the following:

| *(In thousands)* | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Senior secured term loan facility due 2025 | 396,000 | 400,000 |
| Senior unsecured notes due 2026 | 550,000 | 550,000 |
| | 946,000 | 950,000 |
| Unamortized discount and debt issuance costs | 9,516 | 11,137 |
| Total long-term debt | 936,484 | 938,863 |
| Less current maturities of long-term debt | 4,000 | 4,000 |
| Long-term debt less current maturities | $ 932,484 | $ 934,863 |

Annual maturities of long-term debt, excluding unamortized discount and issuance costs, due as of December 31, 2019 are as follows:

| *(In thousands)* | 2020 | 2021 | 2022 | 2023 | 2024 | Thereafter | Total |
|---|---|---|---|---|---|---|---|
| Contractual debt obligation maturities* | $ 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 926,000 | $ 946,000 |

*Subject to Excess Cash Flow payments to the lenders, see discussion below.

In November 2018, the Company entered into the New Term Loan Facility and the New Revolving Facility described below. The Company used the net proceeds of the term loans under the New Term Loan Facility to repay and terminate the Previous Credit Facilities, described below, to pay fees and expenses related to the issuance and the repayment, and for general corporate purposes.

In October 2019, the Company amended its credit and guaranty agreement (the “Credit Agreement”) dated as of November 6, 2018. The amendment changed the agency bank from Goldman Sachs Bank USA, as administrative agent and collateral agent, to Morgan Stanley, and adds two additional lenders to the Company’s Credit Agreement. There was no change to the total commitment or the term length for either the New Term Loan Facility or the New Revolving Facility as defined below under Senior Secured Credit Facilities. However, the amendment changed the amount committed for each of the previous lenders.

Debt issuance costs of $5.1 million for the year ended December 31, 2018 were paid to third parties are capitalized as debt issuance costs in connection with the New Credit Facilities. These debt issuance costs are being amortized as interest expense in the Company’s consolidated statements of operations over the term of the debt instrument using the straight-line method. The term loans under the Previous Term Loan Facility were repaid without premium or penalty at 100% of the outstanding principal amount, plus accrued and unpaid interest.

2026 Senior Unsecured Notes

On November 10, 2017, the Company issued $550 million aggregate principal amount of 4.625% senior unsecured notes due February 10, 2026 (“the 2026 Notes”). The 2026 Notes were issued under an indenture dated as of November 10, 2017 (the “2026 Notes Indenture”) by and among the Company and Wells Fargo Bank, National Association, as trustee. Interest on the 2026 Notes is payable semi-annually in arrears on February 15 and August 15, which commenced on February 15, 2018.

The 2026 Notes are guaranteed, jointly and severally, fully and unconditionally, on a senior unsecured basis, by, subject to certain exclusions, each of the Company’s domestic subsidiaries that guarantee indebtedness under the New Credit Facilities.

As provided in the 2026 Notes Indenture, the Company may at its option on one or more occasions redeem all or a part of the 2026 Notes at a redemption price equal to (a) 100% of the principal amount of the 2026 Notes redeemed plus a make-whole premium if redeemed prior to November 10, 2020, or (b) 100% of the principal amount of the 2026 Notes redeemed plus a percentage of principal amount between 100% and 103.469% of the aggregate principal amount of the 2026 Notes to be redeemed, depending on the period of redemption, if redeemed on or after November 10, 2020, plus, in each case, accrued and unpaid interest on the amount of 2026 Notes being redeemed.

Upon a change in control accompanied by certain rating events, the Company is required to offer to repurchase all of the 2026 Notes at a price in cash equal to 101% of the aggregate principal amount thereof, plus accrued and unpaid interest, if any, to, but not including, the date of repurchase.

The 2026 Notes Indenture contains covenants that, among other things and subject to certain exceptions, limit the Company’s ability and the ability of the Company’s restricted subsidiaries to create liens, enter into sale and leaseback transactions, engage in consolidations or mergers, or sell, transfer or otherwise dispose of all or substantially all of their assets. The 2026 Notes

Indenture also, subject to certain exceptions, limits the ability of any subsidiary of the Company that is not a guarantor under the 2026 Notes to incur indebtedness. The Company is in compliance with all of the above covenants at December 31, 2019.

The 2026 Notes Indenture also provides for events of default which, if certain of them occur, would permit the trustee or the holders of at least 25% in aggregate principal amount of the then outstanding 2026 Notes to declare the principal, premium, if any, interest and any other monetary obligations on all the then-outstanding 2026 Notes to be due and payable immediately.

Senior Secured Credit Facilities

On November 6, 2018, the Company entered into a credit and guaranty agreement (the "Credit Agreement") with Goldman Sachs Bank USA, subsequently amended in October of 2019 to Morgan Stanley, as administrative agent and collateral agent, and the lenders party thereto, that provides senior secured financing in an aggregate principal amount of $700 million, consisting initially of (a) term loans in an aggregate principal amount of $400 million (the "New Term Loan Facility") and (b) revolving commitments in an aggregate amount of $300 million (the "New Revolving Facility", and together with the New Term Loan Facility, the "New Credit Facilities"). Borrowings under the New Credit Facilities bear interest at a rate per annum equal to, at the Company's option, a base rate (such as prime rate or LIBOR) plus an applicable margin. The Company's interest rate on the term loans under the New Term Loan Facility is 3.80% at December 31, 2019. In addition to paying interest on the outstanding principal under the New Credit Facilities, the Company will pay (i) with respect to the New Term Loan Facility, customary agency fees, and (ii) with respect to the New Revolving Facility, a commitment fee in respect of the unutilized commitments thereunder and customary letter of credit fees and agency fees. The initial commitment fee is 0.20% per annum.

The Company may voluntarily prepay outstanding term loans and revolving loans under the New Credit Facilities and may reduce the unutilized portion of the New Revolving Facility at any time without premium or penalty other than customary "breakage" costs with respect to LIBOR loans.

It is unclear whether the LIBOR will continue to be calculated or published as a reference rate/benchmark after 2021.The Company's New Credit Facilities do not have fallback language for when LIBOR is unavailable. The Company is currently assessing its alternatives and cannot yet reasonably estimate the expected impact. The Company believes that it could renegotiate the agreement prior to the discontinuation to determine an alternative rate.

The Credit Agreement requires scheduled quarterly installment payments of 0.25% of the aggregate principal amount of the outstanding term loans commencing March 31, 2019. The Credit Agreement does not require scheduled amortization under the New Revolving Facility.

The Credit Agreement also requires the Company to prepay outstanding term loans, subject to certain exceptions, with (a) up to 50% of the Company's annual Excess Cash Flow (as defined in the Credit Agreement) and (b) 100% of the net cash proceeds of (i) certain asset sales and casualty and condemnation events, subject to reinvestment rights and certain other exceptions; and (ii) any incurrence or issuance of certain debt, other than debt permitted under the New Credit Facilities.

The New Term Loan Facility matures November 6, 2025 and the New Revolving Facility matures November 6, 2023. At December 31, 2019, the only outstanding amounts under the New Revolving Facility were undrawn outstanding letters of credit of $0.2 million.

All obligations under the New Credit Facilities are unconditionally guaranteed by certain of the Company's wholly-owned domestic subsidiaries and are secured, subject to certain exceptions, by substantially all of the Company's assets and the assets of the Company's subsidiaries that have guaranteed the New Credit Facilities.

The New Credit Facilities contain a number of negative covenants that, subject to certain exceptions, restrict the Company's ability and each of the Company's subsidiaries' ability to incur additional indebtedness; pay dividends on its capital stock or redeem, repurchase or retire its capital stock or its other indebtedness; make investments, loans and acquisitions, create restrictions on the payment of dividends or other amounts to the Company from the Company's restricted subsidiaries; engage in transactions with its affiliates; sell assets, including capital stock of its subsidiaries; materially alter the business it conducts; consolidate or merge; incur liens; and engage in sale-leaseback transactions. If at any time, commencing with the fiscal quarter ending March 31, 2019, the Company has revolving borrowings, unreimbursed letter of credit drawings and undrawn letters of credit outstanding in an amount in excess of 35.0% of the commitment amount under the New Revolving Facility, the Credit Agreement requires the Company to maintain a secured net leverage ratio of at least 3.25 to 1.0. The Company is in compliance with all of the above covenants at December 31, 2019.

Previous Senior Secured Loan Facilities

On April 30, 2014, the Company entered into (a) a term loan credit and guaranty agreement with Goldman Sachs Bank USA, as administrative agent, collateral agent, sole lead arranger, sole bookrunner and sole syndication agent, that provided senior secured financing of $460.0 million (the "Previous Term Loan Facility") and (b) an asset-based revolving credit and guaranty

agreement with Goldman Sachs Bank USA, as administrative agent, collateral agent, sole lead arranger, sole bookrunner and sole syndication agent, that provided senior secured financing of $75.0 million, subject to a borrowing base (the "Previous ABL Loan Facility"). As stated above, the Previous Term Loan Facility and the Previous ABL Loan Facility were repaid in full in November 2018. The repayment of the Previous Term Loan Facility and the Previous ABL Loan Facility resulted in a loss of $2.3 million for the year ended December 31, 2018 on extinguishment of debt, which is included in other expense (income), net in the Company's consolidated statement of operations.

**(9) OTHER (INCOME) EXPENSE, NET**

The table below sets forth the Other (income) expense, net for the years ended December 31, 2019, 2018 and 2017:

| *(In thousands)* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Versum termination fee, net | $ (122,000) | $ — | $ — |
| (Gain) loss on foreign currency remeasurement | (237) | 4,391 | 2,288 |
| Loss on extinguishment of debt | — | 2,429 | 20,687 |
| Other, net | 1,156 | 1,182 | 2,483 |
| Other (income) expense, net | $ (121,081) | $ 8,002 | $ 25,458 |

Versum termination fee, net

On January 28, 2019, the Company and Versum announced that they had entered into an Agreement and Plan of Merger, dated as of January 27, 2019 (the "Merger Agreement"), pursuant to which they agreed to combine in a merger of equals. On April 8, 2019, Versum announced that its Board of Directors had received a proposal from Merck KGaA to acquire Versum and that its Board of Directors had deemed such proposal as a "Superior Proposal" defined in the merger agreement. On April 12, 2019, the Company received a termination notice from Versum terminating the Merger Agreement. In accordance with the terms of the Merger Agreement, Entegris received a $140.0 million termination fee from Versum in the second quarter of 2019. Also in the second quarter of 2019, the Company paid a fee of $18.0 million to the third-party financial adviser it had engaged to assist with the transaction.

**(10) LEASES**

**Adoption of ASC ASU No. 2016-02, *Leases*** On January 1, 2019, the Company adopted ASU No. 2016-02 using the modified retrospective method applied to existing leases in place as of January 1, 2019. Leases entered into after January 1, 2019 are presented under the provisions of ASU No. 2016-02, while prior periods are not adjusted and continue to be reported in accordance with previous accounting guidance. Leases commencing or renewing after the adoption date are evaluated based on the guidance in ASU No. 2016-02 and may result in more finance leases being recognized even for the renewal of previously classified operating leases.

The Company elected to adopt the 'package of practical expedients', which permitted the Company not to reassess under the new standard our prior conclusions about lease identification, lease classification and initial direct costs. The Company also elected the practical expedient pertaining to land easements, which allowed the Company to exclude evaluation of all existing land easements in connection with the adoption of the new lease requirements to assess whether they meet the definition of a lease. The Company did not elect the use-of-hindsight practical expedient and therefore did not reassess the lease terms for purposes of calculation of the lease liabilities and right-of-use assets at the adoption date. The Company elected the short-term lease recognition exemption for all leases that qualified. This means, for those leases that qualified, the Company did not recognize right-of-use assets or lease liabilities, and this included not recognizing right-of-use assets or lease liabilities for existing short-term leases of those assets in transition. The Company also elected the practical expedient to not separate lease and non-lease components for all leases other than leases of real estate, and this included not separating lease and non-lease components for all leases other than leases of real estate in transition.

The Company adopted ASU 2016-02 using the modified retrospective method, recognizing the cumulative effect of application as an adjustment to the opening balance sheet. The standard had a material impact on our consolidated balance sheets, but did not have a material impact on our consolidated statement of income or cash flows. The most significant impact was the recognition of the right-of-use asset and lease liabilities for operating leases. As of December 31, 2019, we do not have any material finance leases.

The details of the impact of the changes made to the Company's consolidated balance sheet date as of January 1, 2019, the date of adoption, are reflected in the following table.

| (*In thousands*) | Debit/(Credit) |
|---|---|
| Right-of-use assets | $ 46,162 |
| Prepaid rent | (646) |
| Short-term lease liability | (8,892) |
| Short-term deferred rent | 274 |
| Long-term lease liability | (42,639) |
| Long-term deferred rent | 5,741 |
| Deferred tax asset | 11,629 |
| Deferred tax liability | (11,629) |

**Leases** As of December 31, 2019, the Company was obligated under operating lease agreements for certain sales offices and manufacturing facilities, manufacturing equipment, vehicles, information technology equipment and warehouse space. Our leases have remaining lease terms of 1 year to 14 years, some of which may include options to extend the lease for up to 6 years, and some of which may include options to terminate the leases within 1 year. For the year ended December 31, 2019, the Company has obtained $9.1 million of operating lease assets in exchange for lease obligations.

As of December 31, 2019, the Company's operating lease components with initial or remaining terms in excess of one year were classified on the consolidated balance sheet as follows:

| (*In thousands*) | Classification | December 31, 2019 |
|---|---|---|
| **Assets** | | |
| Right-of-use assets | Right-of-use assets | $ 50,160 |
| **Liabilities** | | |
| Short-term lease liability | Other accrued liabilities | 10,025 |
| Long-term lease liability | Long-term lease liability | 43,827 |
| Total lease liabilities | | $ 53,852 |

Expense for leases less than 12 months for the year ended December 31, 2019 were not material. The components of lease expense for the year ended December 31, 2019 are as follows:

| (*In thousands*) | December 31, 2019 |
|---|---|
| Operating lease cost | $ 12,538 |

The Company combines the amortization of the ROU assets and the change in the operating lease liability in the same line item in the Statement of Cash Flows. Other information related to the Company's operating leases was as follows:

| (*In thousands*) | December 31, 2019 |
|---|---|
| Cash paid for amounts included in the measurement of lease liabilities: | |
| Operating cash flows from leases | $ 11,137 |
| Lease Term and Discount Rate | |
| Weighted average remaining lease term (years) | 8.36 |
| Weighted average discount rate | 4.93% |

Future minimum lease payments for noncancellable operating leases as of December 31, 2019, were as follows:

| *(In thousands)* | Operating Leases |
|---|---|
| 2020 | $ 12,407 |
| 2021 | 10,221 |
| 2022 | 6,909 |
| 2023 | 6,055 |
| 2024 | 5,052 |
| Thereafter | 26,904 |
| Total | $ 67,548 |
| Less: Interest | 13,696 |
| Present value of lease liabilities | $ 53,852 |

Future minimum lease payments for noncancellable operating leases as of December 31, 2018, were as follows:

| *(In thousands)* | Operating Leases |
|---|---|
| 2019 | $ 11,360 |
| 2020 | 8,906 |
| 2021 | 6,836 |
| 2022 | 5,431 |
| 2023 | 5,208 |
| Thereafter | 27,153 |
| Total | $ 64,894 |

**(11) ASSET RETIREMENT OBLIGATIONS**

The Company has asset retirement obligations (AROs) related to environmental disposal obligations associated with cylinders used to supply customers with gas products, and certain restoration obligations associated with its leased facilities.

Changes in the carrying amounts of the Company's AROs for the years ended December 31, 2019 and 2018 are shown below:

| *(In thousands)* | 2019 | 2018 |
|---|---|---|
| Balance at beginning of year | $ 12,543 | $ 12,167 |
| Liabilities assumed in acquisitions | 1,416 | — |
| Liabilities settled | (102) | (758) |
| Liabilities incurred | 546 | 884 |
| Accretion expense | 75 | 510 |
| Revision of estimate | (538) | (260) |
| Balance at end of year | $ 13,940 | $ 12,543 |

ARO liabilities expected to be settled within twelve months are included in the consolidated balance sheets in other accrued liabilities, while all other ARO liabilities are included in pension benefit obligations and other liabilities in the consolidated balance sheets.

**(12) INCOME TAXES**

Income before income taxes for the years ended December 31, 2019, 2018 and 2017 was derived from the following sources:

| *(In thousands)* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Domestic | $ 145,215 | $ 61,545 | $ 13,363 |
| Foreign | 172,834 | 192,887 | 171,368 |
| Income before income tax expense | $ 318,049 | $ 254,432 | $ 184,731 |

Income tax expense for the years ended December 31, 2019, 2018 and 2017 is summarized as follows:

| *(In thousands)* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Current: | | | |
| Federal | $ 35,497 | $ (14,775) | $ 60,529 |
| State | 2,625 | 1,605 | 808 |
| Foreign | 39,075 | 38,723 | 36,700 |
| | 77,197 | 25,553 | 98,037 |
| Deferred (net of valuation allowance): | | | |
| Federal | (10,966) | (13,399) | 249 |
| State | (1,018) | (370) | (891) |
| Foreign | (2,024) | 1,893 | 2,270 |
| | (14,008) | (11,876) | 1,628 |
| Income tax expense | $ 63,189 | $ 13,677 | $ 99,665 |

Income tax expense differs from the expected amounts based upon the statutory federal tax rates for the years ended December 31, 2019, 2018 and 2017 as follows:

| *(In thousands)* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Expected federal income tax at statutory rate | $ 66,790 | $ 53,431 | $ 64,656 |
| State income taxes before valuation allowance, net of federal tax effect | (1,563) | 605 | (1,376) |
| Effect of foreign source income | (1,362) | 2,359 | (27,581) |
| Tax contingencies | 1,785 | 468 | 2,816 |
| Valuation allowance | 2,051 | 527 | 3,195 |
| U.S. federal research credit | (6,514) | (2,263) | (4,881) |
| Equity compensation | (1,411) | (3,826) | (2,321) |
| Transition tax | — | 89 | 72,993 |
| Remeasurement of deferred taxes | — | 619 | (10,248) |
| Incremental taxes on unremitted foreign earnings release | — | — | 3,968 |
| Foreign derived intangible income | (7,851) | (4,846) | — |
| Legal entity restructuring foreign tax credit | — | (25,080) | — |
| Legal entity restructuring dividends received deduction | 9,398 | (9,398) | — |
| Other items, net | 1,866 | 992 | (1,556) |
| Income tax expense | $ 63,189 | $ 13,677 | $ 99,665 |

In 2012, Entegris' Korean subsidiary made commitments to produce a certain line of products in Korea. In return for this commitment, the Company had a tax holiday on income earned on sales of these products for five years and a partial holiday for two additional years. The income tax benefits attributable to this tax holiday are $4.0 million ($0.03 per diluted share) and $7.4 million ($0.05 per diluted share) for the years ended December 31, 2018 and 2017, respectively. The tax holiday benefit ceased during the year ended December 31, 2018. The 2017 effective tax rate included an additional benefit of $4.3 million since the corporate tax rate in Korea was lower than the U.S. rate.

The Company also has made employment and spending commitments to Singapore. In return for those commitments, the Company has been granted a partial tax holiday for eight years starting in 2013. During 2017, this agreement was extended to 2027 in exchange for revised employment and spending commitments. The income tax benefits attributable to the tax status are $5.8 million ($0.04 per diluted share), $6.3 million ($0.04 per diluted share) and $4.7 million ($0.03 per diluted share) for the years ending December 31, 2019, 2018 and 2017, respectively. The 2019, 2018 and 2017 effective tax rates include additional benefits of $3.3 million, $3.6 million and $12.4 million, because the corporate tax rate in Singapore is lower than the U.S. rate.

At December 31, 2019, there were approximately $35.9 million of accumulated undistributed earnings of subsidiaries outside of the United States, all of which are considered to be indefinitely reinvested. Management estimates that no material withholding taxes would be incurred if these undistributed earnings were distributed.

The significant components of the Company's deferred tax assets and deferred tax liabilities at December 31, 2019 and 2018 are as follows:

| *(In thousands)* | 2019 | 2018 |
|---|---|---|
| Deferred tax assets attributable to: | | |
| Accounts receivable | $ 87 | $ 247 |
| Inventory | 6,517 | 4,085 |
| Accruals not currently deductible for tax purposes | 7,568 | 8,694 |
| Net operating loss and credit carryforwards | 22,316 | 15,878 |
| Capital loss carryforward | — | 2,450 |
| Equity compensation | 3,415 | 3,054 |
| Asset impairments | 452 | 452 |
| Other, net | 5,990 | 3,488 |
| Gross deferred tax assets | 46,345 | 38,348 |
| Valuation allowance | (20,118) | (18,079) |
| Total deferred tax assets | 26,227 | 20,269 |
| Deferred tax liabilities attributable to: | | |
| Purchased intangible assets | (44,447) | (50,128) |
| Depreciation | (6,491) | (3,874) |
| Total deferred tax liabilities | (50,938) | (54,002) |
| Net deferred tax liabilities | $ (24,711) | $ (33,733) |

Deferred tax assets are generally required to be reduced by a valuation allowance if, based on the weight of available positive and negative evidence, it is more likely than not that some portion or all of the deferred tax assets will not be realized.

As of December 31, 2019 and 2018, the Company had a net U.S. deferred tax liability of $12.2 million and $24.5 million, respectively, which are composed of temporary differences and various tax credit carryforwards. Management believes that it is more likely than not that the benefit from certain state net operating loss carryforwards and state credits will not be realized. In recognition of this risk, management has provided a valuation allowance of $10.4 million and $10.7 million as of December 31, 2019 and 2018, respectively, on the related deferred tax assets. If the assumptions change and management determines the assets will be realized, the tax benefits relating to any reversal of the valuation allowance on deferred tax assets at December 31, 2019 will be recognized as a reduction of income tax expense.

At December 31, 2019, the Company had state operating loss and credit carryforwards of approximately $10.5 million, which begin to expire in 2020 and foreign operating loss carryforwards of $29.6 million, which begin to expire in 2020.

As of December 31, 2019 and 2018, the Company had a net non-U.S. deferred tax asset of $7.7 million and $8.8 million, respectively, for which management determined based upon the available evidence a valuation allowance of $9.7 million and $7.3 million as of December 31, 2019 and 2018, respectively, was required against the non-U.S. gross deferred tax assets. For other non-U.S. jurisdictions, management is relying upon projections of future taxable income to utilize deferred tax assets.

Benefits from tax positions should be recognized in the financial statements only when it is more likely than not that the tax positions will be sustained upon examination by the appropriate taxing authority that would have full knowledge of all relevant information. A tax position that meets the more-likely-than-not recognition threshold is measured at the largest amount of benefit that is greater than fifty percent likely of being realized upon ultimate settlement. Tax positions that fail to meet the more-likely-than-not recognition threshold should be recognized in the first subsequent financial reporting period in which that threshold is met. Previously recognized tax positions that no longer meet the more-likely-than-not recognition threshold should be derecognized in the first subsequent financial reporting period in which that threshold is no longer met. The provisions also provide guidance on the accounting for and disclosure of unrecognized tax benefits, interest and penalties.

Reconciliations of the beginning and ending balances of the total amounts of gross unrecognized tax benefits for the years ended December 31, 2019 and 2018 are as follows:

| *(In thousands)* | 2019 | 2018 |
|---|---|---|
| Gross unrecognized tax benefits at beginning of year | $ 12,295 | $ 12,561 |
| Increase in tax positions from prior years | 1,786 | 61 |
| Decrease in tax positions from prior years | (54) | (234) |
| Increases in tax positions for current year | 3,414 | 2,970 |
| Settlement of tax positions for current year | (421) | (2,577) |
| Lapse in statute of limitations | (826) | (486) |
| Gross unrecognized tax benefits at end of year | $ 16,194 | $ 12,295 |

The total amount of net unrecognized tax benefits that, if recognized, would affect the effective tax rate was $12.5 million at December 31, 2019.

Penalties and interest paid or received are recorded in other income, net, in the consolidated statements of operations. As of December 31, 2019 and 2018, the Company has accrued interest and penalties related to unrecognized tax benefits of $3.9 million and $1.7 million, respectively. Expenses of $0.6 million, $0.8 million and $0.3 million were recognized as interest and penalties in the consolidated statements of operations for the years ended December 31, 2019, 2018 and 2017, respectively.

The Company files income tax returns in the U.S. and in various state, local and foreign jurisdictions. The statutes of limitations related to both the consolidated Federal income tax return and state returns are closed for all years up to and including 2015 and 2015, respectively. With respect to foreign jurisdictions, the statute of limitations varies from country to country, with the earliest open year for the Company's major foreign subsidiaries being 2013.

Due to the expiration of various statutes of limitations and settlement of audits, it is reasonably possible that the Company's gross unrecognized tax benefit balance may decrease within the next twelve months by approximately $2.0 million.

**(13) EQUITY**

**Dividend**

Holders of the Company's common stock are entitled to receive dividends when and if they are declared by the Company's Board of Directors. The Company's Board of Directors declared a cash dividend of $0.07 per share during the first and second quarters and $0.08 per share during the third and fourth quarters of 2019, which totaled $40.8 million. During 2018, the Company's Board of Directors declared a cash dividend of $0.07 per share during the first, second, third and fourth quarters of 2018, which totaled $39.7 million. During 2017, the Company's Board of Directors declared a cash dividend of $0.07 per share during the fourth quarter which totaled $9.9 million.

On January 15, 2020, the Company's Board of Directors declared a quarterly cash dividend of $0.08 per share to be paid on February 19, 2020 to shareholders of record as of January 29, 2020.

Future dividend declarations, if any, as well as the record and payment dates for such dividends, are subject to the final determination of the Company's Board of Directors. Furthermore, the credit agreements governing the New Credit Facilities contain restrictions that may limit our ability to pay dividends.

**Share Repurchase Program**

On February 13, 2018, the Company's Board of Directors authorized a repurchase program covering up to an aggregate of $100.0 million of the Company's common stock**,** during a period of twenty-four months, in open market transactions and in accordance with one or more pre-arranged stock trading plans to be established in accordance with Rule 10b5-1 under the Securities Exchange Act of 1934, as amended. On November 19, 2018, the Company's Board of Directors authorized the repurchase of up to an additional $250 million in aggregate principal amount of the Company's common stock. The authorization was in addition to the amount remaining under the share repurchase program previously authorized in February 2018.

The Company repurchased $74.8 million, $179.3 million and $28 million of shares for the years ended December 31, 2019, December 31, 2018 and December 31, 2017, respectively.

The credit agreement governing the New Credit Facilities contain restrictions that may limit our ability to continue to repurchase shares.

**2010 Stock Plan**

In 2009, the Company's Board of Directors approved the 2010 Stock Plan, subject to the approval by the Company's stockholders in 2010. The 2010 Stock Plan replaced the predecessor plans for future stock awards and stock option grants. Subsequent to the acquisition of ATMI, Inc. in 2014, the Company's Board of Directors approved the absorption of 5.7 million additional shares of the ATMI, Inc. 2010 Stock Plan (ATMI Plan) into the Company's 2010 Stock Plan for the remaining term of the ATMI Plan.

The 2010 Stock Plan has a term of ten years and provides for the issuance of stock options and other share-based awards to selected employees, directors, and other individuals or entities that provide services to the Company or its affiliates. Under the 2010 Stock Plan, the Board of Directors or a committee selected by the Board of Directors will determine for each award, the term, price, number of shares, rate at which each award is exercisable and whether restrictions are imposed on the shares subject to the awards. The exercise price for option awards generally may not be less than the fair market value per share of the underlying common stock on the date granted. The 2010 Stock Plan provides that after December 31, 2009 any shares subject to stock awards that were awarded from the Company's expired plans and that are forfeited, expired or otherwise terminated without issuance of shares will again be available for issuance under the 2010 Stock Plan.

**Stock Options**

Stock option activity for the 2010 Stock Plan for the years ended December 31, 2019, 2018 and 2017 is summarized as follows:

| | 2019 | | 2018 | | 2017 | |
|---|---|---|---|---|---|---|
| *(Shares in thousands)* | Number of shares | Weighted average exercise price | Number of shares | Weighted average exercise price | Number of shares | Weighted average exercise price |
| Options outstanding, beginning of year | 1,410 | $ 18.22 | 1,869 | $ 13.46 | 1,907 | $ 11.54 |
| Granted | 293 | 33.33 | 296 | 31.10 | 335 | 21.60 |
| Exercised | (128) | 13.89 | (727) | 10.89 | (359) | 10.89 |
| Expired or forfeited | — | — | (28) | 26.41 | (14) | 12.78 |
| Options outstanding, end of year | 1,575 | $ 21.39 | 1,410 | $ 18.22 | 1,869 | $ 13.46 |
| Options exercisable, end of year | 788 | $ 15.75 | 562 | $ 13.68 | 872 | $ 11.11 |

Options outstanding for the Company's stock plans at December 31, 2019 are summarized as follows:

| *(Shares in thousands)* | Options outstanding | | | Options exercisable | |
|---|---|---|---|---|---|
| Range of exercise prices | Number outstanding | Weighted average remaining life in years | Weighted-average exercise price | Number exercisable | Weighted average exercise price |
| $9.88 to $11.71 | 71 | 1.1 years | $ 11.71 | 71 | $ 11.71 |
| $12.20 to $12.20 | 416 | 3.1 years | 12.20 | 292 | 12.20 |
| $13.49 to $13.49 | 226 | 2.1 years | 13.49 | 226 | 13.49 |
| $21.60 to $21.60 | 287 | 4.1 years | 21.60 | 129 | 21.60 |
| $31.10 to $31.10 | 282 | 5.1 years | 31.10 | 70 | 31.10 |
| $33.33 to $33.33 | 293 | 6.1 years | 33.33 | — | — |
| | 1,575 | 4.0 years | $ 21.39 | 788 | $ 15.75 |

The weighted average remaining contractual term for options outstanding and options exercisable for all plans at December 31, 2019 was 4.0 years and 3.0 years, respectively.

Under the 2010 Stock Plan, the Company had shares available for future grants of 8.2 million shares, 8.7 million shares, and 8.8 million shares at December 31, 2019, 2018 and 2017, respectively.

Under the 2010 Stock Plan, the total pre-tax intrinsic value of stock options exercised during the years ended December 31, 2019 and 2018 was $3.2 million and $16.7 million, respectively. The aggregate intrinsic value, which represents the total pre-tax intrinsic value based on the Company's closing stock price of $50.09 at December 31, 2019, which theoretically could have been received by the option holders had all option holders exercised their options as of that date, was $45.2 million and $27.1 million for options outstanding and options exercisable, respectively.

Share-based payment awards in the form of stock option awards for 0.3 million, 0.3 million and 0.3 million shares were granted to employees during the years ended December 31, 2019, 2018 and 2017, respectively. Compensation expense is based on the

grant date fair value. The awards vest annually over a four-year period and have a contractual term of 7 years. The Company estimates the fair value of stock options using the Black-Scholes valuation model. Key inputs and assumptions used to estimate the fair value of stock options include the grant price of the award, the expected option term, volatility of the Company's stock, the risk-free rate and the Company's dividend yield. Estimates of fair value are not intended to predict actual future events or the value ultimately realized by employees who receive equity awards, and subsequent events are not indicative of reasonableness of the original estimates of fair value made by the Company.

The fair value of each stock option grant was estimated at the date of grant using a Black-Scholes option pricing model. The following table presents the weighted-average assumptions used in the valuation and the resulting weighted-average fair value per option granted for the years ended December 31, 2019, 2018 and 2017:

| *Employee stock options:* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Volatility | 31.6% | 28.7% | 26.9% |
| Risk-free interest rate | 2.5% | 2.4% | 1.7% |
| Dividend yield | 0.8% | 1% | —% |
| Expected life (years) | 4.1 | 3.9 | 4.1 |
| Weighted average fair value per option | $ 8.89 | $ 7.35 | $ 5.25 |

A historical daily measurement of volatility is determined based on the expected life of the option granted. The risk-free interest rate is determined by reference to the yield on an outstanding U.S. Treasury note with a term equal to the expected life of the option granted. Expected life is determined by reference to the Company's historical experience. The Company determines the dividend yield by dividing the expected annual dividend on the Company's stock by the option exercise price.

**Employee Stock Purchase Plan**

The Company maintains the Entegris, Inc. Amended and Restated Employee Stock Purchase Plan (ESPP). The ESPP allows employees to elect, at six-month intervals, to contribute up to 10% of their compensation, subject to certain limitations, to purchase shares of common stock at a discount of 15% from the fair market value on the first day or last day of each six-month period. The Company treats the ESPP as a compensatory plan. At December 31, 2019, 1.7 million shares remained available for issuance under the ESPP. Employees purchased 0.2 million shares, 0.2 million shares and 0.2 million shares, at a weighted-average price of $28.67, $24.86, and $16.92 during the years ended December 31, 2019, 2018 and 2017, respectively.

**Restricted Stock Units**

Restricted stock units are awards of common stock made under the 2010 Stock Plan that are subject to a risk of forfeiture if the awardee terminates employment with the Company prior to the lapse of the restrictions. The value of such restricted stock units is determined using the market price on the grant date. Compensation expense for restricted stock units is generally recognized using the straight-line single-option method. A summary of the Company's restricted stock unit activity for the years ended December 31, 2019, 2018 and 2017 is presented in the following table:

| | 2019 | | 2018 | | 2017 | |
|---|---|---|---|---|---|---|
| *(Shares in thousands)* | Number of shares | Weighted average grant date fair value | Number of shares | Weighted average grant date fair value | Number of shares | Weighted average grant date fair value |
| Unvested, beginning of year | 1,519 | $ 21.24 | 1,857 | $ 15.86 | 2,164 | $ 12.49 |
| Granted | 514 | 34.05 | 509 | 31.40 | 659 | 22.14 |
| Vested | (679) | 18.89 | (732) | 15.07 | (801) | 12.22 |
| Forfeited | (100) | 24.82 | (115) | 18.58 | (165) | 14.48 |
| Unvested, end of year | 1,254 | 27.48 | 1,519 | 21.24 | 1,857 | 15.86 |

The weighted average remaining contractual term for unvested restricted shares at December 31, 2019 and 2018 was 2.0 years and 1.9 years, respectively.

During the years ended December 31, 2019, 2018 and 2017, the Company awarded performance-based restricted stock units for up to 0.1 million shares of common stock, 0.2 million shares of common stock and 0.1 million shares of common stock, respectively, to be issued upon the achievement of performance conditions under the Company's 2010 Stock Plan to certain officers and other key employees. Compensation expense is based on the grant date fair value. The awards vest on the third

anniversary of the award date. The Company estimates the fair value of the performance shares using a Monte Carlo simulation process.

As of December 31, 2019, the total compensation cost related to unvested stock options, performance-based restricted stock units and restricted stock unit awards not yet recognized was $3.7 million, $2.6 million and $22.1 million, respectively, and is expected to be recognized over the next 2.5 years on a weighted-average basis.

**Valuation and Expense Information**

The Company recognizes compensation expense for all share-based payment awards made to employees and directors based on their estimated fair values on the date of grant. Compensation expense is recognized using the straight-line attribution method to recognize share-based compensation over the service period of the award, with adjustments recorded for forfeitures as they occur. The following table summarizes the allocation of share-based compensation expense related to employee stock options, restricted stock awards, performance-based restricted stock awards and grants under the employee stock purchase plan for the years ended December 31, 2019, 2018 and 2017:

| *(In thousands)* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Cost of sales | $ 1,180 | $ 1,009 | $ 1,031 |
| Engineering, research and development expenses | 1,901 | 1,689 | 1,457 |
| Selling, general and administrative expenses | 16,548 | 14,414 | 12,818 |
| Share-based compensation expense | 19,629 | 17,112 | 15,306 |
| Tax benefit | 3,626 | 3,421 | 4,978 |
| Share-based compensation expense, net of tax | $ 16,003 | $ 13,691 | $ 10,328 |

## (14) BENEFIT PLANS

**401(k) Plan**

The Company maintains the Entegris, Inc. 401(k) Savings and Profit Sharing Plan (the 401(k) Plan) that qualifies as a deferred salary arrangement under Section 401(k) of the Internal Revenue Code. Under the Plan, eligible employees may defer a portion of their pre-tax wages, up to the Internal Revenue Service annual contribution limit. Entegris matches employees' contributions to a maximum match of 4% of the employee's eligible wages. The employer matching contribution expense under the 401(k)Plan was $7.1 million, $6.1 million and $5.1 million in the fiscal years ended December 31, 2019, 2018 and 2017, respectively.

**Defined Benefit Plans**

The employees of the Company's subsidiaries in Japan, Taiwan and Germany are covered in defined benefit pension plans. The Company uses a December 31 measurement date for its pension plans.

The tables below set forth the Company's estimated funded status as of December 31, 2019 and 2018:

| *(In thousands)* | 2019 | 2018 |
|---|---|---|
| Change in benefit obligation: | | |
| Benefit obligation at beginning of year | $ 7,308 | $ 7,682 |
| Service cost | 26 | 50 |
| Interest cost | 54 | 62 |
| Actuarial (gain) loss | 471 | 75 |
| Benefits paid | (636) | (560) |
| Curtailment | (346) | — |
| Other | — | 11 |
| Foreign exchange impact | 69 | (12) |
| Benefit obligation at end of year | 6,946 | 7,308 |
| Change in plan assets: | | |
| Fair value of plan assets at beginning of year | 835 | 908 |
| Return on plan assets | 35 | 31 |
| Employer contributions | 93 | 110 |
| Benefits paid | (63) | (185) |
| Foreign exchange impact | 10 | (29) |
| Fair value of plan assets at end of year | 910 | 835 |
| Funded status: | | |
| Plan assets less than benefit obligation - Net amount recognized | $ (6,036) | $ (6,473) |

Amounts recognized in the consolidated balance sheets consist of:

| *(In thousands)* | 2019 | 2018 |
|---|---|---|
| Noncurrent liability | $ (6,036) | $ (6,473) |
| Accumulated other comprehensive loss, net of taxes | 791 | 860 |

Amounts recognized in accumulated other comprehensive loss, net of tax consist of:

| *(In thousands)* | 2019 | 2018 |
|---|---|---|
| Net actuarial loss | $ 598 | $ 514 |
| Prior service cost | 460 | 616 |
| Gross amount recognized | 1,058 | 1,130 |
| Deferred income taxes | (267) | (270) |
| Net amount recognized | $ 791 | $ 860 |

Information for pension plans with an accumulated benefit obligation in excess of plan assets:

| *(In thousands)* | 2019 | 2018 |
|---|---|---|
| Projected benefit obligation | $ 6,036 | $ 6,473 |
| Accumulated benefit obligation | 6,030 | 6,235 |
| Fair value of plan assets | 910 | 835 |

The components of the net periodic benefit cost for the years ended December 31, 2019, 2018 and 2017 were as follows:

| *(In thousands)* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Pension benefits: | | | |
| Service cost | $ 26 | $ 50 | $ 38 |
| Interest cost | 54 | 62 | 46 |
| Expected return on plan assets | (16) | (18) | (11) |
| Curtailments | 95 | — | — |
| Amortization of prior service cost | 67 | 69 | 69 |
| Amortization of net transition obligation | — | — | 22 |
| Amortization of plan loss | 17 | 20 | — |
| Net periodic pension benefit cost | $ 243 | $ 183 | $ 164 |

The estimated amount that will be amortized from accumulated other comprehensive income into net periodic benefit cost in 2020 is as follows:

| *(In thousands)* | |
|---|---|
| Prior service cost | $ 36 |
| Net actuarial loss | 38 |
| | $ 74 |

Assumptions used in determining the benefit obligation and net periodic benefit cost for the Company's pension plans for the years ended December 31, 2019, 2018 and 2017 are presented in the following table as weighted-averages:

| | 2019 | 2018 | 2017 |
|---|---|---|---|
| Benefit obligations: | | | |
| Discount rate | 0.53% | 0.76% | 0.82% |
| Rate of compensation increase | 2.91% | 3.08% | 3.05% |
| Net periodic benefit cost: | | | |
| Discount rate | 1.29% | 1.66% | 1.45% |
| Rate of compensation increase | 3.51% | 3.18% | 3.00% |
| Expected return on plan assets | 1.51% | 1.89% | 1.80% |

The plans' expected return on assets as shown above is based on management's expectations of long-term average rates of return to be achieved by the underlying investment portfolios. In establishing this assumption, management considers historical and expected returns for the asset classes in which the plans are invested, as well as current economic and capital market conditions. The discount rate primarily used by the Company is based on market yields at the valuation date on government bonds as well as the estimated maturity of benefit payments.

**Plan Assets**

At December 31, 2019, the majority of the Company's pension plan assets are deposited in Bank of Taiwan in the form of money market funds, where the Bank of Taiwan is the assigned funding vehicle for the statutory retirement benefit. The remaining portion of the Company's plan assets is deposited in a German insurance company's investment fund.

The fair value measurements of the Company's pension plan assets at December 31, 2019, by asset category are as follows:

| *(In thousands)* Asset category | Total | Quoted prices in active markets for identical assets (Level 1) | Significant observable inputs (Level 2) | Significant unobservable inputs (Level 3) |
|---|---|---|---|---|
| Taiwan plan assets (a) | $ 729 | $ 729 | — | — |
| Germany plan assets (b) | $ 181 | $ 181 | — | — |
| | $ 910 | $ 910 | — | — |

(a) This category includes investments in the government of Taiwan's pension fund. The government of Taiwan is responsible for the strategy and allocation of the investment contributions.

(b) This category includes investments in an insurer's balanced asset fund. The insurer is responsible for the strategy and allocation of the investment contributions. The Company selects a pre-packaged portfolio pooled investment fund that is conservative. The majority of the funds are invested broadly in German mortgage bonds, construction loans and government bonds with good credit ratings.

The fair value measurements of the Company's pension plan assets at December 31, 2018, by asset category are as follows:

| *(In thousands)* Asset category | Total | Quoted prices in active markets for identical assets (Level 1) | Significant observable inputs (Level 2) | Significant unobservable inputs (Level 3) |
|---|---|---|---|---|
| Taiwan plan assets (a) | $ 669 | $ 669 | — | — |
| Germany plan assets (b) | $ 166 | $ 166 | — | — |
| | $ 835 | $ 835 | — | — |

(a) This category includes investments in the government of Taiwan's pension fund. The government of Taiwan is responsible for the strategy and allocation of the investment contributions.

(b) This category includes investments in an insurer's balanced asset fund. The insurer is responsible for the strategy and allocation of the investment contributions. The Company selects a pre-packaged portfolio pooled investment fund that is conservative. The majority of the funds are invested broadly in German mortgage bonds, construction loans and government bonds with good credit ratings.

*Cash Flows*

The Company expects to make the following contributions and benefit payments:

| *(In thousands)* | Contributions | Payments |
|---|---|---|
| 2020 | $ 71 | $ 40 |
| 2021 | — | 225 |
| 2022 | — | 113 |
| 2023 | — | 201 |
| 2024 | — | 399 |
| Years 2025-2029 | — | 1,707 |

## (15) EARNINGS PER SHARE (EPS)

Basic EPS is computed by dividing net income by the weighted average number of shares of common stock outstanding during each period. The following table presents a reconciliation of the share amounts used in the computation of basic and diluted earnings per share:

| *(In thousands)* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Basic earnings per share—Weighted common shares outstanding | 135,137 | 141,026 | 141,553 |
| Weighted common shares assumed upon exercise of options and vesting of restricted stock units | 1,431 | 1,584 | 1,965 |
| Diluted earnings per share—Weighted common shares outstanding | 136,568 | 142,610 | 143,518 |

The Company excluded the following shares underlying stock-based awards from the calculations of diluted EPS because their inclusion would have been anti-dilutive for the years ended December 31, 2019, 2018 and 2017:

| *(In thousands)* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Shares excluded from calculations of diluted EPS | 273 | 267 | 303 |

## (16) SEGMENT INFORMATION

The Company's financial segment reporting reflects an organizational alignment intended to leverage the Company's unique portfolio of capabilities to create value for its customers by developing mission-critical solutions to maximize manufacturing yields and enable higher performance of devices. While these segments have separate products and technical know-how, they share a common business systems and processes, technology centers, and strategic and technology roadmaps. The Company leverages its expertise from these three segments to create new and increasingly integrated solutions for its customers. The Company's business is reported in the following segments:

- **Specialty Chemicals and Engineered Materials (SCEM):** SCEM provides high-performance and high-purity process chemistries, gases, and materials and safe and efficient delivery systems to support semiconductor and other advanced manufacturing processes.

- **Microcontamination Control (MC):** MC offers solutions to filter and purify critical liquid chemistries and gases used in semiconductor manufacturing processes and other high-technology industries.

- **Advanced Materials Handling (AMH):** AMH develops solutions to monitor, protect, transport, and deliver critical liquid chemistries and substrates for a broad set of applications in the semiconductor industry and other high-technology industries.

In the first quarter of 2019, the Company changed its definition of segment profit to include inter-segment sales. The Company updated its recognition of inter-segment sales to recognize the revenue and profit associated with products and components produced in one segment and supplied to another, before being sold to the ultimate end customer. The Company accounts for inter-segment sales and transfers as if the sales or transfers were to third parties, that is, at approximate market prices. Inter-segment sales are presented as an elimination below. Segment profit is defined as net sales less direct and indirect segment operating expenses, including certain general and administrative costs for the Company's human resources, finance and information technology functions. The remaining unallocated expenses consist mainly of the Company's corporate functions as well as interest expense, amortization of intangible assets and income tax expense. Prior quarter information has been recast to reflect the change in the Company's definition of segment profit.

Corporate assets consist primarily of cash and cash equivalents, deferred tax assets and deferred tax charges.

Summarized financial information for the Company's reportable segments is shown in the following tables.

| *(In thousands)* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Net sales: | | | |
| SCEM | $ 526,519 | $ 530,241 | $ 485,470 |
| MC | 633,664 | 553,838 | 436,812 |
| AMH | 458,290 | 493,404 | 444,743 |
| Inter-segment elimination | (27,407) | (26,986) | (24,493) |
| Total net sales | $ 1,591,066 | $ 1,550,497 | $ 1,342,532 |

| *(In thousands)* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Segment profit: | | | |
| SCEM | $ 98,327 | $ 127,080 | $ 109,571 |
| MC | 194,398 | 166,852 | 134,439 |
| AMH | 75,173 | 92,327 | 69,043 |
| Total segment profit | $ 367,898 | $ 386,259 | $ 313,053 |

| *(In thousands)* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Total assets: | | | |
| SCEM | $ 936,609 | $ 757,381 | $ 749,379 |
| MC | 786,131 | 680,080 | 251,216 |
| AMH | 372,849 | 359,991 | 278,079 |
| Corporate | 420,497 | 520,189 | 697,498 |
| Total assets | $ 2,516,086 | $ 2,317,641 | $ 1,976,172 |

| *(In thousands)* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Depreciation and amortization: | | | |
| SCEM | $ 75,391 | $ 70,329 | $ 66,514 |
| MC | 41,917 | 33,590 | 13,744 |
| AMH | 23,911 | 22,805 | 21,003 |
| Corporate | 184 | 544 | 970 |
| Total depreciation and amortization | $ 141,403 | $ 127,268 | $ 102,231 |

| *(In thousands)* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Capital expenditures: | | | |
| SCEM | $ 57,585 | $ 44,337 | $ 44,350 |
| MC | 28,549 | 38,331 | 27,178 |
| AMH | 25,212 | 26,545 | 18,378 |
| Corporate | 1,009 | 940 | 3,691 |
| Total capital expenditures | $ 112,355 | $ 110,153 | $ 93,597 |

The following table reconciles total segment profit to income before income taxes and equity in net loss of affiliate:

| *(In thousands)* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Total segment profit | $ 367,898 | $ 386,259 | $ 313,053 |
| Less: | | | |
| Amortization of intangibles | 66,428 | 62,152 | 44,023 |
| Unallocated general and administrative expenses | 62,192 | 31,418 | 27,213 |
| Operating income | 239,278 | 292,689 | 241,817 |
| Interest expense | 46,962 | 34,094 | 32,343 |
| Interest income | (4,652) | (3,839) | (715) |
| Other (income) expense, net | (121,081) | 8,002 | 25,458 |
| Income before income tax expense | $ 318,049 | $ 254,432 | $ 184,731 |

In the following tables, revenue is disaggregated by country or region based on the ship to location of the customer for the years ended December 31, 2019, 2018 and 2017:

| *(In thousands)* | 2019 | | | | |
|---|---|---|---|---|---|
| | SCEM | MC | AMH | Inter-segment | Total |
| Taiwan | $ 94,561 | $ 144,404 | $ 70,864 | $ — | $ 309,829 |
| United States | 149,570 | 113,551 | 145,150 | (27,407) | 380,864 |
| South Korea | 76,447 | 98,568 | 69,352 | — | 244,367 |
| Japan | 57,456 | 104,202 | 43,832 | — | 205,490 |
| China | 67,877 | 98,693 | 48,170 | — | 214,740 |
| Europe | 33,147 | 45,454 | 53,622 | — | 132,223 |
| Southeast Asia | 47,461 | 28,792 | 27,300 | — | 103,553 |
| | $ 526,519 | $ 633,664 | $ 458,290 | $ (27,407) | $ 1,591,066 |

| (In thousands) | 2018 | | | | |
|---|---|---|---|---|---|
| | SCEM | MC | AMH | Inter-segment | Total |
| Taiwan | $ 104,707 | $ 118,208 | $ 66,948 | $ — | $ 289,863 |
| United States | 133,834 | 95,421 | 144,763 | (26,986) | 347,032 |
| South Korea | 82,890 | 74,623 | 84,883 | — | 242,396 |
| Japan | 52,731 | 110,997 | 47,027 | — | 210,755 |
| China | 68,365 | 84,652 | 51,368 | — | 204,385 |
| Europe | 32,088 | 40,635 | 65,352 | — | 138,075 |
| Southeast Asia | 55,626 | 29,302 | 33,063 | — | 117,991 |
| | $ 530,241 | $ 553,838 | $ 493,404 | $ (26,986) | $ 1,550,497 |

| (In thousands) | 2017 | | | | |
|---|---|---|---|---|---|
| | SCEM | MC | AMH | Inter-segment | Total |
| Taiwan | $ 113,279 | $ 109,815 | $ 66,620 | $ — | $ 289,714 |
| United States | 117,602 | 71,421 | 121,809 | (24,493) | 286,339 |
| South Korea | 74,773 | 65,677 | 76,418 | — | 216,868 |
| Japan | 41,164 | 89,638 | 38,678 | — | 169,480 |
| China | 64,796 | 45,382 | 38,712 | — | 148,890 |
| Europe | 30,472 | 30,479 | 59,530 | — | 120,481 |
| Southeast Asia | 43,384 | 24,400 | 42,976 | — | 110,760 |
| | $ 485,470 | $ 436,812 | $ 444,743 | $ (24,493) | $ 1,342,532 |

The following table summarizes property, plant and equipment, net, attributed to significant countries for the years ended December 31, 2019, 2018 and 2017:

| (In thousands) | 2019 | 2018 | 2017 |
|---|---|---|---|
| Property, plant and equipment: | | | |
| United States | $ 308,156 | $ 289,049 | $ 257,584 |
| South Korea | 43,540 | 41,698 | 39,562 |
| Japan | 37,851 | 34,276 | 23,648 |
| Malaysia | 34,339 | 31,138 | 19,212 |
| Taiwan | 16,264 | 18,804 | 16,073 |
| Other | 39,394 | 4,564 | 3,444 |
| | $ 479,544 | $ 419,529 | $ 359,523 |

In the years ended December 31, 2019, 2018 and 2017, Taiwan Semiconductor Manufacturing Company Limited accounted for $187.0 million, $153.9 million and $167.9 million of net sales, respectively, all of which include sales from all of the Company's segments. In addition, in the years ended December 31, 2019, 2018 and 2017, Samsung Electronics Co. accounted for $128.0 million, $164.3 million and $140.6 million of net sales, respectively, which include sales from all of the Company's segments.

**(17) COMMITMENTS AND CONTINGENT LIABILITIES**

The Company is subject to various claims, legal actions, and complaints arising in the ordinary course of business. The Company believes the final outcome of these matters will not have a material adverse effect on its consolidated financial statements. The Company expenses legal costs as incurred.

## (18) QUARTERLY INFORMATION-UNAUDITED

| | Fiscal quarter ended | | | |
|---|---|---|---|---|
| *(In thousands, except per share data)* | March 30, 2019 | June 29, 2019 | September 28, 2019 | December 31, 2019 |
| Net sales | $ 391,047 | $ 378,874 | $ 394,147 | $ 426,998 |
| Gross profit | 177,393 | 166,274 | 170,350 | 197,636 |
| Net income | 32,658 | 123,997 | 40,767 | 57,438 |
| Basic net income per common share | 0.24 | 0.92 | 0.30 | 0.43 |
| Diluted net income per common share | 0.24 | 0.91 | 0.30 | 0.42 |

| | Fiscal quarter ended | | | |
|---|---|---|---|---|
| *(In thousands, except per share data)* | March 31, 2018 | June 30, 2018 | September 29, 2018 | December 31, 2018 |
| Net sales | $ 367,199 | $ 383,059 | $ 398,597 | $ 401,642 |
| Gross profit | 175,997 | 182,378 | 181,716 | 179,740 |
| Net income | 57,562 | 54,349 | 48,060 | 80,784 |
| Basic net income per common share | 0.41 | 0.38 | 0.34 | 0.58 |
| Diluted net income per common share | 0.40 | 0.38 | 0.34 | 0.57 |

## (19) SUBSEQUENT EVENTS

On January 10, 2020, The Company acquired Sinmat, a CMP slurry manufacturer for approximately $75 million, subject to customary purchase price adjustments. The Company funded the acquisition from its available cash. Sinmat will be a part of the SCEM segment. The acquisition does not constitute a material business combination.

On February 5, 2020, the Company's Board of Directors authorized a repurchase program, effective February 16, 2020, covering up to an aggregate of $125 million of the Company's common stock, during a period of twelve months, in open market transactions and in accordance with one or more pre-arranged stock trading plans to be established in accordance with Rule 10b5-1 under the Securities Exchange Act of 1934, as amended. This repurchase program is intended to replace the existing repurchase program, which was originally approved in February 2018 and amended in November 2018, which is set to expire pursuant to its terms on February 15, 2020.

# DESCRIPTION OF CAPITAL STOCK

Our common stock, par value $0.01 per share, is registered under Section 12 of the Securities Exchange Act of 1934, as amended.

The following description of our common stock is only a summary and is not a complete description. We refer you to the applicable provisions of our certificate of incorporation, our by-laws and the Delaware General Corporation Law, or the DGCL, for a complete statement of the terms and rights of our common stock. This description shall be deemed to be updated by any report or amendment thereto that we file with the Securities and Exchange Commission for the purpose of updating this description.

## General

We are authorized to issue 400,000,000 shares of common stock and 5,000,000 shares of preferred stock, par value $.01 per share.

## Common Stock

### *Voting Rights*

Each holder of common stock is entitled to one vote per share on all matters submitted to a vote of stockholders. The common stock does not confer cumulative voting rights.

Our by-laws provided that, except as otherwise provided by law, our certificate of incorporation or our by-laws, the holders of a majority of the shares of our capital stock issued and outstanding and entitled to vote at a meeting, present in person or represented by proxy, will constitute a quorum for the transaction of business. When a quorum is present at any meeting, a majority of the votes properly cast upon any proposal (other than a contested election) will determine the outcome, except when a larger vote is required by law, our certificate of incorporation or our by-laws. A majority of the votes cast means that the number of shares voted “for” the proposal must exceed the number of shares voted “against” the proposal. In the case of a contested election for the office of director, a plurality of the votes properly cast will elect the director. A contested election is any election where the number of nominees exceeds the number of directorships to be filled.

### *Dividends*

Subject to preferences that may be applicable to any outstanding shares of preferred stock, holders of common stock are entitled to receive ratably the dividends, if any, that are declared from time to time by the board of directors out of funds legally available for that purpose.

### *Liquidation Rights*

In the event of our liquidation, dissolution or winding up, the holders of common stock are entitled to share ratably in any assets remaining after the payment of liabilities and the

satisfaction of any preferences that may be applicable to any outstanding shares of preferred stock.

***Rights and Preferences***

Holders of common stock have no preemptive, subscription, conversion, sinking fund or redemption rights. Our outstanding shares of common stock are fully paid and non-assessable. The powers, preferences and rights of the holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we designate.

**Preferred Stock**

We are authorized to issue 5,000,000 shares of preferred stock. As of December 31, 2019, we did not have any outstanding shares of preferred stock.

Our board of directors may issue shares of preferred stock in one or more series and may establish from time to time the number of shares to be included in each series and the designation, powers, preferences and rights of each series, and any qualifications, limitations or restrictions thereof. These matters will be fixed by a certificate of designations relating to the series.

An issuance of preferred stock may have the effect of delaying or preventing a change in control. An issuance of preferred stock could decrease the amount of earnings and assets available for distribution to the holders of common stock or diminish the relative rights and powers, including voting rights, of the holders of common stock. The issuance of preferred stock could have the effect of decreasing the market price of our common stock.

In 2005, we adopted a share rights agreement, which expired in 2015. In connection with the adoption of the share rights agreement, we filed a certificate of designations authorizing us to issue 2,500,000 shares of Series A junior participating preferred capital stock. Such shares, if issued, would be entitled to certain preferential dividend, liquidation and voting rights. We have no present intention to issue any such shares.

**Anti-Takeover Provisions**

***The DGCL***

We are subject to Section 203 of the DGCL. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination or the transaction in which the person became an interested stockholder is approved by the corporation’s board of directors and/or stockholders in a prescribed manner or the person owns at least 85% of the corporation’s outstanding voting stock (excluding shares held by directors, officers and certain employee stock plans) after giving effect to the transaction in which the person became an interested stockholder.

The term “business combination” includes mergers, asset sales and other transactions resulting in a financial benefit to the interested stockholder. Subject to certain exceptions, an “interested stockholder” is a person who, together with the person’s affiliates and associates, owns, or within three years did own, 15% or more of the corporation’s voting stock. A Delaware corporation may opt out of the application of Section 203 through a provision in its certificate of incorporation or by-laws. We have not opted out of the application of Section 203.

***Certificate of Incorporation and By-laws***

Our certificate of incorporation and by-laws include the following provisions, among others, that could discourage potential acquisition proposals and delay or prevent a change of control, whether by tender offer, proxy contest, removal of directors or otherwise:

- the number of directors that constitutes the whole board of directors will be fixed exclusively by one or more resolutions adopted by the board of directors, and may not be less than three;
- vacancies on our board of directors, including those resulting from an increase in the number of directors, will be filled only by the affirmative vote of a majority of the directors then in office, even though less than a quorum of the board of directors, and not by the stockholders;
- a director may be removed, with or without cause, by the holders of a majority of the then-outstanding shares of capital stock entitled to vote, except to the extent a different vote is required by law;
- a stockholder’s notice of the stockholder’s intent to bring business before an annual meeting or to nominate a person for election to the board of directors must be received by us within strict guidelines, which may make it more difficult for stockholders to nominate candidates for director or bring items before stockholder meetings;
- our certificate of incorporation provides that stockholders may not take any action by written consent in lieu of a meeting;
- our certificate of incorporation provides that special meetings of stockholders may be called by only our Chairman of the Board of Directors, our Chief Executive Officer (or if there is no Chief Executive Officer, our President) or by our Board of Directors pursuant to a resolution adopted by the affirmative vote of a majority of the total number of directors then in office, and the business of any special meeting is limited to matters relating to the purposes stated in the notice of meeting;
- our certificate of incorporation provides that our by-laws may be altered, amended or repealed by our stockholders only by the affirmative vote of the holders of at least 75% of the then-outstanding shares of capital stock entitled to vote;

- the affirmative vote of the holders of at least 75% of the then-outstanding shares of capital stock entitled to vote is required to amend or repeal the provisions of our certificate of incorporation relating to the three foregoing provisions of our certificate of incorporation relating to stockholder action by written consent, the call of special meetings and changes to our by-laws, or to adopt any provision inconsistent with the purpose or intent of those provisions;

- the affirmative vote of the holders of at least 75% of the then-outstanding shares of capital stock entitled to vote is required for our stockholders to alter, amend or repeal any provision of our by-laws or to adopt new by-laws; and

- our certificate of incorporation and by-laws do not provide for cumulative voting in the election of directors.

As noted above, our certificate of incorporation authorizes an undesignated class of preferred stock, which enables the board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control.

**Limitations of Liability; Indemnification**

Our certificate of incorporation provides that, except to the extent prohibited by the DGCL, no director will be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duty as a director. Our by-laws also provide that each person who is involved in any action, suit or proceeding because the person is or was one of our directors or officers will be indemnified and held harmless by us to the fullest extent authorized by the DGCL and will also be entitled to advancement of expenses in specified circumstances.

**Exchange Listing**

Our common stock is listed on the Nasdaq Global Select Market under the symbol ENTG.

**Transfer Agent and Registrar**

The transfer agent and registrar for our common stock is EQ Wells Fargo Shareholder Services.

# ENTEGRIS, INC.

2019 Performance Share Award Agreement

In consideration of services rendered to Entegris, Inc. (the "Company"), the Company may periodically make equity incentive awards consisting of performance based restricted stock units with respect to the Company's Common Stock $0.01 par value ("Stock") to certain key employees, non-employee directors, consultants or advisors of the Company under the Company's 2010 Stock Plan (as amended from time to time, the "Plan"). Any key employee, non-employee director, consultant or advisor (a "Participant") who receives a performance based restricted stock unit award (the "Award") is notified either in writing or via email and the Award is credited to the Participant's account as reflected on the Participant's Restricted Stock Plan Overview tab under the Performance Stock Units section on the Morgan Stanley Stock Plan Connect web page found at https://www.stockplanconnect.com. By clicking on the "Accept" button for the Award or by otherwise receiving the benefits of the Award, Participant: **(i)** acknowledges that Participant has received a copy of the Plan, of the related prospectus providing information concerning awards under the Plan and of the Company's most recent Annual Report on Form 10-K; and **(ii)** accepts the Award and agrees with the Company that the Award is subject to the terms of the Plan and to the following terms and conditions:

## Article I - PERFORMANCE BASED RESTRICTED STOCK UNIT AWARD

**1.1.** *Award Date*. This Agreement shall take effect as of the date specified with respect to the Award in the Award summary provided to you online at www.stockplanconnect.com (the "Award Date").

**1.2.** *Performance Based Restricted Stock Units Subject to Award*. The Award consists of that number of performance based restricted stock units (the "PRSU") with respect to the Stock that has been approved for the Award to Participant by the Administrator as the target number of PSRUs ("Target PRSUs"); as noted above, the Award is reflected in the Performance Stock Units section on the Restricted Stock Plan Overview tab of the Morgan Stanley Stock Plan Connect web page. The Target PRSUs shall be subject to increase or decrease in accordance with Sections 1.3 and 1.4 below. Each PRSU is equivalent to one share of the Stock. The Participant's rights to the PRSU are subject to the restrictions described in this Agreement and in the Plan (which is incorporated herein by reference with the same effect as if set forth herein in full) in addition to such other restrictions, if any, as may be imposed by law.

**1.3.** *Earned Performance Based Restricted Stock Units*. The number of PRSUs earned under this Agreement (the "Earned PRSUs") shall be equal to the Target PRSUs multiplied by the TSR Performance Multiplier (as defined herein). The "TSR Performance Multiplier" will be determined by comparing the Company's total stockholder return to the total stockholder return of each of the companies in the Comparator Peer Group (as set forth below) over the period commencing on the Award Date and ending on the third anniversary of the Award Date (the "Performance Period") to determine the Company's TSR ranking against the Comparator Group. For purposes of computing total stockholder return: **(i)**, any dividends paid by the Company or the companies in the Comparator Group shall be treated as having been reinvested at the closing price as of the ex-dividend date; and **(ii)** the beginning stock price will be the average stock price over the 20 trading days ending on the Award Date and the ending stock price will be the average stock price over the 20 trading days period ending on the last day of the Performance Period (adjusted, as applicable, for stock splits, reorganizations, recapitalizations, or similar corporate transactions during such period).

**1.4.** *Calculation of the TSR Performance Multiplier*. The TSR Performance Multiplier will be calculated as set forth in the following table based upon the Company's total stockholder return over the

Performance Period when ranked against the total stockholder return over the Performance Period of each of the companies in the Comparator Peer Group:

| Company TSR Percentile Rank | TSR Performance Multiplier |
|---|---|
| Below 25th percentile | 0 |
| 25th percentile | 50% |
| 50th percentile | 100% |
| 75th percentile or above | 150% |

If the Company's total stockholder return percentile rank during the Performance Period is between the 25th and the 50th percentiles or 50th and 75th percentiles, the TSR Performance Multiplier will be determined using straight line interpolation based on the actual percentile ranking.

As used herein, the "Comparator Peer Group" consists of those companies that are in the Philadelphia Semiconductor Index on the Award Date; provided that, except as provided below, the common stock (or similar equity security) of each such peer company is continually listed or traded on a national securities exchange from the first day of the Performance Period through the last trading day of the Performance Period. In the event a member of the Comparator Peer Group files for bankruptcy or liquidates due to an insolvency or is delisted due to failure to meet the national securities exchange's minimum market capitalization requirement, such company shall continue to be treated as a Comparator Peer Group member, and such company's ending price will be treated as $0 if the common stock (or similar equity security) of such company is no longer listed or traded on a national securities exchange on the last trading day of the Performance Period (and if multiple members of the Comparator Peer Group file for bankruptcy or liquidate due to an insolvency or are delisted, such members shall be ranked in order of when such bankruptcy or liquidation occurs, with earlier bankruptcies/liquidations/delistings ranking lower than later bankruptcies/liquidations/delistings). In the event of a formation of a new parent company by a Comparator Peer Group member, substantially all of the assets and liabilities of which consist immediately after the transaction of the equity interests in the original Comparator Peer Group member or the assets and liabilities of such Comparator Peer Group member immediately prior to the transaction, such new parent company shall be substituted for the Comparator Peer Group member to the extent (and for such period of time) as its common stock (or similar equity securities) are listed or traded on a national securities exchange but the common stock (or similar equity securities) of the original Comparator Peer Group member are not. In the event of a merger or other business combination of two Comparator Peer Group members (including, without limitation, the acquisition of one Comparator Peer Group member, or all or substantially all of its assets, by another Comparator Peer Group member), the surviving, resulting or successor entity, as the case may be, shall continue to be treated as a member of the Comparator Peer Group, provided that the common stock (or similar equity security) of such entity is listed or traded on a national securities exchange through the last trading day of the Performance Period. With respect to the preceding two sentences, the applicable stock prices shall be equitably and proportionately adjusted to the extent (if any) necessary to preserve the intended incentives of the awards and mitigate the impact of the transaction.

The Award shall be subject to the following limitations: **(i)** if the Company's absolute total shareholder return is negative then the maximum number of shares that may be earned is the Target PRSUs; and **(ii)** in no event may the value of the Award at vesting exceed 300% of the value of the Target PRSUs on the Award Date; the number of PRSUs vested shall be reduced to meet the foregoing absolute dollar cap.

**1.5.** *Vesting of PRSUs*. The term "vest" as used herein with respect to any PRSU means the lapsing of the restrictions described herein with respect to such PRSU. The Award shall not be vested as of the Award Date and shall be forfeitable by the Participant without consideration or compensation in accordance

with Section 1.6 below unless and until otherwise vested pursuant to the terms of this Agreement. The Participant has no rights, partial or otherwise, in the Award and/or any Stock subject thereto unless and until the Award has been earned pursuant to Section 1.3 and vested pursuant to this Section 1.5. A number of PRSUs equal to the Earned PRSUs will become 100% vested (referred to as "Vested Units") on the last day of the Performance Period (the "Maturity Date"), provided that the Participant remains continuously employed by the Company, an Affiliate, or a subsidiary through the Maturity Date**.** Each Vested Unit shall be settled by the delivery of one share of Stock (subject to adjustment under the Plan). Subject to Section 2.3 below, settlement will occur as soon as practicable following certification by the Administrator of the number of Earned PRSUs and passage of the Maturity Date (or, if earlier, the date the Award becomes vested pursuant to the terms of Section 1.7 below), but in no event later than the earlier of (i) 90 days following the Maturity Date (or such earlier date that the Award becomes vested), or (ii) March 15th of the year following the year in which the Award becomes vested. No fractional shares of Stock shall be issued pursuant to this Agreement.

**1.6.** *Forfeiture Risk*. Subject to Section 1.7, If the Participant ceases to be employed or retained by the Company or an Affiliate for any reason any then outstanding PRSU that is not a Vested Unit acquired by the Participant hereunder shall be automatically and immediately forfeited. The Participant hereby appoints the Company as the attorney-in-fact of the Participant to take such actions as may be necessary or appropriate to effectuate the cancellation of a forfeited PRSU.

**1.7.** *Early Vesting of PRSUs*. This Section sets forth the exclusive circumstances under which the Participant may become entitled to Vested Units even though he or she is not employed through the Maturity Date: **(i)** If, prior to a Change in Control, the Participant dies, incurs a total and permanent disability (as that term is defined in the Company's disability insurance policy in effect on the award date), or terminates employment on account of retirement from employment with the Company or an Affiliate at age 65 with ten consecutive years of employment with the Company or an Affiliate, prior to the Maturity Date, he or she shall continue to be entitled to receive the Earned PRSUs hereunder, to the extent earned as of the earlier of the Maturity Date and the date of a Change in Control, but the amount otherwise payable shall be prorated to reflect the portion of the Performance Period during which the Participant was employed. **(ii)** In the event of a Change in Control where the Award is not continued or assumed by a public company, the Earned PRSU, to the extent earned pursuant to the next sentence shall be fully vested immediately prior to the Change in Control. The number of Earned PRSUs at the time of a Change in Control shall be determined as of the date such Change in Control is consummated, rather than the Maturity Date (as defined in Section 1.5), with the number of Earned PRSUs determined as set forth in Section 1.4 above, based upon the Company's total stockholder return and the total stockholder return of each of the companies in the Comparator Peer Group through the date of the Change in Control (and, with respect to the Company, instead of the 20-business day average, taking into account the consideration per share to be paid in the Change in Control transaction). **(iii)** In the event of a Change in Control where the Award is continued or assumed by a public company, then payment of the Earned PRSUs calculated in accordance with clause (ii) above, shall continue to be contingent on the Participant's employment through the Maturity Date unless there is a Qualifying Termination within two years following the Change in Control. If a Qualifying Termination occurs, the restrictions on all unvested Earned PRSUs shall immediately lapse. The provisions of clauses (ii) and (iii) shall govern the Award notwithstanding the provisions of any Executive Change In Control Termination Agreement that may exist between the Company or an Affiliate and the Participant. The distribution of any Vested Units occurring by reason of this Section 1.7 shall be settled by the delivery of one share of Stock (subject to adjustment under the Plan) per Vested Unit. Settlement will occur as soon as practicable following the date the Award becomes vested pursuant to the terms of this Section 1.7, but in no event later than the earlier of (A) 90 days following the date the Award becomes vested, and (B) March 15th of the year following the year in which the Award becomes vested. No fractional

shares of Stock shall be issued pursuant to this Agreement.

**1.8.** *Nontransferability of PRSUs*. The PRSU acquired by the Participant pursuant to this Agreement shall not be sold, transferred, pledged, assigned or otherwise encumbered or disposed of except as provided below and in the Plan.

**1.9.** *Dividends, etc.* The Participant shall not be entitled: **(i)** to receive any dividends or other distributions paid with respect to the Stock to which the PRSU relates, or **(ii)** to vote any Stock with respect to which the PRSU relates, unless and until, and only to the extent, the PRSU becomes vested and the Participant becomes a stockholder of record with respect to such shares of Stock. Notwithstanding the foregoing, as of each date on which the Company pays an ordinary cash dividend to record owners of shares of Stock, the Participant's account shall, as of each such Dividend Date, be credited with a cash amount (without interest) equal to the product of the total number of shares subject to the Target PRSU immediately prior to such Dividend Date multiplied by the dollar amount of the cash dividend paid per share of Stock by the Company on such Dividend Date (such amount, the "Dividend Equivalent Amount"). The Dividend Equivalent Amount, which shall be adjusted to reflect the number of Earned PRSUs, shall be subject to the same vesting conditions and settlement terms as the PRSU shares to which they relate.

**1.10.** *Sale of Vested Shares.* The Participant understands that Participant will be free to sell any Stock with respect to which the PRSU relates once the PRSU has vested, subject to **(i)** satisfaction of any applicable tax withholding requirements with respect to the vesting of such PRSU; **(ii)** the completion of any administrative steps (for example, but without limitation, the transfer of certificates) that the Company may reasonably impose; and **(iii)** applicable requirements of federal and state securities laws.

**1.11.** *Certain Tax Matters*. The Participant expressly acknowledges that the award or vesting of the PRSU acquired hereunder, may give rise to "wages" subject to withholding. The Participant expressly acknowledges and agrees that Participant's rights hereunder are subject to Participant promptly paying to the Company all taxes required to be withheld in connection with such award, vesting or payment. Until the Administrator determines otherwise, such payment of Participant's withholding tax obligations shall be made through net share settlement procedures whereby that number of the vesting shares needed to cover the withholding tax obligation (calculated using the Fair Market Value of the Company's stock on the date of vest) shall be cancelled to fund the Company's payment of the withholding tax obligation and the net shares remaining after such cancellation shall be credited to Participant's account.

**1.12** *Equitable Adjustments*. The Award is subject to adjustment pursuant to Section 15.1 of the Plan.

**Article II - GENERAL PROVISIONS**

**2.1.** *Definitions*. Except as otherwise expressly provided, all terms used herein shall have the same meaning as in the Plan. The following terms shall have the indicated meanings:

"Administrator" means the Management Development & Compensation Committee of the Company's Board of Directors.

"Affiliate" means a corporation or other legal entity that is controlled by, controls or is under common control with the Company.

"Cause" means (a) "Cause" as defined in any individual agreement to which the Participant is a party or (b) if there is no such agreement or if it does not define Cause, the Company's termination of the Participant's employment with the Company or any Affiliate following the occurrence of any one or more of the following: (i) the Participant's conviction of, or plea of guilty or nolo contendere to, a felony; (ii) the Participant's willful and continual failure to substantially perform the Participant's duties after written notification by the Company; (iii) the Participant's willful

engagement in conduct that is materially injurious to the Company or an Affiliate monetarily or otherwise; (iv) the Participant's commission of an act of gross misconduct in connection with the performance of the Participant's duties; (v) the Participant's material breach of any employment, confidentiality, or other similar agreement between the Company or an Affiliates and the Participant; or (vi) prior to a Change in Control, such other events as shall be determined by the Administrator.

"Qualifying Termination" means the termination of a Participant's employment with the Company or an Affiliate (a) by the Company for any reason other than Cause, death, or total and permanent disability (as that term is defined in the Company's disability insurance policy in effect on the Award Date); or (b) by the Participant because of the occurrence, without the Participant's consent, of (i) a material reduction in the position, duties, or responsibilities of the Participant from those in effect immediately prior to such change; (ii) a reduction in the Participant's base salary; (iii) a relocation of the Participant's primary work location to a distance of more than 50 miles from its location as of immediately prior to such change; or (iv) a material breach by the Company or an Affiliate of any employment agreement with the Participant. In order to invoke a termination of employment pursuant to clause (b) of this definition, Participant shall provide written notice to the Company of the existence of one or more of the conditions described in clauses (i) through (iv) within 90 days following the Participant's knowledge of the initial existence of such condition or conditions, and the Company shall have 30 days following receipt of such written notice (the "Cure Period") during which it may remedy the condition. In the event that the Company fails to remedy a condition covered by clause (b) of this definition during the Cure Period, the Participant must terminate employment, if at all, within 90 days following the Cure Period in order for such termination of employment to constitute a Qualifying Termination.

**2.2.** *No Understandings as to Employment etc*. The Participant further expressly acknowledges that nothing in the Plan or any modification thereto, in the Award or in this Agreement shall constitute or be evidence of any understanding, express or implied, on the part of the Company to employ or retain the Participant for any period or with respect to the terms of the Participant's employment or to give rise to any right to remain in the service of the Company or of any subsidiary or affiliate of the Company, and the Participant shall remain subject to discharge to the same extent as if the Plan had never been adopted or the Award had never been made.

**2.3.** *Compliance with Section 409A of the Code*. Notwithstanding any other provision of the Plan or this Agreement to the contrary, the Plan and this Agreement shall be construed or deemed to be amended as necessary to remain exempt from or comply with the requirements of Section 409A of the Code and to avoid the imposition of any additional or accelerated taxes or other penalties under Section 409A of the Code. The Committee, in its sole discretion, shall determine the requirements of Section 409A of the Code applicable to the Plan and this Agreement and shall interpret the terms of each consistently therewith. Under no circumstances, however, shall the Company, an Affiliate, or a subsidiary have any liability under the Plan or this Agreement for any taxes, penalties, or interest due on amounts paid or payable pursuant to the Plan and/or this Agreement, including any taxes, penalties, or interest imposed under Section 409A of the Code. In the event that it is determined by the Company that, as a result of the deferred compensation tax rules under Section 409A of the Code (and any related regulations or other pronouncements thereunder) (the "*Deferred Compensation Tax Rules*"), benefits that the Participant is entitled to receive under the terms of this Agreement are deferred compensation subject to the Deferred Compensation Tax Rules, (i) the Participant shall not be considered to have terminated employment for purposes hereof until the Participant would be considered to have incurred a "separation from service" within the meaning of the Deferred Compensation Tax Rules and (ii) the Company shall, in lieu of providing such benefit when otherwise due under this Agreement, instead provide such benefit on the first day on which such provision would not result in the Participant incurring any tax liability under the Deferred Compensation Tax

Rules; which day, if the Participant is a "specified employee" (within the meaning of the Deferred Compensation Tax Rules), shall, in the event the benefit to be provided is due to the Participant's "separation from service" (within the meaning of the Deferred Compensation Tax Rules) with the Company and its subsidiaries, be the first day following the six-month period beginning on the date of such separation from service. Each amount to be paid or benefit to be provided under this Agreement shall be construed as a separately identified payment for purposes of the Deferred Compensation Tax Rules, and any payments described in this Agreement that are due within the "short term deferral period" as defined in the Deferred Compensation Tax Rules shall not be treated as deferred compensation unless applicable law requires otherwise.

**2.4.** *Data Protection Waiver*. Participant understands and agrees that in order to process and administer the Award and the Plan, the Company and the Administrator may process personal data and/or sensitive personal information concerning the Participant. Such data and information includes, but is not limited to, the information provided in the Award grant package and any changes thereto, other appropriate personal and financial data about Participant, and information about Participant's participation in the Plan and transactions under the Plan from time to time. Participant hereby gives his or her explicit consent to the Company and the Administrator to process any such personal data and/or sensitive personal information. Participant also hereby gives his or her explicit consent to the Company and the Administrator to transfer any such personal data and/or sensitive personal data outside the country, in which Participant works or is employed, and to the United States. The legal persons granted access to such Participant personal data are intended to include the Company, the Administrator, the outside plan administrator as selected by the Company from time to time, and any other compensation consultant or person that the Company or the Administrator may deem appropriate for the administration of the Plan or the Award. Participant has been informed of his or her right of access and correction to Participant's personal data by contacting the Company. Participant also understands that the transfer of the information outlined herein is important to the administration of the Award and the Plan and failure to consent to the transmission of such information may limit or prohibit Participant's participation under the Plan and/or void the Award.

**2.5.** *Savings Clause*. In the event that Participant is employed or provides services in a jurisdiction where the performance of any term or provision of this Agreement by the Company: **(i)** will result in a breach or violation of any statute, law, ordinance, regulation, rule, judgment, decree, order or statement of public policy of any court or governmental agency, board, bureau, body, department or authority, or **(ii)** will result in the creation or imposition of any penalty, charge, restriction, or material adverse effect upon the Company, then any such term or provision shall be null, void and of no effect.

**2.6.** *Amendment*. The Company may amend the provisions of this Agreement at any time; provided that an amendment that would materially adversely affect the Participant's rights under this Agreement shall be subject to the written consent of the Participant. No course of conduct or failure or delay in enforcing the provisions of this Agreement shall affect the validity, binding effect or enforceability of this Agreement.

**2.7.** *Acts of Misconduct*. If Participant has allegedly committed an act of serious misconduct, including, but not limited to, embezzlement, fraud, dishonesty, unauthorized disclosure of trade secrets or confidential information, breach of fiduciary duty or nonpayment of an obligation owed to the Company, an executive officer of the Company may suspend Participant's rights under the Award, including the vesting of the Award and the settlement of vested PRSUs, subject to the Administrators final decision regarding termination of the Award. No rights under the Award may be exercised during such suspension or after such termination.

**2.8.** *Disputes*. The Administrator or its delegate shall finally and conclusively determine any disagreement concerning the Award.

**2.9.** *Plan*. The terms and provisions of the Plan are incorporated herein by reference, a copy of which has been provided or made available to the Participant. In the event of a conflict or inconsistency between the terms and provisions of the Plan and the provisions of this Agreement, the Plan shall govern and control.

**2.10.** *Successors*. The terms of this Agreement shall be binding upon and inure to the benefit of the Company, its successors and assigns, and the Participant and the beneficiaries, executors, administrators, heirs and successors of the Participant.

**2.11.** *Entire Agreement*. This Agreement and the Plan contain the entire agreement and understanding of the parties hereto with respect to the subject matter contained herein and supersede all prior communications, representations and negotiations in respect thereof; provided, however, that to the extent that the Participant has entered into an employment agreement, severance agreement or change in control termination agreement with the Company that provides for vesting terms that are more favorable than the vesting terms set forth in this Agreement or the Plan, such more favorable vesting terms shall apply.

**2**.12 Claw Back Policy. This grant is subject to the terms of the Company's Claw Back Policy.

**Exhibit 10.2**

**ENTEGRIS, INC.**
2019 RSU Award Agreement

In consideration of services rendered to Entegris, Inc. (the "Company"), the Company periodically makes equity incentive awards consisting of restricted stock units with respect to the Company's Common Stock $0.01 par value ("Stock") to certain key employees, non-employee directors, consultants or advisors of the Company under the Company's 2010 Stock Plan (as amended from time to time, the "Plan"). Any key employee, non-employee director, consultant or advisor (a "Participant") who receives a restricted stock unit award (the "Award") is notified either in writing or via email and the Award is credited to the Participant's account as reflected on the Participant's Overview tab under the Restricted Stock Plan section on the Morgan Stanley Stock Plan Connect web page found at https://www.stockplanconnect.com. By clicking on the "Accept" button for the Award on the Restricted Stock Plan section in the Overview tab or by otherwise receiving the benefits of the Award, Participant: **(i)** acknowledges that Participant has received a copy of the Plan, of the related prospectus providing information concerning awards under the Plan and of the Company's most recent Annual Report on Form 10-K; and **(ii)** accepts the Award and agrees with the Company that the Award is subject to the terms of the Plan and to the following terms and conditions:

**Article I - RSU Award**

**1.1.** *Award Date*. This Agreement shall take effect as of the date specified in the Restricted Stock Plan section on the Overview tab as the Award Date provided to you online at www.stockplanconnect.com (the "Award Date").

**1.2.** *Restricted Stock Units Subject to Award*. The Award consists of that number of restricted stock units (the "RSU") with respect to the Stock that has been approved for the Award to Participant by the Administrator. Each RSU is equivalent to one share of the Stock. The Participant's rights to the RSU are subject to the restrictions described in this Agreement and in the Plan (which is incorporated herein by reference with the same effect as if set forth herein in full) in addition to such other restrictions, if any, as may be imposed by law.

**1.3.** *Meaning of Certain Terms*. The term "vest" as used herein with respect to any RSU means the lapsing of the restrictions described herein with respect to such RSU.

**1.4.** *Nontransferability of RSUs*. The RSU acquired by the Participant pursuant to this Agreement shall not be sold, transferred, pledged, assigned or otherwise encumbered or disposed of except as provided below and in the Plan.

**1.5.** *Forfeiture Risk*. Except as otherwise provided in this Agreement, if the Participant ceases to be employed or retained by the Company and/or its subsidiaries for any reason any then outstanding and unvested RSU acquired by the Participant hereunder shall be automatically and immediately forfeited. The Participant hereby appoints the Company as the attorney-in-fact of the Participant to take such actions as may be necessary or appropriate to effectuate the cancellation of a forfeited RSU.

**1.6.** *Vesting and Settlement of RSUs*. The RSU acquired hereunder shall vest in accordance with the provisions of this Article I, Section 1.6 and applicable provisions of the Plan, as follows:

- 25% of the RSUs vest on February 19, 2020
- an additional 25% of the RSUs vest on February 19, 2021;
- an additional 25% of the RSUs vest on February 19, 2022; and
- the final 25% of the RSUs vest on February 19, 2023.

Notwithstanding the foregoing, no RSU shall vest on any vesting date specified above unless: **(A)** the Participant is then, and since the Award Date has continuously been, employed or retained by the Company or its subsidiaries (subject to Sections 2.2 and 2.3); and **(B)** the Participant has fulfilled the obligations specified in Section 1.9 below. Upon vesting each RSU shall entitle Participant to receive one share of Stock.

Vested RSUs shall be settled in shares of Stock (or, in the discretion of the Administrator, in cash equal to the Fair Market Value thereof). Subject to Section 2.12, settlement and delivery of the applicable number of shares of Stock (or cash equivalent, if applicable) shall be made as soon as practicable following vesting, but in no event later than 30 days after the applicable vesting date. No fractional shares of Stock shall be issued pursuant to this Agreement.

**1.7.** *Dividend Equivalent Rights*. The Participant shall not be entitled: **(i)** to receive any dividends or other distributions paid with respect to the Stock to which the RSU relates, or **(ii)** to vote any Stock with respect to which the RSU relates, unless and until, and only to the extent, the RSU becomes vested and the Participant becomes a stockholder of record with respect to such shares of Stock. Notwithstanding the foregoing, as of each date on which the Company pays an ordinary cash dividend to record owners of shares of Stock, the Participant's account shall, as of each such dividend date, be credited with a cash amount (without interest) equal to the product of the total number of shares subject to the RSU immediately prior to such dividend date multiplied by the dollar amount of the cash dividend paid per share of Stock by the Company on such dividend date (such amount, the "Dividend Equivalent Amount"). The Dividend Equivalent Amount shall be subject to the same vesting conditions and settlement terms as the RSU shares to which they relate.

**1.8.** *Sale of Vested Shares*. The Participant understands that Participant will be free to sell any Stock with respect to which the RSU relates once the RSU has vested and settled, subject to **(i)** satisfaction of any applicable tax withholding requirements with respect to the vesting of such RSU; **(ii)** the completion of any administrative steps (for example, but without limitation, the transfer of certificates) that the Company may reasonably impose; and **(iii)** applicable requirements of federal and state securities laws.

**1.9.** *Certain Tax Matters*. The Participant expressly acknowledges that the award or vesting of the RSU acquired hereunder, may give rise to "wages" subject to withholding. The Participant expressly acknowledges and agrees that Participant's rights hereunder are subject to Participant promptly paying to the Company all taxes required to be withheld in connection with such award, vesting, settlement and/or payment. Unless the Administrator determines otherwise, such payment of Participant's withholding tax obligations shall be made through net share settlement procedures whereby that number of the vesting shares needed to cover the withholding tax obligation (calculated using the Fair Market Value of the Company's stock on the date of vest) shall be cancelled to fund the Company's payment of the withholding tax obligation and the net shares remaining after such cancellation shall be credited to Participant's account.

**Article II - GENERAL PROVISIONS**

**2.1.** *Definitions*. Except as otherwise expressly provided, all terms used herein shall have the same meaning as in the Plan. The term "Administrator" means the Management Development & Compensation Committee of the Company's Board of Directors.

**2.2.** *Change in Control*

(a) *Assumption or Substitution*.

(i) If the Change in Control is one in which there is an acquiring or surviving entity, the Administrator may provide for the assumption or continuation of some or all outstanding

Awards or for the grant of new awards in substitution therefor by the acquiror or survivor or an affiliate of the acquiror or survivor.

(ii) Only to the extent consistent with Section 409A of the Code, in the event of a Change in Control in which the successor company assumes or substitutes for the RSU (or in which the Company is the ultimate parent corporation and continues the Award), if Participant's employment with such successor company (or the Company) or a subsidiary thereof is involuntarily terminated without Cause by the successor employer or Participant resigns for Good Reason, in either case within 24 months following such Change in Control: the restrictions, limitations and other conditions applicable to the RSU shall lapse and the RSU shall become free of all restrictions, limitations and conditions and become fully vested.

(b) *Awards Not Assumed or Substituted*. In the event of a Change in Control in which the successor company does not assume or substitute for the RSU (or in which the Company is the ultimate parent corporation and does not continue the Award): the restrictions, limitations and other conditions applicable to the RSU shall lapse and the RSU shall become free of all restrictions, limitations and conditions and become fully vested, provided that if the RSU constitutes nonqualified deferred compensation pursuant to Section 409A, the RSU will not be settled until the earlier to occur of the regularly scheduled vesting date, Participant's retirement and Participant's termination without Cause or for Good Reason, subject to application of a six-month delay if the Participant is a specified employee under Section 409A.

(c) *Good Reason Definition*. For purposes of this Section 2.2, "Good Reason" means (i) "Good Reason" as defined in any individual agreement to which Participant is a party, or (ii) if there is no such agreement or if it does not define Good Reason, without the Participant's prior written consent: (A) a reduction in the Participant's base salary; (B) a relocation of the Participant's primary work location to a distance of more than 50 miles from its location as of immediately prior to such change; or (C) a material breach by the Company or an Affiliate of any employment agreement with the Participant. In order to invoke a termination of employment for Good Reason, a Participant shall provide written notice to the Company of the existence of one or more of the conditions described in clauses (A) through (C) within 90 days following the Participant's knowledge of the initial existence of such condition or conditions, and the Company shall have 30 days following receipt of such written notice (the "Cure Period") during which it may remedy the condition. In the event that the Company fails to remedy the condition constituting Good Reason during the Cure Period, the Participant must terminate employment, if at all, within 90 days following the Cure Period in order for such termination to constitute a termination of employment for Good Reason.

(d) *Cause Definition*. "Cause" means (i) "Cause" as defined in any individual agreement to which the Participant is a party or (ii) if there is no such agreement or if it does not define Cause, the Company's termination of the Participant's employment with the Company or any Affiliate following the occurrence of any one or more of the following: (A) the Participant's conviction of, or plea of guilty or nolo contendere to, a felony; (B) the Participant's willful and continual failure to substantially perform the Participant's duties after written notification by the Company; (C) the Participant's willful engagement in conduct that is materially injurious to the Company or an Affiliate monetarily or otherwise; (D) the Participant's commission of an act of gross misconduct in connection with the performance of the Participant's duties; or (E) the Participant's material breach of any employment, confidentiality, or other similar agreement between the Company or an Affiliates and the Participant.

**2.3.** *Retirement*. If Participant is an employee of the Company and ceases to be an employee due to retirement with the consent of the Administrator, Participant will be entitled to immediate vesting of

all unvested RSUs awarded pursuant to this Agreement. As used herein the term "retirement with the consent of the Administrator" means that Participant's retirement must be with the consent of the Administrator, which consent may be granted or withheld in the discretion of the Administrator. In the event that Participant ceases to be an employee under circumstances that would otherwise qualify for retirement but the consent of the Administrator has not been granted, then Participant shall not be entitled to the benefits of this Section 2.3.

**2.4.** *Equitable Adjustments***.** The Award is subject to adjustment pursuant to Section 15.1 of the Plan.

**2.5.** *No Understandings as to Employment etc*. The Participant further expressly acknowledges that nothing in the Plan or any modification thereto, in the Award or in this Agreement shall constitute or be evidence of any understanding, express or implied, on the part of the Company to employ or retain the Participant for any period or with respect to the terms of the Participant's employment or to give rise to any right to remain in the service of the Company or of any subsidiary or affiliate of the Company, and the Participant shall remain subject to discharge to the same extent as if the Plan had never been adopted or the Award had never been made.

**2.6.** *Data Protection Waiver*. Participant understands and agrees that in order to process and administer the Award and the Plan, the Company and the Administrator may process personal data and/or sensitive personal information concerning the Participant. Such data and information includes, but is not limited to, the information provided in the Award grant package and any changes thereto, other appropriate personal and financial data about Participant, and information about Participant's participation in the Plan and transactions under the Plan from time to time. Participant hereby gives his or her explicit consent to the Company and the Administrator to process any such personal data and/or sensitive personal information. Participant also hereby gives his or her explicit consent to the Company and the Administrator to transfer any such personal data and/or sensitive personal data outside the country, in which Participant works or is employed, and to the United States. The legal persons granted access to such Participant personal data are intended to include the Company, the Administrator, the outside plan administrator as selected by the Company from time to time, and any other compensation consultant or person that the Company or the Administrator may deem appropriate for the administration of the Plan or the Award. Participant has been informed of his or her right of access and correction to Participant's personal data by contacting the Company. Participant also understands that the transfer of the information outlined herein is important to the administration of the Award and the Plan and failure to consent to the transmission of such information may limit or prohibit Participant's participation under the Plan and/or void the Award.

**2.7.** *Savings Clause*. In the event that Participant is employed or provides services in a jurisdiction where the performance of any term or provision of this Agreement by the Company: **(i)** will result in a breach or violation of any statute, law, ordinance, regulation, rule, judgment, decree, order or statement of public policy of any court or governmental agency, board, bureau, body, department or authority, or **(ii)** will result in the creation or imposition of any penalty, charge, restriction, or material adverse effect upon the Company, then any such term or provision shall be null, void and of no effect.

**2.8.** *Amendment*. The Company may amend the provisions of this Agreement at any time; provided that an amendment that would materially adversely affect the Participant's rights under this Agreement shall be subject to the written consent of the Participant. No course of conduct or failure or delay in enforcing the provisions of this Agreement shall affect the validity, binding effect or enforceability of this Agreement.

**2.9.** *Acts of Misconduct*. If Participant has allegedly committed an act of serious misconduct, including, but not limited to, embezzlement, fraud, dishonesty, unauthorized disclosure of trade secrets or confidential information, breach of fiduciary duty or nonpayment of an obligation owed to the

Company, an executive officer of the Company may suspend Participant's rights under the Award, including the vesting of the Award and the settlement of vested RSUs, subject to the Administrators final decision regarding termination of the award. No rights under the Award may be exercised during such suspension or after such termination.

**2.10.** *Disputes*. The Administrator or its delegate shall finally and conclusively determine any disagreement concerning the Award.

**2.11.** *Plan*. The terms and provisions of the Plan are incorporated herein by reference, a copy of which has been provided or made available to the Participant. In the event of a conflict or inconsistency between the terms and provisions of the Plan and the provisions of this Agreement, the Plan shall govern and control.

**2.12.** *Compliance with Section 409A of the Code*. Notwithstanding any other provision of the Plan or this Agreement to the contrary, the Plan and this Agreement shall be construed or deemed to be amended as necessary to remain exempt from or comply with the requirements of Section 409A of the Code and to avoid the imposition of any additional or accelerated taxes or other penalties under Section 409A of the Code. The Committee, in its sole discretion, shall determine the requirements of Section 409A of the Code applicable to the Plan and this Agreement and shall interpret the terms of each consistently therewith. Under no circumstances, however, shall the Company, an Affiliate, or a subsidiary have any liability under the Plan or this Agreement for any taxes, penalties, or interest due on amounts paid or payable pursuant to the Plan and/or this Agreement, including any taxes, penalties, or interest imposed under Section 409A of the Code. In the event that it is reasonably determined by the Company that, as a result of the deferred compensation tax rules under Section 409A of the Code (and any related regulations or other pronouncements thereunder) (the "*Deferred Compensation Tax Rules*"), benefits that the Participant is entitled to receive under the terms of this Agreement are deferred compensation subject to tax under the Deferred Compensation Tax Rules, (i) the Participant shall not be considered to have terminated employment for purposes hereof until the Participant would be considered to have incurred a "separation from service" within the meaning of the Deferred Compensation Tax Rules and (ii) the Company shall, in lieu of providing such benefit when otherwise due under this Agreement, instead provide such benefit on the first day on which such provision would not result in the Participant incurring any tax liability under the Deferred Compensation Tax Rules; which day, if the Participant is a "specified employee" (within the meaning of the Deferred Compensation Tax Rules), shall, in the event the benefit to be provided is due to the Participant's "separation from service" (within the meaning of the Deferred Compensation Tax Rules) with the Company and its subsidiaries, be the first day following the six-month period beginning on the date of such separation from service. Each amount to be paid or benefit to be provided under this Agreement shall be construed as a separately identified payment for purposes of the Deferred Compensation Tax Rules, and any payments described in this Agreement that are due within the "short term deferral period" as defined in the Deferred Compensation Tax Rules shall not be treated as deferred compensation unless applicable law requires otherwise.

**2.13.** *Successors*. The terms of this Agreement shall be binding upon and inure to the benefit of the Company, its successors and assigns, and the Participant and the beneficiaries, executors, administrators, heirs and successors of the Participant.

**2.14.** *Entire Agreement*. This Agreement and the Plan contain the entire agreement and understanding of the parties hereto with respect to the subject matter contained herein and supersede all prior communications, representations and negotiations in respect thereof; provided, however, that to the extent that the Participant has entered into an employment agreement, severance agreement or change

in control termination agreement with the Company that provides for vesting terms that are more favorable than the vesting terms set forth in this Agreement or the Plan, such more favorable vesting terms shall apply.

**2.15** Claw Back Policy. This grant is subject to the terms of the Company's Claw Back Policy.

**ENTEGRIS, INC.**

2019 Stock Option Award Agreement

In consideration of services rendered to Entegris, Inc. (the "Company"), the Company periodically makes equity incentive awards consisting of stock options with respect to the Company's Common Stock $0.01 par value ("Stock") to certain key employees, non-employee directors, consultants or advisors of the Company under the Company's 2010 Stock Plan (as amended from time to time, the "Plan"). Any key employee, non-employee director, consultant or advisor (a "Participant") who receives a stock option award (the "Award") is notified in writing or via email and the Award is credited to the Participant's account as reflected on the Overview tab under the Stock Options Plan section on the Morgan Stanley Stock Plan Connect web page found at https://www.stockplanconnect.com. By clicking on the "Accept" button for the Award in the Stock Options Plan section on the Overview tab or by otherwise receiving the benefits of the Award, Participant: **(i)** acknowledges that Participant has received a copy of the Plan, of the related prospectus providing information concerning awards under the Plan and of the Company's most recent Annual Report on Form 10-K; and **(ii)** accepts the Award and agrees with the Company that the Award is subject to the terms of the Plan and to the following terms and conditions:

**Article I -Stock Option Grant**

**1.1.** *Option Grant*. Effective as of the date specified in the Stock Options Plan section provided to you online (the "Grant Date"), the Company hereby grants Participant a non-qualified option to purchase that number of shares of Stock that has been approved for the Award to the Participant by the Administrator ("Option"). The shares of Stock awarded are specified in the Stock Options Plan section in the Granted column online at www.stockplanconnect.com. The Option is not intended to be an incentive stock option under Section 422 of the Internal Revenue Code of 1986, as amended and will be interpreted accordingly.

**1.2.** *Option Exercise Price*. The exercise (grant) price of the Option shall be 100% of the closing price of the Stock on the NASDAQ stock market on the Grant Date. The exercise price is provided to Participant online at www.stockplanconnect.com.

**1.3.** *Option Vesting Schedule*. This Option shall vest and become exercisable, except as hereinafter provided, in whole or in part, as follows:

- 25% on February 19, 2020;
- an additional 25% on February 19, 2021;
- an additional 25% on February 19, 2022;
- the final 25% on February 19, 2023.

**1.4.** *Expiration of Option*. To the extent that the Option shall not have been exercised, this Option shall expire at 5:00 p.m. local time at the Company's headquarters on February 19, 2026 and no part of the Option may be exercised thereafter. If an expiration, termination or forfeiture date described herein falls on a weekday, Participant must exercise the Option before 5:00 p.m. local time at the Company's headquarters on that date. If an expiration, termination or forfeiture date described herein falls on a weekend or any other day on which the NASDAQ stock market is not open, Participant must exercise the Options before 5:00 p.m. local time at the Company's headquarters on the last NASDAQ business day prior to the expiration, termination or forfeiture date.

**1.5.** *Exercise of Option*. When and as vested, this Option may be exercised up to the number of shares of Stock specified in Section 1.1 above only by serving written notice on the designated stock plan administrator. Until the Administrator determines otherwise, payment of the Option exercise price specified in Section 1.2 above shall be made through net share settlement procedures whereby that

number of the Option shares being exercised that are needed to cover the payment of the Option exercise price (calculated using the Fair Market Value of the Company's stock on the date of exercise) shall be cancelled to fund the payment of the Option exercise price and the net shares remaining after such cancellation shall be credited to Participant's account. No fractional shares of Stock shall be issued pursuant to this Agreement. Participant will have the rights of a stockholder only after the shares of Stock have been issued to the Participant in accordance with this Agreement.

**1.6.** *No Assignment of Option*. This Option may not be assigned or transferred except as may otherwise be provided by the terms of this Agreement.

**1.7.** *Equitable Adjustments***.** The Award is subject to adjustment pursuant to Section 15.1 of the Plan.

**1.8.** *Termination of Employment or Service with the Company*. All exercisable Options granted herein must be exercised within ninety (90) days following the date on which the employment or services of Participant with the Company or one of its subsidiaries terminates (i.e., last day worked, excluding any severance period), or, if earlier, prior to the original expiration date of the Option ("Termination Date"), or be forfeited, except as provided in Sections 2.2 and 2.3 below and as follows:

**(a)** In the event of Participant's death during employment/services, each Option granted hereunder will be exercisable, whether or not vested on the date of Participant's death, until the earlier of: **(1)** the first anniversary of Participant's date of death; or **(2)** the original expiration date of the option. In the event of Participant's death during a Special Exercise Period as specified in Section 2.3 below, each Option will continue to be exercisable in accordance with the provisions of that Section.

**(b)** In the event of the termination of employment/services of Participant due to Disablement, Participant may exercise the Option, to the extent not previously exercised and whether or not the option had vested on or prior to the date of employment or service termination, at any time prior to the earlier of the original expiration date of the option and 365 days following the later of the date of Participant's separation from service due to Participant's Disablement or the date of determination of Participant's Disablement, *provided*, *however*, that while the claim of Disablement is pending, Options that were unvested at termination of services may not be exercised and Options that were vested at termination of services may be exercised only during the period set forth in the introductory clause to this Section 1.8. The Option shall terminate on the earlier of the original expiration date of the option and the 365th day from the date of determination of Disablement, to the extent that it is unexercised. For these purposes "Disablement" shall be determined in accordance with the standards and procedures of the then-current Long Term Disability policies maintained by the Company, which is generally a physical condition arising from an illness or injury, which renders an individual incapable of performing work in any occupation, as determined by the Company.

**(c)** If Participant's employment/services is terminated for "Cause", all granted but unexercised stock Options, whether vested or unvested, shall be forfeited on Participant's Termination Date.

**1.9.** *Suspension of Option Exercises*. For administrative or other reasons, the Company may, from time to time, suspend the ability of Participants to exercise options for limited periods of time. Notwithstanding the above, the Company shall not be obligated to deliver any shares of Stock during any period when the Company determines that the exercisability of the Option or the delivery of shares hereunder would violate any federal, state or other applicable laws.

**1.10.** *Withholding of Income Taxes*. Nonqualified stock options are subject to withholding tax upon exercise. Until the Administrator determines otherwise, such payment of Participant's withholding tax

obligations shall be made through net share settlement procedures whereby that number of the Option shares being exercised needed to cover the withholding tax obligation (calculated using the Fair Market Value of the Company's stock on the date of exercise) shall be cancelled to fund the Company's payment of the withholding tax obligation and the net shares remaining after such cancellation shall be credited to Participant's account.

**Article II - GENERAL PROVISIONS**

**2.1.** *Definitions*. Except as otherwise expressly provided, all terms used herein shall have the same meaning as in the Plan. The term "Administrator" means the Management Development & Compensation Committee of the Company's Board of Directors.

**2.2.** *Change in Control*.

(a) *Assumption or Substitution*.

(i) If the Change in Control is one in which there is an acquiring or surviving entity, the Administrator may provide for the assumption or continuation of some or all outstanding Awards or for the grant of new awards in substitution therefor by the acquiror or survivor or an affiliate of the acquiror or survivor.

(ii) In the event of a Change in Control in which the successor company assumes or substitutes for the Option (or in which the Company is the ultimate parent corporation and continues the Award), if Participant's employment with such successor company (or the Company) or a subsidiary thereof is involuntarily terminated without Cause by the successor employer or Participant resigns for Good Reason, in either case within 24 months following such Change in Control: the Option will immediately vest, become fully exercisable, and may thereafter be exercised for 24 months. For the purposes of this Section 2.2, the Option shall be considered assumed or substituted for if following the Change in Control the Award confers the right to purchase or receive, for each share of Stock subject to the Option immediately prior to the Change in Control, the consideration (whether stock, cash or other securities or property) received in the transaction constituting a Change in Control by holders of Stock for each Share held on the effective date of such transaction (and if holders were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding Stock); provided, however, that if such consideration received in the transaction constituting a Change in Control is not solely common stock of the successor company, the Administrator may, with the consent of the successor company, provide that the consideration to be received upon the exercise or vesting of the Option, for each Share subject thereto, will be solely common stock of the successor company substantially equal in fair market value to the per Share consideration received by holders of Stock in the transaction constituting a Change in Control. The determination of such substantial equality of value of consideration shall be made by the Administrator in its sole discretion and its determination shall be conclusive and binding.

(b) *Awards Not Assumed or Substituted*. In the event of a Change in Control in which the successor company does not assume or substitute for the Option (or in which the Company is the ultimate parent corporation and does not continue the Award): the Option shall immediately vest and become fully exercisable.

(c) *Good Reason Definition*. For purposes of this Section 2.2, "Good Reason" means (i) "Good Reason" as defined in any individual agreement to which Participant is a party, or (ii) if there is no such agreement or if it does not define Good Reason, without the Participant's prior written consent: (A) a reduction in the Participant's base salary; (B) a relocation of the Participant's primary work location to a distance of more than 50 miles from its location as of immediately prior to such change; or (C) a material breach by the Company or an Affiliate of any employment agreement with the Participant. In order to invoke a termination of employment for Good Reason, a Participant shall provide written notice to the Company of the existence of one or more of the conditions described

in clauses (i) through (iii) within 90 days following the Participant's knowledge of the initial existence of such condition or conditions, and the Company shall have 30 days following receipt of such written notice (the "Cure Period") during which it may remedy the condition. In the event that the Company fails to remedy the condition constituting Good Reason during the Cure Period, the Participant must terminate employment, if at all, within 90 days following the Cure Period in order for such termination to constitute a termination of employment for Good Reason.

(d) *Cause Definition*. "Cause" means (i) "Cause" as defined in any individual agreement to which the Participant is a party or (ii) if there is no such agreement or if it does not define Cause, the Company's termination of the Participant's employment with the Company or any Affiliate following the occurrence of any one or more of the following: (A) the Participant's conviction of, or plea of guilty or nolo contendere to, a felony; (B) the Participant's willful and continual failure to substantially perform the Participant's duties after written notification by the Company; (C) the Participant's willful engagement in conduct that is materially injurious to the Company or an Affiliate monetarily or otherwise; (D) the Participant's commission of an act of gross misconduct in connection with the performance of the Participant's duties; or (E) the Participant's material breach of any employment, confidentiality, or other similar agreement between the Company or an Affiliates and the Participant.

**2.3.** *Retirement, etc*. If Participant is an employee of the Company and ceases to be an employee due to retirement with the consent of the Administrator, Participant will be entitled to a special exercise period with respect to the Option (the "Special Exercise Period") which will begin on Participant's retirement date and will end on the earlier of the 4th anniversary of Participant's retirement date or the expiration date specified in Section 1.4 above. During the Special Exercise Period, the Option will continue to vest in accordance with the schedule specified in Section 1.3 above and will be exercisable to the same extent that it would have been exercisable had Participant remained in service with the Company or one of its subsidiaries. As used herein the term "retirement with the consent of the Administrator" means that Participant's retirement must be with the consent of the Administrator, which consent may be granted or withheld in the discretion of the Administrator. In the event that Participant ceases to be an employee under circumstances that would otherwise qualify for retirement but the consent of the Administrator has not been granted, then Participant shall not be entitled to the benefits of this Section 2.3.

**2.4.** *No Understandings as to Employment, etc*. The Participant further expressly acknowledges that nothing in the Plan or any modification thereto, in the Award or in this Agreement shall constitute or be evidence of any understanding, express or implied, on the part of the Company to continue the employment or services of the Participant for any period or to give rise to any right to remain in the service of the Company or of any subsidiary or affiliate of the Company, and the Participant shall remain subject to discharge to the same extent as if the Plan had never been adopted or the Award had never been made.

**2.5.** *Acts of Misconduct*. If Participant has allegedly committed an act of serious misconduct, including, but not limited to, embezzlement, fraud, dishonesty, unauthorized disclosure of trade secrets or confidential information, breach of fiduciary duty or nonpayment of an obligation owed to the Company, an Executive Officer of the Company may suspend Participant's rights under the Award, including the vesting of Options and the exercise of vested Options, subject to the Administrators final decision regarding termination of the award. No rights under the Award may be exercised during such suspension or after such termination.

**2.6.** *Data Protection Waiver.* Participant understands and agrees that in order to process and administer the Award and the Plan, the Company and the Administrator may process personal data and/or sensitive personal information concerning the Participant. Such data and information includes, but is not

limited to, the information provided in the Award grant package and any changes thereto, other appropriate personal and financial data about Participant, and information about Participant's participation in the Plan and transactions under the Plan from time to time. Participant hereby gives his or her explicit consent to the Company and the Administrator to process any such personal data and/or sensitive personal information. Participant also hereby gives his or her explicit consent to the Company and the Administrator to transfer any such personal data and/or sensitive personal data outside the country, in which Participant works, is employed, or provides services, and to the United States. The legal persons granted access to such Participant personal data are intended to include the Company, the Administrator, the outside plan administrator as selected by the Company from time to time, and any other compensation consultant or person that the Company or the Administrator may deem appropriate for the administration of the Plan or the Award. Participant has been informed of his or her right of access and correction to Participant's personal data by contacting the Company. Participant also understands that the transfer of the information outlined herein is important to the administration of the Award and the Plan and failure to consent to the transmission of such information may limit or prohibit Participant's participation under the Plan and/or void the Award.

**2.7.** *Disputes*. The Administrator designated in the Plan or its delegate shall finally and conclusively determine any disagreement concerning the Award.

**2.8.** *Savings Clause*. In the event that Participant is employed or provides services, in a jurisdiction where the performance of any term or provision of this Agreement by the Company: **(i)** will result in a breach or violation of any statute, law, ordinance, regulation, rule, judgment, decree, order or statement of public policy of any court or governmental agency, board, bureau, body, department or authority, or **(ii)** will result in the creation or imposition of any penalty, charge, restriction, or material adverse effect upon the Company, then any such term or provision shall be null, void and of no effect.

**2.9.** *Amendment*. The Company may amend the provisions of this Agreement at any time; provided that an amendment that would materially adversely affect the Participant's rights under this Agreement shall be subject to the written consent of the Participant. No course of conduct or failure or delay in enforcing the provisions of this Agreement shall affect the validity, binding effect or enforceability of this Agreement.

**2.10.** *Plan*. The terms and provisions of the Plan are incorporated herein by reference, a copy of which has been provided or made available to the Participant. In the event of a conflict or inconsistency between the terms and provisions of the Plan and the provisions of this Agreement, the Plan shall govern and control.

**2.11.** *Successors*. The terms of this Agreement shall be binding upon and inure to the benefit of the Company, its successors and assigns, and the Participant and the beneficiaries, executors, administrators, heirs and successors of the Participant.

**2.12.** *Entire Agreement*. This Agreement and the Plan contain the entire agreement and understanding of the parties hereto with respect to the subject matter contained herein and supersede all prior communications, representations and negotiations in respect thereof; provided, however, that to the extent that the Participant has entered into an employment agreement, severance agreement or change in control termination agreement with the Company that provides for vesting and/or exercise terms that are more favorable than the vesting terms set forth in this Agreement or the Plan, such more favorable vesting and/or exercise terms shall apply.

**2**.13 Claw Back Policy. This grant is subject to the terms of the Company's Claw Back Policy.

**AMENDMENT NO. 2 TO**
**EXECUTIVE CHANGE OF CONTROL TERMINATION AGREEMENT**

This Amendment No. 2, dated February 5, 2020 (the "**Effective Date**"), to Executive Change of Control Termination Agreement (the "**Second Amendment**") between ENTEGRIS, INC., a Delaware corporation with headquarters offices at 129 Concord Road, Billerica, MA 01821 (the "**Company**"), and BERTRAND LOY (the "**Executive**").

**RECITALS**

**A.** The Company believes that it is in the best interests of the Company and of its stockholders to provide for the continuity of management in general, and the retention of Executive in particular, in the event of a change of control of the Company and, to that end, the Company and the Executive entered into an Executive Change of Control Termination Agreement, dated as of August 10, 2005, and an Amendment No. 1 to Executive Change in Control Termination Agreement, dated as of April 26, 2013 (as so amended, the "**Change of Control Agreement**").

**B.** The Company and the Executive desire to amend the Change of Control Agreement as provided herein.

**NOW, THEREFORE**, in consideration of the foregoing premises, of the mutual promises of the parties made herein and of other consideration, the receipt and adequacy of which are hereby acknowledged, the parties hereby agree as follows:

**1.** Section 3.01 of the Change of Control Agreement is hereby amended to replace the words "two times" with the words "three (3) times" in each of the two places where those words appear in that section.

**2.** Section 3.01 of the Change of Control Agreement is hereby amended to replace the words "two years" with the words "three (3) years" in the place where those words appear in that section.

**3.** Section 5.03(a) of the Change of Control Agreement is hereby amended to replace the words "two (2) years" with the words "three (3) years" in the place where those words appear in that section.

**4.** The Change of Control Agreement as amended by this Second Amendment shall take effect as of the Effective Date. The Change of Control Agreement, as amended hereby, shall remain in full force and effect and shall be deemed to be the "COC Agreement" as defined in the Executive Employment Agreement, dated as of November 28, 2012, between the Company and the Executive.

**IN WITNESS WHEREOF**, the parties hereto have executed this Agreement as of the date first above written.

ENTEGRIS, INC. EXECUTIVE:

By: /s/ Susan Rice /s/ Bertrand Loy
Name: Susan Rice Name: Bertrand Loy
Title: SVP, Global Human Resources

**Exhibit 10.5**

AMENDMENT NO. 2 dated as of October 31, 2019 (this "**Amendment**"), among ENTEGRIS, INC., a Delaware corporation (the "**Borrower**"), the other CREDIT PARTIES party hereto, the LENDERS party hereto, the ISSUING BANKS party hereto, GOLDMAN SACHS BANK USA, as the Predecessor Agent, and MORGAN STANLEY SENIOR FUNDING, INC., as the Successor Agent.

Reference is made to (a) the Credit and Guaranty Agreement dated as of November 6, 2018, as amended by Amendment No. 1 dated as of February 8, 2019 (the "**Credit Agreement**"), among the Borrower, certain subsidiaries of the Borrower party thereto, the lenders party thereto and Goldman Sachs Bank USA ("**Goldman Sachs**"), as Administrative Agent and Collateral Agent, and (b) the Agency Transfer Agreement dated as of the date hereof (the "**Agency Transfer Agreement**"), among the Borrower, the other Credit Parties thereto, Goldman Sachs, as Predecessor Agent, and Morgan Stanley Senior Funding, Inc. ("**Morgan Stanley**"), as Successor Agent, pursuant to which Goldman Sachs shall resign as, and Morgan Stanley shall succeed to and become, the Administrative Agent and the Collateral Agent (Goldman Sachs, in its capacity as Administrative Agent and Collateral Agent immediately prior to the effectiveness of the resignation and appointment provided for therein, being referred to as the "**Predecessor Agent**", and Morgan Stanley, in its capacity as Administrative Agent and Collateral Agent immediately after the effectiveness of the resignation and appointment provided for therein, being referred to as the "**Successor Agent**").

The Borrower has requested that the Requisite Lenders consent to the appointment of Morgan Stanley as the Successor Agent and, in connection therewith, agree to certain other amendments to the Credit Agreement as set forth herein.

Each of the Lenders whose signatures appear below, which constitute at least the Requisite Lenders, are willing to appoint Morgan Stanley as the Successor Agent, and each of the parties hereto is willing to agree to the amendments to the Credit Agreement set forth herein.

NOW, THEREFORE, in consideration of the premises and for other good and valuable consideration (the receipt and sufficiency of which is hereby acknowledged), the parties hereto hereby agree as follows:

SECTION 1. Defined Terms. Capitalized terms used but not otherwise defined herein have the meanings assigned to them in the Credit Agreement, as amended hereby.

SECTION 2. Concerning Agency Transfer. The Lenders party hereto hereby (a) appoint Morgan Stanley as Administrative Agent and Collateral Agent under the

Credit Agreement and the other Credit Documents, it being understood that the effectiveness of such appointment is subject to the acceptance thereof by Morgan Stanley pursuant to the Agency Transfer Agreement, and (b) acknowledge and agree to all the other matters set forth in the Agency Transfer Agreement.

SECTION 3. Amendment of the Credit Agreement. Effective as of the Amendment No. 2 Effective Date (as defined below):

(a) the Credit Agreement (excluding, subject to paragraphs (b), (c), (d), (e) and (f) below, the Schedules and Exhibits thereto, each of which shall remain as in effect immediately prior to the Amendment No. 2 Effective Date) is hereby amended by inserting the language indicated in single underlined text (indicated textually in the same manner as the following example: single-underlined text) in Annex I hereto and by deleting the language indicated by strikethrough text (indicated textually in the same manner as the following example: ~~stricken text~~) in Annex I hereto; provided that the amendments replacing references to "Goldman Sachs Bank USA" or "Goldman Sachs" with "Morgan Stanley Senior Funding, Inc." or "Morgan Stanley", as applicable, shall only be effective as of the Agency Transfer Effective Date (as defined in the Agency Transfer Agreement).

(b) Schedule 2.1 to the Credit Agreement, insofar as such Schedule sets forth the Revolving Commitments, is hereby amended and restated to be in the form of Schedule 2.1 hereto, and each Person whose name is set forth on Schedule 2.1 hereto acknowledges and agrees that, as of the Amendment No. 2 Effective Date, it shall have a Revolving Commitment in the amount set forth on Schedule 2.1 hereto. The parties hereto acknowledge and agree that on and as of the Amendment No. 2 Effective Date, Schedule 2.1 hereto sets forth all the Revolving Commitments of all the Lenders (and no Person whose name does not appear on Schedule 2.1 hereto shall have, or shall be deemed to have, on and as of the Amendment No. 2 Effective Date, a Revolving Commitment under the Credit Agreement). To the extent its consent is required under the Credit Agreement, each of the Predecessor Agent, the Successor Agent and the Issuing Banks agrees to the Persons whose name is set forth on Schedule 2.1 hereto being or becoming Revolving Lenders with the Revolving Commitment in the amount set forth on Schedule 2.1 hereto.

(c) Schedule 2.3B to the Credit Agreement is hereby amended and restated to be in the form of Schedule 2.3B hereto, and each Person whose name is set forth on Schedule 2.3B hereto acknowledges and agrees that, as of the Amendment No. 2 Effective Date, it shall be an Issuing Bank under the Credit Agreement and shall have a Letter of Credit Issuing Commitment in the amount set forth on Schedule 2.3B hereto (and no Person whose name does not appear on Schedule 2.3B hereto shall have, or shall be deemed to have, on and as of the Amendment No. 2 Effective Date, a Letter of Credit Issuing Commitment under the Credit Agreement, but any Person that was an Issuing Bank prior to the Amendment No. 2 Effective Date shall continue to have all the rights of an Issuing

Bank under the Credit Agreement with respect to Letters of Credit issued by it prior to the Amendment No. 2 Effective Date). Each Person whose name appears on Schedule 2.1 hereto acknowledges and agrees that, on and as of the Amendment No. 2 Effective Date and without any further action on the part of any Issuing Bank or any other Person, each Issuing Bank shall have granted to such Person, and such Person shall have acquired from such Issuing Bank, a participation in each Letter of Credit issued by such Issuing Bank and outstanding on the Amendment No. 2 Effective Date equal to such Person's Pro Rata Share (determined after giving effect to the transactions contemplated by this Amendment) of the maximum amount that is or at any time may become available to be drawn under such Letter of Credit. Notwithstanding the foregoing or any provisions to the contrary in the Credit Agreement, Goldman Sachs shall remain an Issuing Bank and shall continue to have all the rights and obligations of an Issuing Bank under the Credit Agreement with respect to Letters of Credit issued by it prior to the Amendment No. 2 Effective Date, but shall not be required to issue any additional Letters of Credit or amend or extend any such existing Letter of Credit.

(d) Exhibit L to the Credit Agreement is hereby removed in its entirety, it being acknowledged and agreed by the parties hereto that, notwithstanding such removal, an intercreditor agreement substantially in the form of Exhibit L to the Credit Agreement would constitute a Pari Passu Intercreditor Agreement where Permitted Pari Passu Secured Indebtedness is in the form of other senior secured credit facilities.

(e) Schedule 10.1 to the Credit Agreement is hereby amended and restated to be in the form of Schedule 10.1 hereto.

(f) Each of Exhibits A, C, D, E, F, G, H, J, K-1, K-2, K-3 and K-4 to the Credit Agreement is hereby amended and restated to be in the form of the correspondingly lettered Exhibit hereto.

SECTION 4. Conditions to Effectiveness of this Amendment. This Amendment shall become effective on the first date (the "**Amendment No. 2 Effective Date**") on which the following conditions shall have been satisfied or waived:

(a) The Predecessor Agent shall have executed a counterpart of this Amendment and shall have received from the Borrower, the other Credit Parties, the Successor Agent, each Person whose name is set forth on Schedule 2.1 hereto, each Person whose name is set forth on Schedule 2.3B hereto and the Lenders constituting the Requisite Lenders (determined immediately prior to the effectiveness of this Amendment) either (i) a counterpart of this Amendment signed on behalf of such party or (ii) evidence satisfactory to the Predecessor Agent (which may be delivered by facsimile or in electronic format (i.e., "pdf" or "tif")) that such party has signed a counterpart of this Amendment.

(b) The Borrower shall have paid to the Predecessor Agent and the Successor Agent all costs and expenses due and payable on or prior to the Amendment No. 2 Effective Date pursuant to the Credit Documents or any other agreement entered into by the Borrower, on the one hand, and the Predecessor Agent or the Successor Agent, on the other hand.

SECTION 5. Representations and Warranties. The Borrower represents and warrants that, on and as of the Amendment No. 2 Effective Date:

(a) (i) this Amendment and the transactions contemplated hereby have been duly authorized by all necessary corporate action on the part of each Credit Party and (ii) this Amendment has been duly executed and delivered by each Credit Party and is the legally valid and binding obligation of such Credit Party, enforceable against such Credit Party in accordance with its terms, except as enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium or similar laws relating to or limiting creditors' rights generally or by equitable principles relating to enforceability;

(b) no Default or Event of Default has occurred and is continuing; and

(c) the representations and warranties of each Credit Party set forth in Section 4 of the Credit Agreement (as amended by this Amendment) and the other Credit Documents are true and correct in all material respects (*provided* that any representation or warranty that is already qualified by "materiality", "Material Adverse Effect" or similar language shall be true and correct in all respects) on and as of the Amendment No. 2 Effective Date (immediately after giving effect to this Amendment), except to the extent that such representations and warranties specifically refer to an earlier date, in which case they shall be true and correct in all material respects (*provided* that any representation or warranty that is already qualified by "materiality", "Material Adverse Effect" or similar language shall be true and correct in all respects) as of such earlier date.

SECTION 6. Reaffirmation by Credit Parties. Each Credit Party hereby unconditionally and irrevocably ratifies and reaffirms (a) all of its payment and performance obligations, contingent or otherwise, under each of the Credit Documents (as amended hereby) to which it is a party, (b) each grant of a Lien on its property previously made by it made pursuant to the Collateral Documents to which it is a party and confirms that such Liens continue to have full force and effect, in each case after giving effect to this Amendment and the amendments to the Credit Agreement effected hereby, to secure the Obligations under the Credit Documents to which it is a party, subject to the terms thereof (it being understood that the foregoing ratification and reaffirmation is not intended to, and does not, release any of the Liens so previously granted by it), and (c) its Guarantee of the Obligations and confirms that such Guarantee continues to have full force and effect, in each case after giving effect to this Amendment and the amendments to the Credit Agreement effected hereby.

SECTION 7. Effect of Amendment; No Novation. Except as expressly set forth herein, this Amendment shall not by implication or otherwise limit, impair, constitute a waiver of or otherwise affect the rights and remedies of any Agent, any Arranger, any Lender, any Issuing Bank or the Swing Line Lender under the Credit Agreement or any other Credit Document, and shall not alter, modify, amend or in any way affect any of the terms, conditions, obligations, covenants or agreements contained in the Credit Agreement or any other Credit Document, all of which, as amended, supplemented or otherwise modified hereby, are ratified and affirmed in all respects and shall continue in full force and effect. Nothing herein shall be deemed to entitle any Credit Party to a consent to, or a waiver, amendment, modification or other change of, any of the terms, conditions, obligations, covenants or agreements contained in the Credit Agreement or any other Credit Document in similar or different circumstances. This Amendment shall constitute a Credit Document for all purposes of the Credit Agreement and the other Credit Documents. On and after the Amendment No. 2 Effective Date, each reference in the Credit Agreement to "this Agreement", "hereunder", "hereof", "herein", or words of like import, and each reference in any other Credit Document to the "Credit Agreement", shall be deemed to be a reference to the Credit Agreement as amended hereby.

(a) Neither this Amendment nor the effectiveness of the amendments to the Credit Agreement effected hereby shall extinguish the obligations for the payment of money outstanding under the Credit Agreement. Nothing herein contained shall be construed as a substitution or novation of any of the obligations outstanding under the Credit Agreement, which shall remain in full force and effect, except as modified hereby.

SECTION 8. Headings. Section headings herein are included for convenience of reference only and shall not constitute a part hereof for any other purpose or be given any substantive effect.

SECTION 9. Applicable Law. THIS AMENDMENT AND THE RIGHTS AND OBLIGATIONS OF THE PARTIES HEREUNDER (INCLUDING ANY CLAIMS SOUNDING IN CONTRACT LAW OR TORT LAW ARISING OUT OF THE SUBJECT MATTER HEREOF AND ANY DETERMINATIONS WITH RESPECT TO POST-JUDGMENT INTEREST) SHALL BE GOVERNED BY, AND SHALL BE CONSTRUED AND ENFORCED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK, WITHOUT REGARD TO CONFLICT OF LAWS PRINCIPLES THEREOF THAT WOULD RESULT IN THE APPLICATION OF ANY LAW OTHER THAN THE LAW OF THE STATE OF NEW YORK.

SECTION 10. Consent to Jurisdiction; Waiver of Jury Trial. The provisions of Sections 10.15 and 10.16 of the Credit Agreement are hereby incorporated by reference, *mutatis mutandis*, as if set forth in full herein.

SECTION 11. Counterparts. This Amendment may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, but all such counterparts together shall constitute but one and the same instrument. Delivery of an executed counterpart of a signature page of this Amendment by facsimile or in electronic format (i.e., "pdf" or "tif") shall be effective as delivery of a manually executed counterpart of this Amendment.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties hereto have caused this Amendment to be executed by their respective officers thereunto duly authorized, as of the date first above written.

ENTEGRIS, INC.

By: /s/Gregory B. Graves
Name: Gregory B. Graves
Title: Executive Vice President, Chief Financial Officer & Treasurer

**GUARANTOR SUBSIDIARIES:**

ENTEGRIS TAIWAN HOLDINGS, INC.

ENTEGRIS PROFESSIONAL SOLUTIONS, INC.

ENTEGRIS INTERNATIONAL HOLDINGS, INC.

ENTEGRIS INTERNATIONAL HOLDINGS IV LLC

ENTEGRIS INTERNATIONAL HOLDINGS V LLC

ENTEGRIS SPECIALTY MATERIALS, LLC

MPD CHEMICALS, LLC

SILAR, LLC

ISOSCIENCES, LLC

NORQUAY, LLC

By: /s/Gregory B. Graves
Name: Gregory B. Graves
Title: Executive Vice President, Chief Financial Officer & Treasurer

POCO GRAPHITE, INC.

ENTEGRIS GP, INC.

By: /s/Gregory B. Graves
Name: Gregory B. Graves
Title: Vice President & Treasurer

ENTEGRIS PACIFIC LTD.,

By: /s/Gregory B. Graves
Name: Gregory B. Graves
Title: Treasurer

GOLDMAN SACHS BANK USA, as Predecessor Agent and as an Issuing Bank and a Lender,

by

/s/ Douglas Tansey

Name: Douglas Tansey

Title: Authorized Signatory

MORGAN STANLEY SENIOR FUNDING, INC., as Successor Agent,

by

/s/ Lisa Hanson

Name: Lisa Hanson

Title: Vice President

MORGAN STANLEY BANK, N.A., as an Issuing Bank and a Lender,

by

/s/ Lisa Hanson

Name: Lisa Hanson

Title: Vice President

LENDERS' SIGNATURE PAGES ON FILE WITH THE ADMINISTRATIVE AGENT

**ANNEX I**

See attached.

**CREDIT AND GUARANTY AGREEMENT**

**dated as of November 6, 2018,**

**among**

**ENTEGRIS, INC.,**

**CERTAIN SUBSIDIARIES OF ENTEGRIS, INC.,**
**as Guarantors,**

**THE LENDERS PARTY HERETO**

**and**

~~**GOLDMAN SACHS BANK USA,**~~
**MORGAN STANLEY SENIOR FUNDING, INC.,**
**as Administrative Agent and Collateral Agent**

---

**GOLDMAN SACHS BANK USA, BARCLAYS BANK PLC, CITIGROUP GLOBAL MARKETS INC., MORGAN STANLEY SENIOR FUNDING, INC., PNC CAPITAL MARKETS LLC and SUNTRUST ROBINSON HUMPHREY, INC.,**
**as Joint Lead Arrangers and Joint Bookrunners**

---

**$700,000,000 Senior Secured Credit Facilities**

---

[CS&M Ref. No. 4020-862]

**TABLE OF CONTENTS**

**SCHEDULES:** 2.1 Commitments
2.3A Existing Letters of Credit
2.3B Issuing Banks; Letter of Credit Issuing Commitments
4.2 Equity Interests and Ownership
4.22 Insurance
6.1 Indebtedness
6.2 Liens
6.3 Negative Pledges
6.5 Restrictions on Subsidiary Distributions
6.6 Investments
6.10 Affiliate Transactions
10.1 Notices

**EXHIBITS:** A Assignment Agreement
B Closing Date Certificate
C Compliance Certificate
D Conversion/Continuation Notice
E Counterpart Agreement
F Funding Notice
G Intercompany Indebtedness Subordination Agreement
H Issuance Notice
I Solvency Certificate
J Supplemental Collateral Questionnaire
K-1 Form of US Tax Certificate for Non-US Lenders that are not Partnerships for US Federal Income Tax Purposes
K-2 Form of US Tax Certificate for Non-US Lenders that are Partnerships for US Federal Income Tax Purposes
K-3 Form of US Tax Certificate for Non-US Participants that are not Partnerships for US Federal Income Tax Purposes
K-4 Form of US Tax Certificate for Non-US Participants that are Partnerships for US Federal Income Tax Purposes
~~L~~ ~~Pari Passu Intercreditor Agreement~~

**CREDIT AND GUARANTY AGREEMENT** dated as of November 6, 2018, among **ENTEGRIS, INC.**, a Delaware corporation (the "**Borrower**"), **CERTAIN SUBSIDIARIES OF THE BORROWER** party hereto, as Guarantors, the **LENDERS** party hereto and ~~**GOLDMAN SACHS BANK USA ("Goldman Sachs**~~**MORGAN STANLEY SENIOR FUNDING, INC. ("Morgan Stanley**"), as Administrative Agent and Collateral Agent.

The Lenders have agreed, on the terms and conditions set forth herein, to extend credit facilities to the Borrower in an aggregate principal amount of $700,000,000, consisting of Tranche B Term Loans in an aggregate principal amount of $400,000,000 and Revolving Commitments in an aggregate initial amount of $300,000,000.

**NOW, THEREFORE,** in consideration of the premises and the agreements, provisions and covenants herein contained, the parties hereto agree as follows:

**SECTION 1. DEFINITIONS AND INTERPRETATION**

**1.1. Definitions**. As used in this Agreement (including the recitals hereto), the following terms have the meanings specified below:

"**Acquisition**" means the purchase or other acquisition (in one transaction or a series of transactions, including pursuant to any merger or consolidation) of all or substantially all the issued and outstanding Equity Interests in, or all or substantially all the assets of (or all or substantially all the assets constituting a business unit, division, product line or line of business of), any Person.

"**Acquisition Consideration**" means, with respect to any Acquisition, (a) the purchase consideration for such Acquisition, whether paid in Cash or other property (valued at the fair value thereof, as determined reasonably and in good faith by

a Financial Officer of the Borrower), but excluding any component thereof consisting of Equity Interests in the Borrower (other than any Disqualified Equity Interests), and whether payable at or prior to the consummation of such Acquisition or deferred for payment at any future time, whether or not any such future payment is subject to the occurrence of any contingency, and including any earnouts and other agreements to make any payment the amount of which is, or the terms of payment of which are, in any respect subject to or contingent upon the revenues, income, cash flow or profits (or the like) of the Person or assets acquired, provided that any such future payment that is subject to a contingency shall be considered Acquisition Consideration only to the extent of the reserve, if any, required under GAAP to be established by the Borrower or any Restricted Subsidiary in respect thereof at the time of the consummation of such Acquisition, and (b) the aggregate amount of Indebtedness assumed by the Borrower or any Restricted Subsidiary in connection with such Acquisition.

"**Adjusted Eurodollar Rate**" means, for any Interest Period for a Eurodollar Rate Loan, the rate per annum obtained by dividing (a) (i) the rate per annum determined by the Administrative Agent to be the rate that appears on the page of the Reuters Screen that displays the London interbank offered rate as administered by ICE Benchmark Administration (or any other Person that takes over the administration of such rate) (such page currently being LIBOR01 page) for deposits (for delivery on the first day of such Interest Period) with a term equivalent to such Interest Period in Dollars, determined as of approximately 11:00 a.m. (London, England time) on the Interest Rate Determination Date for such Interest Period, or (ii) in the event the rate referred to in the preceding clause (i) does not appear on such page or if the Reuters Screen shall cease to be available, the rate per annum determined by the Administrative Agent in consultation with the Borrower to be the offered rate on such other page or other service that displays the London interbank offered rate as administered by ICE Benchmark Administration (or any other Person that takes over the administration of such rate) for deposits (for delivery on the first day of such Interest Period) with a term equivalent to such Interest Period in Dollars, determined as of approximately 11:00 a.m. (London, England time) on such Interest Rate Determination Date, by (b) an amount equal to one minus the Applicable Reserve Requirement; provided that, notwithstanding the foregoing, the Adjusted Eurodollar Rate shall at no time be less than zero.

"**Administrative Agent**" means ~~Goldman Sachs~~**Morgan Stanley**, in its capacity as administrative agent for the Lenders hereunder and under the other Credit Documents, and its successors in such capacity as provided in Section 9.

"**Adverse Proceeding**" means any action, suit, proceeding, hearing or investigation, in each case whether administrative, judicial or otherwise, by or before any Governmental Authority or any arbitrator, that is pending or, to the knowledge of the Borrower or any Restricted Subsidiary, threatened against or affecting the Borrower or any Restricted Subsidiary or any property of the Borrower or any Restricted Subsidiary.

"**Affected Lender**" as defined in Section 2.17(b).

"**Affected Loans**" as defined in Section 2.17(b).

"**Affiliate**" means, with respect to any Person, any other Person directly or indirectly Controlling, Controlled by or under common Control with the Person specified.

"**Agent**" means each of (a) the Administrative Agent, (b) the Collateral Agent, (c) the Arrangers and (d) any other Person appointed under the Credit Documents to serve in an agent or similar capacity, including any Auction Manager.

"**Aggregate Amounts Due**" as defined in Section 2.16.

"**Aggregate Payments**" as defined in Section 7.2(b).

"**Agreement**" means this Credit and Guaranty Agreement dated as of November 6, 2018.

"**Amendment No. ~~1~~2**" means that certain Amendment No. ~~1~~2 dated as of ~~February 8~~**October 31**, 2019, to this Agreement.

"**Amendment No. ~~1~~2 Effective Date**" means the "Amendment No. ~~1~~2 Effective Date" under, and as defined in, the Amendment No. ~~1~~2.

"**Anti-Corruption Laws**" as defined in Section 4.23.

"**Applicable ECF Percentage**" means, with respect to any Fiscal Year, (a) 50% if the Secured Net Leverage Ratio as of the last day of such Fiscal Year is greater than 1.25:1.00, (b) 25% if the Secured Net Leverage Ratio as of the last day of such Fiscal Year is less than or equal to 1.25:1.00 but greater than 0.75:1.00 and (c) 0% if the Secured Net Leverage Ratio as of the last day of such Fiscal Year is less than or equal to 0.75:1.00.

"**Applicable Rate**" means, on any day, (a) with respect to any Tranche B Term Loan, (i~~) at any time prior to the consummation of the Versum Merger, (x~~) 1.00% per annum, in the case of a Base Rate Loan, and (~~y~~**ii**) 2.00% per annum, in the case of a Eurodollar Rate Loan, ~~and (ii) upon and at any time after the consummation of the Versum Merger, (x) 1.25% per annum,~~

~~in the case of a Base Rate Loan, and (y) 2.25% per annum, in the case of a Eurodollar Rate Loan, and~~ (b) with respect to any Revolving Loan, (i) from the Closing Date until the first Business Day following the date of the delivery of the financial statements pursuant to Section 5.1(a) for the Fiscal Year ending December 31, 2018, and of the related Compliance Certificate pursuant to Section 5.1(d), the Applicable Rate shall be determined by reference to Pricing Level 1 in the table below and (ii) thereafter, as set forth in the table below, as determined based on the Secured Net Leverage Ratio as of the end of the Fiscal Year or Fiscal Quarter for which financial statements have been most recently delivered pursuant to Section 5.1(a) or 5.1(b) and the related Compliance Certificate has been delivered pursuant to Section 5.1(d), in each case, at least one Business Day prior to such day, and (c) with respect to Loans of any other Class, the rate per annum specified in the Incremental Facility Agreement, the Extension/Modification Agreement or the Refinancing Facility Agreement, as the case may be, establishing Loans of such Class.

| Pricing Level | Secured Net Leverage Ratio | Applicable Rate for Eurodollar Revolving Loans | Applicable Rate for Base Rate Revolving Loans |
|---|---|---|---|
| 1 | < 1.00:1.00 | 1.25% | 0.25% |
| 2 | ≥ 1.00:1.00 but < 1.50:1.00 | 1.50% | 0.50% |
| 3 | ≥ 1.50:1.00 | 1.75% | 0.75% |

Any increase or decrease in the Applicable Rate for Revolving Loans resulting from a change in the Secured Net Leverage Ratio shall become effective as of the first Business Day following the date the financial statements and the related Compliance Certificate are delivered to the Administrative Agent pursuant to Section 5.1(a) or 5.1(b) and Section 5.1(d); provided that (a) if the Borrower has not delivered to the Administrative Agent any financial statements or Compliance Certificate required to have been delivered pursuant to Section 5.1(a), 5.1(b) or 5.1(d), from and after the date such financial statements or Compliance Certificate were required to have been so delivered the Applicable Rate for Revolving Loans shall be determined by reference to Pricing Level 3 in the table above and shall continue to so apply to and including the first Business Day following the date such financial statements and related Compliance Certificate are so delivered (and thereafter the pricing level otherwise determined in accordance with this definition shall apply) and (b) as of the first Business Day after an Event of Default under Section 8.1(a), 8.1(f) or 8.1(g) shall have occurred and be continuing, the Applicable Rate for Revolving Loans shall be determined by reference to Pricing Level 3 in the table above, and shall continue to so apply to but excluding the date on which such Event of Default shall cease to be continuing (and thereafter the pricing level otherwise determined in accordance with this definition shall apply).

If any financial statements or Compliance Certificate delivered pursuant to Section 5.1(a), 5.1(b) or 5.1(d) shall prove to have been inaccurate, and such inaccuracy shall have resulted in the payment of interest hereunder at lower rates than those that would have been paid but for such inaccuracy, then (i) the Borrower shall promptly deliver to the Administrative Agent corrected financial statements and a corrected Compliance Certificate for such period and (ii) the Borrower shall promptly pay to the Administrative Agent, for the account of the Revolving Lenders, the interest that should have been paid but was not paid as a result of such inaccuracy. Nothing in this paragraph shall limit the rights of the Administrative Agent or any Lender under Section 2.9 or 8.

"**Applicable Reserve Requirement**" means, at any time, for any Eurodollar Rate Loan, the maximum rate, expressed as a decimal, at which reserves (including any basic, marginal, special, supplemental, emergency or other reserves) are required to be maintained by member banks of the United States Federal Reserve System against "Eurocurrency liabilities" (as such term is defined in Regulation D) under regulations issued from time to time by the Board of Governors or other applicable banking regulator. Without limiting the effect of the foregoing, the Applicable Reserve Requirement shall reflect any other reserves required to be maintained by such member banks with respect to (a) any category of liabilities that includes deposits by reference to which the applicable Adjusted Eurodollar Rate or any other interest rate for a Loan is to be determined or (b) any category of extensions of credit or other assets that includes Eurodollar Rate Loans. A Eurodollar Rate Loan shall be deemed to constitute Eurocurrency liabilities and as such shall be deemed subject to reserve requirements without the benefit of credits for proration, exceptions or offsets that may be available from time to time to the applicable Lender. The rate of interest on Eurodollar Rate Loans shall be adjusted automatically on and as of the effective date of any change in the Applicable Reserve Requirement.

"**Approved Electronic Communications**" means any notice, demand, communication, information, document or other material that any Credit Party provides to any Agent that is distributed to any Agent, any Lender or any Issuing Bank by means of electronic communications pursuant to Section 10.1(b).

"**Arrangers**" means Goldman Sachs **Bank USA**, Barclays Bank PLC, Citigroup Global Markets Inc., Morgan Stanley Senior Funding, Inc., PNC Capital Markets LLC and SunTrust Robinson Humphrey, Inc., each in its capacity as a joint lead arranger and joint bookrunner for the credit facilities established under this Agreement.

"**Asset Sale**" means any Disposition of assets made in reliance on Section 6.8(b)(xi), other than any such Disposition (or series of related Dispositions) resulting in aggregate Net Proceeds not exceeding $10,000,000.

"**Assignment Agreement**" means an Assignment and Assumption Agreement substantially in the form of Exhibit A, with such amendments or modifications thereto as may be approved by the Administrative Agent.

"**Assignment Effective Date**" as defined in Section 10.6(b).

"**Auction**" as defined in Section 10.6(i)(A).

"**Auction Manager**" means (a) the Administrative Agent or (b) any other financial institution agreed to by the Borrower and the Administrative Agent (whether or not an Affiliate of the Administrative Agent) to act as an auction manager in connection with any Auction.

"**Authorized Officer**" means, with respect to any Person, any Financial Officer of such Person or any individual holding the position of chairman of the board (if an officer), chief executive officer, president, vice president (or the equivalent thereof) or general counsel of such Person; provided that, when such term is used in reference to any document executed by, or a certification of, an Authorized Officer, the secretary or assistant secretary of such Person shall have delivered an incumbency certificate to the Administrative Agent as to the authority of such individual.

"**Available Basket Amount**" means, as of any date:

(a) the sum of (i) $429,259,000 plus (ii) the Available Excess Cash Flow Amount as of such date, plus

(b) 100% of the aggregate net cash proceeds received by the Borrower after the Closing Date from the issuance and sale of its common stock, excluding (i) any such issuance or sale to any Subsidiary, (ii) any issuance of directors' qualifying shares or of other Equity Interests that are required to be held by specified Persons under applicable law and (iii) any issuance or sale of Equity Interests referred to in the proviso to Section 6.6(j)(i), plus

(c) the aggregate amount of Returns as of such date in respect of any Acquisition or other Investments made (or deemed made pursuant to the definition of the term "Unrestricted Subsidiary") using the Available Basket Amount, provided that the aggregate amount by which the Available Basket Amount is increased pursuant to this clause (c) in respect of any Acquisition or other Investment shall not exceed the amount by which the Available Basket Amount shall have been reduced on account of the Acquisition Consideration with respect to such Acquisition or the original amount of any such other Investment, plus

(d) in the event any Unrestricted Subsidiary has been designated as a Restricted Subsidiary, or has been merged or consolidated with the Borrower or a Restricted Subsidiary (where the surviving entity in such merger or consolidation is the Borrower or a Restricted Subsidiary), or transfers or conveys all or substantially all of its assets to, or is liquidated into, the Borrower or a Restricted Subsidiary, on or prior to such date, the lesser of (i) the amount of all Investments made using the Available Basket Amount in such Unrestricted Subsidiary (including any such Investment deemed made pursuant to the definition of the term "Unrestricted Subsidiary"), net of the aggregate amount, if any, by which the Available Basket Amount shall have been increased prior to such time in respect of such Investments pursuant to clause (c) above, and (B) the fair value of such Unrestricted Subsidiary (as determined reasonably and in good faith by an Authorized Officer of the Borrower) at the time it is designated as a Restricted Subsidiary or the time of such merger, consolidation, transfer, conveyance or liquidation, as applicable, plus

(e) the Declined Mandatory Prepayment Retained Amount as of such date, minus

(f) the aggregate amount of Permitted Stock Repurchases made after the Closing Date and on or prior to such date, minus

(g) the portion of the Available Basket Amount previously utilized pursuant to Section 6.4(m) or 6.6(r), with the utilization pursuant to Section 6.6(r) for any Acquisition being the Acquisition Consideration in respect thereof and the utilization pursuant to Section 6.6(r) for any other Investment (or any deemed Investment in respect of any designation of an Unrestricted Subsidiary) being the amount thereof as of the date the applicable Investment is made, determined in accordance with the definition of "Investment" (or the definition of "Unrestricted Subsidiary").

"**Available Excess Cash Flow Amount**" means, as of any date, an amount equal to the sum, for the Fiscal Years of the Borrower in respect of which financial statements and the related Compliance Certificate have been delivered in accordance with Sections 5.1(a) and 5.1(d), and for which prepayments required by Section 2.13(d) (if any) have been made, in each case on or prior to such date (commencing with the Fiscal Year ending December 31, 2019), of the products of (a) the amount of Consolidated Excess Cash Flow (to the extent such amount exceeds zero) for each such Fiscal Year multiplied by (b) the Retained ECF Percentage for such Fiscal Year (it being understood that the Retained ECF Percentage of Consolidated Excess Cash Flow for any such Fiscal Year shall be included in the Available Excess Cash Flow Amount regardless of whether a prepayment is required for such Fiscal Year under Section 2.13(d)).

"**Backstopped Letter of Credit**" as defined in Section 2.3(a).

"**Bail-In Action**" means the exercise of any Write-Down and Conversion Powers by the applicable EEA Resolution Authority in respect of any liability of an EEA Financial Institution.

"**Bail-In Legislation**" means, with respect to any EEA Member Country implementing Article 55 of Directive 2014/59/EU of the European Parliament and of the Council of the European Union, the implementing law for such EEA Member Country from time to time which is described in the EU Bail-In Legislation Schedule.

"**Bankruptcy Code**" means Title 11 of the United States Code entitled "Bankruptcy".

"**Base Rate**" means, for any day, the rate per annum equal to the greatest of (a) the Prime Rate in effect on such day, (b) the Federal Funds Effective Rate in effect on such day plus ½ of 1% per annum and (c) the Adjusted Eurodollar Rate that would be applicable to a Eurodollar Rate Loan with an Interest Period of one month commencing on such day plus 1%; provided that, notwithstanding the foregoing, the Base Rate shall at no time be less than 1.00% per annum. Any change in the Base Rate due to a change in the Prime Rate, the Federal Funds Effective Rate or the Adjusted Eurodollar Rate shall be effective on the effective day of such change in the Prime Rate, the Federal Funds Effective Rate or the Adjusted Eurodollar Rate, as the case may be.

"**Base Rate Borrowing**" means a Borrowing comprised of Base Rate Loans.

"**Base Rate Loan**" means a Loan bearing interest at a rate determined by reference to the Base Rate.

"**Beneficial Ownership Certification**" means a certification regarding beneficial ownership as required by the Beneficial Ownership Regulation.

"**Beneficial Ownership Regulation**" means 31 C.F.R. § 1010.230.

"**Benefit Plan**" means (a) an "employee benefit plan" (as defined in ERISA) that is subject to Title I of ERISA, (b) a "plan" as defined in and subject to Section 4975 of the Internal Revenue Code or (c) any Person whose assets include (for purposes of ERISA Section 3(42) or otherwise for purposes of Title I of ERISA or Section 4975 of the Internal Revenue Code) the assets of any such "employee benefit plan" or "plan".

**"BHC Act Affiliate" means, with respect to any Person, an "affiliate" (as such term is defined under, and interpreted in accordance with, 12 U.S.C. § 1841(k)) of such Person.**

"**Board of Governors**" means the Board of Governors of the United States Federal Reserve System.

"**Borrower**" as defined in the preamble hereto.

"**Borrowing**" means Loans of the same Class and Type made, converted or continued on the same date and, in the case of Eurodollar Rate Loans, as to which a single Interest Period is in effect.

"**Business Day**" means any day other than a Saturday or Sunday, a day that is a legal holiday under the laws of the State of New York or a day on which banking institutions located in such State are authorized or required by law to remain closed; provided that, with respect to all notices, determinations, fundings and payments in connection with the Adjusted Eurodollar Rate or any Eurodollar Rate Loan, such day is also a day for trading by and between banks in Dollar deposits in the London interbank market.

"**Capital Lease Obligations**" of any Person means the obligations of such Person to pay rent or other amounts under any lease of (or other arrangement conveying the right to use) real or personal property, or a combination thereof, which obligations are required to be classified and accounted for as capital leases on a balance sheet of such Person in conformity with GAAP, subject to Section 1.2(a). The amount of such obligations shall be the capitalized amount thereof determined in conformity with GAAP, subject to Section 1.2(a), and the final maturity of such obligations shall be the date of the last payment due under such lease (or other arrangement) before such lease (or other arrangement) may be terminated by the lessee without payment of a premium or penalty. For purposes of Section 6.2, a Capital Lease Obligation shall be deemed to be secured by a Lien on the property being leased and such property shall be deemed to be owned by the lessee.

"**Cash**" means money, currency or a credit balance in any demand or deposit account.

"**Cash Collateralize**" means, with respect to any Obligation, to provide and pledge (as a first priority perfected security interest) Cash or Cash Equivalents in Dollars, at a location and pursuant to documentation in form and substance reasonably satisfactory to the Administrative Agent and the applicable Issuing Bank. The term "**Cash Collateral**" shall have a meaning correlative to the foregoing and shall include the proceeds of such collateral and other credit support.

"**Cash Equivalents**" means, as at any date of determination, any of the following: (a) marketable securities (i) issued or directly and unconditionally guaranteed as to interest and principal by the United States of America or (ii) issued by any agency of the United States of America, in each case maturing within two years after such date; (b) marketable direct obligations issued by any State of the United States of America or the District of Columbia or any political subdivision of any such State or District or any public instrumentality thereof, in each case maturing within two years after such date and having, at the time of the acquisition thereof, a rating of at least A-1 from S&P or at least P-1 from Moody's; (c) commercial paper maturing no more than 270 days from the date of creation thereof and having, at the time of the acquisition thereof, a rating of at least A-1 from S&P or at least P-1 from Moody's; (d) certificates of deposit or bankers' acceptances maturing within one year after such date and issued or accepted by any Revolving Lender or any commercial bank organized under the laws of the United States of America, any State thereof or the District of Columbia that (i) is at least "adequately capitalized" (as defined in the regulations of its primary Federal banking regulator) and (ii) has Tier 1 capital (as defined in such regulations) of not less than $1,000,000,000; (e) fully collateralized repurchase agreements with a term of not more than 30 days for securities described in clause (a) above and entered into with a financial institution described in clause (d) above; (f) shares of any money market mutual fund that (i) has substantially all its assets invested continuously in the types of investments referred to in clauses (a) through (d) above, (ii) has net assets of not less than $5,000,000,000 and (iii) has the highest rating obtainable from either S&P or Moody's; (g) in the case of any Foreign Subsidiary, other short-term investments that are analogous to the foregoing, are of comparable credit quality and are customarily used by companies in the jurisdiction of such Foreign Subsidiary for cash management purposes; and (h) marketable corporate bonds for which an active trading market exists and price quotations are available, in each case maturing within two years after such date and issued by Persons that are not Affiliates of the Borrower and where such Persons (i) in the case of any such bonds maturing more than 12 months from the date of the acquisition thereof, have a long-term credit rating of at least AA- from S&P or Aa3 from Moody's or (ii) in the case of any such bonds maturing less than or equal to 12 months from the date of the acquisition thereof, have a long-term credit rating of at least A+ from S&P or A1 from Moody's, provided that the portfolio of any such bonds included as Cash Equivalents at any time shall have a weighted average maturity of not more than 360 days.

"**Cash Management Services**" means cash management and related services provided to the Borrower or any Restricted Subsidiary, including treasury, depository, return items, overdraft, controlled disbursement, cash sweeps, zero balance arrangements, merchant stored value cards, e-payables, electronic funds transfer, interstate depository network and automatic clearing house transfer (including the Automated Clearing House processing of electronic funds transfers through the direct Federal Reserve Fedline system) services and credit cards, credit card processing services, debit cards, stored value cards and commercial cards (including so-called "'purchase cards", "procurement cards" or "p-cards") arrangements.

"**Cash Management Services Provider**" means any Person that (a) is, or was on the Closing Date, an Agent, an Arranger or any Affiliate of any of the foregoing, whether or not such Person shall have been an Agent, an Arranger or any Affiliate of any of the foregoing at the time the applicable agreement in respect of Cash Management Services was entered into, (b) is a counterparty to an agreement in respect of Cash Management Services in effect on the Closing Date and is a Lender or an Affiliate of a Lender as of the Closing Date or (c) becomes a counterparty after the Closing Date to an agreement in respect of Cash Management Services at a time when such Person is a Lender or an Affiliate of a Lender.

**"Covered Entity" means (a) a "covered entity" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 252.82(b), (b) a "covered bank" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 47.3(b) or (c) a "covered FSI" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 382.2(b).**

**"Covered Party" has the meaning set forth in Section 10.26.**

"**CFC**" means (a) each Person that is a "controlled foreign corporation" for purposes of the Internal Revenue Code and (b) each Subsidiary of any such controlled foreign person.

"**CFC Holding Company**" means each Domestic Subsidiary that is treated as a partnership or a disregarded entity for United States federal income tax purposes and that has no material assets other than assets that consist (directly or indirectly through disregarded entities or partnerships) of Equity Interests or indebtedness (as determined for United States tax purposes) in one or more CFCs or CFC Holding Companies.

"**Change in Law**" means the occurrence, after the date of this Agreement, of any of the following: (a) the adoption or taking effect of any rule, regulation, treaty or other law, (b) any change in any rule, regulation, treaty or other law or in the administration, interpretation, implementation or application thereof by any Governmental Authority or (c) the making or issuance of any request, rule, guideline or directive (whether or not having the force of law) by any Governmental Authority; provided that, notwithstanding anything herein to the contrary, (i) the Dodd-Frank Wall Street Reform and Consumer Protection Act and all requests, rules, guidelines or directives thereunder or issued in connection therewith and (ii) all requests, rules, guidelines or directives promulgated by the Bank for International Settlements, the Basel Committee on Banking Supervision (or any successor or similar authority) or the United States or foreign regulatory authorities, in each case pursuant to Basel III, shall in each case be deemed to be a "Change in Law", regardless of the date enacted, adopted, promulgated or issued.

"**Change of Control**" means (a) the acquisition of ownership, directly or indirectly, beneficially or of record, by any Person or group (within the meaning of the Exchange Act and the rules of the SEC thereunder) of Equity Interests in the Borrower representing more than 35% of the aggregate ordinary voting power represented by the issued and outstanding Equity Interests in the Borrower or (b) the occurrence of any "change of control" (or similar event, however denominated) under and as defined in any Permitted Senior Notes Indebtedness Document, any Permitted Credit Agreement Refinancing Indebtedness Document, any Permitted Incremental Equivalent Indebtedness Document or any credit agreement, indenture or other agreement or instrument evidencing or governing the rights of the holders of any other Material Indebtedness of the Borrower or any Restricted Subsidiary.

"**Claiming Guarantor**" as defined in Section 7.2(b).

"**Class**", when used in reference to (a) any Loan or Borrowing, refers to whether such Loan, or the Loans comprising such Borrowing, are Revolving Loans or Tranche B Term Loans or Loans of another "Class" established pursuant to Section 2.23, 2.24 or 2.25 as contemplated below, (b) any Commitment, refers to whether such Commitment is a Revolving Commitment or a Tranche B Term Loan Commitment or a Commitment of another "Class" established pursuant to Section 2.23, 2.24 or 2.25 as contemplated below and (c) any Lender, refers to whether such Lender has a Loan or Commitment of a particular Class. Additional Classes of Loans, Borrowings, Commitments and Lenders may be created pursuant to Section 2.23, 2.24 or 2.25 and, as provided in Section 2.23, 2.24 or 2.25, any Incremental Term Loans, any Extended/Modified Term Loans or any Refinancing Term Loans may be treated as a single Class with any other Class of Term Loans having the same terms as such Incremental Term Loans, Extended/Modified Term Loans or Refinancing Term Loans, as applicable.

"**Closing Date**" means the date on which the conditions specified in Section 3.1 have been satisfied (or waived in accordance with Section 10.5).

"**Closing Date Certificate**" means a Closing Date Certificate substantially in the form of Exhibit B.

"**Closing Date Refinancing**" means (a) the payment and discharge of the principal of and interest accrued on all outstanding Indebtedness and all other amounts outstanding or accrued, including all prepayment premium, if any, under the Existing Credit Agreements, the termination of the commitments thereunder and the cancellation or termination of all letters of credit outstanding thereunder (other than any such letters of credit that are Existing Letters of Credit) and (b) the termination and release of all Guarantees and Liens supporting or securing any of the Indebtedness or other obligations referred to in the foregoing clause (a) or created under the documentation governing any such Indebtedness.

"**Collateral**" means, collectively, all of the property (including Equity Interests) on which Liens are purported to be granted pursuant to the Collateral Documents as security for the Obligations.

"**Collateral Agent**" means ~~Goldman Sachs~~**Morgan Stanley**, in its capacity as collateral agent for the Secured Parties under the Credit Documents, and its successors in such capacity as provided in Section 9.

"**Collateral and Guarantee Requirement**" means, at any time, the requirement that:

(a) the Collateral Agent shall have received from the Borrower and each Designated Subsidiary either (i) a counterpart of this Agreement duly executed and delivered on behalf of such Person or (ii) in the case of any Person that becomes a Designated Subsidiary after the Closing Date, a Counterpart Agreement duly executed and delivered on behalf of such Person;

(b) the Collateral Agent shall have received from the Borrower and each Designated Subsidiary (i) either (A) a counterpart of the Pledge and Security Agreement duly executed and delivered on behalf of such Person or (B) in the case of any Person that becomes a Designated Subsidiary after the Closing Date, a supplement to the Pledge and Security Agreement, in the form specified therein, duly executed and delivered on behalf of such Person and (ii) an acknowledgment of each Permitted Intercreditor Agreement then in effect, in the form specified therein, duly executed and delivered on behalf of such Person;

(c) in the case of any Person that becomes a Designated Subsidiary after the Closing Date, the Administrative Agent shall have received, to the extent reasonably requested by the Administrative Agent, documents, opinion of counsel (if such Designated Subsidiary is a Material Subsidiary) and certificates with respect to such Designated Subsidiary of the type referred to in Sections 3.1(b), 3.1(e), 3.1(g) and 3.1(k);

(d) all Equity Interests owned by or on behalf of any Credit Party shall have been pledged pursuant to the Pledge and Security Agreement (provided that the Credit Parties shall not be required to pledge (i) more than 65% of the outstanding voting Equity Interests in any CFC or CFC Holding Company or (ii) Equity Interests constituting Excluded Property) and the Collateral Agent shall, to the extent required by the Pledge and Security Agreement, have received certificates or other instruments representing all such Equity Interests, together with undated stock powers or other instruments of transfer with respect thereto endorsed in blank;

(e) (i) all Indebtedness owed by any Credit Party to any Restricted Subsidiary that is not a Credit Party shall be subordinated to the Obligations pursuant to the Intercompany Indebtedness Subordination Agreement, (ii) all Indebtedness of any Unrestricted Subsidiary (other than the Borrower or a Restricted Subsidiary) in a principal amount of $1,500,000 or more that is owing to any Credit Party shall be evidenced by a promissory note and (iii) all the promissory notes referred to in clause (ii) above, and all promissory notes evidencing any Indebtedness of the Borrower or any Restricted Subsidiary that is owing to any Credit Party, shall, in each case, have been pledged pursuant to the Pledge and Security Agreement, and the Collateral Agent shall have received all such notes, together with undated instruments of transfer with respect thereto endorsed in blank;

(f) all instruments and documents, including UCC financing statements, required by applicable law or reasonably requested by the Collateral Agent to be filed, registered or recorded to create the Liens intended to be created by the Collateral Documents and to perfect such Liens to the extent required by, and with the priority required by, the Collateral Documents shall have been filed, registered or recorded or delivered to the Collateral Agent for filing, registration or recording;

(g) the Collateral Agent shall have received (i) a Mortgage with respect to each Material Real Estate Asset, if any, duly executed and delivered by the record owner of such Material Real Estate Asset (and in the event any Material Real Estate Asset subject to a Mortgage pursuant to this definition is located in a jurisdiction that imposes mortgage recording taxes or any similar taxes, fees or charges, the amount secured by such Mortgage shall be limited to the fair market value of such Material Real Estate Asset (as determined reasonably and in good faith by the Borrower)), (ii) a fully paid policy or policies of title insurance or a marked up commitment or signed pro forma therefor issued by a nationally recognized title insurance company insuring the Lien of each Mortgage as a valid and enforceable Lien on the Material Real Estate Asset described therein, free of any other Liens other than Permitted Liens, which policies shall be in form and substance reasonably satisfactory to the Collateral Agent, together with such endorsements, coinsurance and reinsurance as the Collateral Agent may reasonably request, (iii) a completed Flood Certificate with respect to each Material Real Estate Asset, which Flood Certificate shall be addressed to the Collateral Agent and shall otherwise comply with the Flood Program and if the Flood Certificate with respect to any Material Real Estate Asset states that any "Building" (as defined in 12 CFR Chapter III, Section 339.2) included as part of such Material Real Estate Asset is located in a Flood Zone, (x) a written acknowledgement from the applicable Credit Party of receipt of written notification from the Collateral Agent as to the existence of such Material Real Estate Asset and as to whether the community in which such Material Real Estate Asset is located is participating in the Flood Program and (y) if such Material Real Estate Asset is located in a community that participates in the Flood Program, evidence that the applicable Credit Party has obtained a policy of flood insurance that is in compliance with all applicable requirements of the Flood Program and other applicable law (including as to the amount of insurance coverage required thereunder), provided that the foregoing requirements of this clause (iii) shall be completed (and copies of such Flood Certificate and, if applicable, such acknowledgement and evidence of flood insurance shall have been made available to the Lenders) at least 20 Business Days (or such shorter period within which each of the Revolving Lenders shall have advised the Collateral Agent that its flood insurance due diligence and flood insurance compliance have been completed) prior to the execution and delivery of a Mortgage with respect to such Material Real Estate Asset and (iv) such surveys, abstracts, appraisals, legal opinions and other documents as the Collateral Agent may reasonably request with respect to any such Mortgage or Material Real Estate Asset; and

(h) each Credit Party shall have obtained all consents and approvals reasonably required (in the good faith judgment of the Borrower) to be obtained by it in connection with the execution and delivery of all Collateral Documents to which it is a party, the performance of its obligations thereunder and the granting by it of the Liens thereunder.

Notwithstanding anything herein to the contrary, the foregoing definition shall not require the creation or perfection of pledges of or security interests in, or the obtaining of title insurance, surveys, legal opinions, consents, approvals or other deliverables with respect to, any particular assets of the Credit Parties if and for so long as the Collateral Agent, in consultation with the Borrower, determines that the cost of creating or perfecting such pledges or security interests in such assets, or obtaining such deliverables (including the cost of obtaining flood insurance, if required) shall be excessive in view of the benefits to be obtained by the Lenders therefrom.

The Collateral Agent may grant extensions of time for the creation and perfection of security interests in or the obtaining of title insurance, legal opinions, consents, approvals or other deliverables with respect to particular assets or the provision of any Obligations Guarantee by any Restricted Subsidiary (including extensions beyond the Closing Date or in connection with assets acquired, or Restricted Subsidiaries formed or acquired, after the Closing Date) where it determines, in consultation with the Borrower, that such action cannot be accomplished without undue effort or expense by the time or times at which it would otherwise be required to be accomplished by this Agreement or the Collateral Documents.

Notwithstanding the foregoing provisions of this definition or anything in this Agreement or any other Credit Document to the contrary:

(aa) Liens required to be granted from time to time pursuant to the Collateral and Guarantee Requirement shall be subject to exceptions and limitations set forth in the Collateral Documents and, to the extent appropriate in the applicable jurisdiction, as agreed between the Administrative Agent and the Borrower;

(bb) the Collateral and Guarantee Requirement shall not apply to any of the following assets (collectively, the "**Excluded Property**"; each capitalized term used in this clause (bb) but not defined in this Agreement having the meaning given to it in the Pledge and Security Agreement): (i) any Leasehold Property and any Real Estate Asset that is not a Material Real Estate Asset, (ii) any motor vehicles and other assets subject to certificates of title, except to the extent perfection of a security interest therein may be accomplished by the filing of UCC financing statements or an equivalent thereof in appropriate form in the applicable jurisdiction, (iii) any Commercial Tort Claim as to which the claim thereunder is less than $6,000,000, (iv) (A) any assets if, for so long as and to the extent a security interest may not be granted in such assets as a matter of applicable law and (B) any lease, license, contract or other agreement or any rights or interests thereunder if, for so long as and to the extent the grant of a security interest therein would (x) constitute or result in (1) the unenforceability of any right, title or interest of the applicable Credit Party in or (2) a breach or termination pursuant to the terms of, or a default under, such lease, license, contract or other agreement or (y) require a consent, approval, license or authorization not obtained from a Governmental Authority or third party, except, in each case under this clause (iv) to the extent that such law or the terms in such lease, license, contract or other agreement providing for such prohibition, breach, right of termination or default or requiring such consent, approval, license or authorization is ineffective under the UCC or other applicable law, provided that this clause (iv) shall not exclude Proceeds thereof and Accounts and Payment Intangibles arising therefrom the assignment of which is deemed effective under the UCC, (v) any property subject to a Lien securing purchase money obligation or Capital Lease Obligation (or any Refinancing Indebtedness in respect thereof) if, for so long and to the extent the grant of a security interest therein would constitute or result in a breach or a default under the related agreements, except, in each case under this clause (v), to the extent that such breach or default is ineffective under the UCC or other applicable law, provided that this clause (v) shall apply only if such Lien and such purchase money obligation or Capital Lease Obligation are permitted hereunder, (vi) any licenses or state or local franchises, charters and authorizations of a Governmental Authority if, for so long as and to the extent the grant of a security interest therein is prohibited or restricted by applicable law, except, in each case under this clause (vi), to the extent that such prohibition or restriction is ineffective under the UCC or other applicable law, provided that this clause (vi) shall not exclude Proceeds thereof and Accounts and Payment Intangibles arising therefrom the assignment of which is deemed effective under the UCC, (vii) Equity Interests in any Person that is not a wholly owned Restricted Subsidiary if, for so long as and to the extent (A) the Organizational Documents of such Person or any related joint venture, shareholders' or similar agreement prohibits or restricts such pledge without the consent of any Person other than the Borrower or a Restricted Subsidiary (it being understood that neither the Borrower nor any Guarantor Subsidiary shall be required to seek the consent of third parties thereunder), (B) in the case of any Person that is not a Restricted Subsidiary (including any Unrestricted Subsidiary), such Equity Interests have been pledged in connection with any Indebtedness of such Person (but only to the extent that such Equity Interests remain pledged in connection with such Indebtedness) or (C) Margin Stock, (viii) any "intent to use" trademark application for which a statement of use has not been filed with the United States Patent and Trademark Office, but only to the extent that the grant of a security interest therein would invalidate such trademark application, (ix) any assets to the extent the grant of a security interest in such assets would result in material adverse tax consequences to the Borrower and the Restricted Subsidiaries, as reasonably determined by the Borrower and notified by the Borrower to the Collateral Agent in writing, (x) Letter-of-Credit Rights, except to the extent constituting a Supporting Obligation of other Collateral as to which perfection of a security interest therein may be accomplished solely by the filing of a UCC financing statement in the applicable jurisdiction (it being understood that no actions shall be required to perfect a security interest in a Letter-of-Credit Rights, other than the filing of a UCC financing statement) and (xi) any other assets as to which the Administrative Agent, in consultation with the Borrower, shall have reasonably determined in writing that the cost of obtaining or perfecting a Lien thereon would be excessive in relation to the benefit that would be afforded to the Lenders thereby, in each case of this clause (bb) other than any Proceeds, substitutions or replacements of the foregoing (unless such Proceeds, substitutions or replacements themselves would constitute assets described in clauses (i) through (xi) above); provided, in each case, that such assets shall constitute Excluded Property only if they are not subject to any Lien securing any Permitted Credit Agreement Refinancing Indebtedness or any Permitted Incremental Equivalent Indebtedness;

(cc) except with respect to Indebtedness represented or evidenced by certificates or instruments to the extent required by clause (e) of the first paragraph of this definition, perfection by possession or "control" shall not be required with respect to any promissory notes or other evidences of Indebtedness owned by a Credit Party and constituting Collateral;

(dd) no Credit Party shall be required to obtain any control agreement with respect to any deposit account or securities account;

(ee) no Credit Party shall be required to obtain any landlord waivers, estoppels, collateral access agreements or similar third party agreements;

(ff) no Collateral Documents governed under the laws of any jurisdiction outside of the United States, and no actions in any jurisdiction outside of the United States or that are necessary to create or perfect any security interest in assets located or titled outside of the United States, shall be required; and

(gg) no Credit Party shall be required to deliver to the Collateral Agent any certificates or instruments representing or evidencing, or any stock powers or other instruments of transfer in respect of, Equity Interests in any Subsidiary that is not a Material Subsidiary.

"**Collateral Documents**" means the Pledge and Security Agreement, the Mortgages, the Intellectual Property Security Agreements and all other instruments, documents and agreements delivered by or on behalf of any Credit Party pursuant to this Agreement or any of the other Credit Documents in order to grant to, or perfect in favor of, the Collateral Agent, for the benefit of the Secured Parties, a Lien on any property of such Credit Party as security for the Obligations.

"**Collateral Questionnaire**" means the Collateral Questionnaire delivered by the Borrower pursuant to Section 3.1(g).

"**Commitment**" means a Revolving Commitment or a Term Loan Commitment.

"**Commitment Fee Rate**" means, on any day, (a) with respect to the Revolving Commitments, the applicable rate per annum set forth below based on the Secured Net Leverage Ratio as of the end of the Fiscal Year or Fiscal Quarter for which financial statements have been most recently delivered pursuant to Section 5.1(a) or 5.1(b) and the related Compliance Certificate has been delivered pursuant to Section 5.1(d), in each case, at least one Business Day prior to such day, provided that, for purposes of this clause (a), until the first Business Day following the date of the delivery of the financial statements pursuant to Section 5.1(a) for the Fiscal Year ending December 31, 2018, and of the related Compliance Certificate pursuant to Section 5.1(d), the Commitment Fee Rate shall be determined by reference to Pricing Level 1 in the table below, and (b) with respect to any Extended/Modified Commitments or Refinancing Revolving Commitments of any Class, the rate or rates per annum specified in the applicable Extension/Modification Agreement or Refinancing Facility Agreement.

| Pricing Level | Secured Net Leverage Ratio | Commitment Fee Rate |
|---|---|---|
| 1 | < 1.00:1.00 | 0.20% |
| 2 | ≥ 1.00:1.00 but < 1.50:1.00 | 0.25% |
| 3 | ≥ 1.50:1.00 | 0.30% |

Any increase or decrease in the Commitment Fee Rate resulting from a change in the Secured Net Leverage Ratio shall become effective as of the first Business Day following the date the financial statements and the related Compliance Certificate are delivered to the Administrative Agent pursuant to Section 5.1(a) or 5.1(b) and Section 5.1(d); provided that if the Borrower has not delivered to the Administrative Agent any financial statements or Compliance Certificate required to have been delivered pursuant to Section 5.1(a), 5.1(b) or 5.1(d), from and after the date such financial statements or Compliance Certificate were required to have been so delivered the Commitment Fee Rate shall be determined by reference to Pricing Level 3 in the table above and shall continue to so apply to and including the first Business Day following the date such financial statements and related Compliance Certificate are so delivered (and thereafter the pricing level otherwise determined in accordance with this definition shall apply) and (b) as of the first Business Day after an Event of Default under Section 8.1(a), 8.1(f) or 8.1(g) shall have occurred and be continuing, the Commitment Fee Rate shall be determined by reference to Pricing Level 3 in the table above, and shall continue to so apply to but excluding the date on which such Event of Default shall cease to be continuing (and thereafter the pricing level otherwise determined in accordance with this definition shall apply).

If any financial statements or Compliance Certificate delivered pursuant to Section 5.1(a), 5.1(b) or 5.1(d) shall prove to have been inaccurate, and such inaccuracy shall have resulted in the payment of fees hereunder at lower rates than those that would have been paid but for such inaccuracy, then (i) the Borrower shall promptly deliver to the Administrative Agent corrected financial statements and a corrected Compliance Certificate for such period and (ii) the Borrower shall promptly pay to the Administrative Agent, for the account of the Revolving Lenders, the fees that should have been paid but were not paid as a result of such inaccuracy. Nothing in this paragraph shall limit the rights of the Administrative Agent or any Lender under Section 2.9 or 8.

"**Commodity Exchange Act**" means the Commodity Exchange Act (7 USC. 1 § 1 et seq.).

"**Compliance Certificate**" means a Compliance Certificate substantially in the form of Exhibit C.

"**Connection Income Taxes**" means Other Connection Taxes that are imposed on or measured by net income (however denominated) or that are franchise Taxes or branch profits Taxes.

"**Consolidated Adjusted EBITDA**" means, for any period:

(a) Consolidated Net Income for such period; plus

(b) an amount which, in the determination of Consolidated Net Income for such period, has been deducted (or, in the case of amounts pursuant to clauses (ix), (xii) and (xiii) below, not already included in Consolidated Net Income) for, without duplication:

(i) total interest expense determined in conformity with GAAP (including (A) amortization of original issue discount resulting from the issuance of Indebtedness at less than par, (B) all commissions, discounts and other fees and charges owed with respect to letters of credit or bankers' acceptances, (C) non-cash interest payments, (D) the interest component of Capital Lease Obligations, (E) net payments, if any, made (less net payments, if any, received) pursuant to interest rate Hedge Agreements with respect to Indebtedness, (F) amortization or write-off of deferred financing fees, debt issuance costs, commissions, fees and expenses, including commitment, letter of credit and administrative fees and charges with respect to the credit facilities established hereunder and with respect to other Indebtedness permitted to be incurred hereunder and (G) any expensing of commitment and other financing fees) and, to the extent not reflected in such total interest expense, any losses on hedging obligations or other derivative instruments entered into for the purpose of hedging interest rate risk, net of interest income and gains on such hedging obligations, and costs of surety bonds in connection with financing activities (whether amortized or immediately expensed), for such period,

(ii) provision for taxes based on income, revenues, profits or capital, including federal, foreign, state, local, franchise, excise and similar taxes and foreign withholding taxes paid or accrued during such period, including (A) penalties and interest related to such taxes or arising from any tax examinations and (B) in respect of repatriated funds, for such period,

(iii) total depreciation expense and total amortization expense for such period,

(iv) extraordinary, unusual or nonrecurring charges, expenses or losses for such period,

(v) any charges, expenses or losses for such period attributable to disposed, abandoned or discontinued operations,

(vi) any after-tax losses attributable to any Disposition of assets by the Borrower or any Restricted Subsidiary, other than Dispositions of inventory and other Dispositions in the ordinary course of business,

(vii) non-cash charges, expenses or losses for such period, including (A) impairment charges and reserves and any other write-down or write-off of assets, (B) non-cash fair value adjustments of Investments and (C) non-cash compensation expense, but excluding (1) any such non-cash charge, expense or loss to the extent that it represents an amortization of a prepaid cash expense that was paid and not expensed in a prior period or write-down or write-off or reserves with respect to accounts receivable (including any addition to bad debt reserves or bad debt expense) or inventory and (2) any noncash charge, expense or loss to the extent it represents an accrual of or a reserve for cash expenditures in any future period, provided that, at the option of the Borrower, notwithstanding the exclusion in this clause (2) any such noncash charge, expense or loss may be added back in determining Consolidated Adjusted EBITDA for the period in which it is recognized, so long as any cash expenditure made on account thereof in any future period is deducted pursuant to clause (d) of this definition,

(viii) restructuring charges, accruals and reserves, severance costs, relocation costs, retention and completion bonuses, integration costs and business optimization expenses, including any restructuring costs, business optimization expenses and integration costs related to Acquisitions, project start-up costs, transition costs, costs related to the opening, closure and/or consolidation of offices and facilities (including the termination or discontinuance of activities constituting a business), contract termination costs, recruiting, signing and completion bonuses and expenses, future lease commitments, systems establishment costs, conversion costs, excess pension charges and curtailments or modifications to pension and post-retirement employee benefit plans (including any settlement of pension liabilities) and consulting fees, for such period;

(ix) the amount of net cost savings, operating expense reductions, other operating improvements and synergies projected by the Borrower in good faith to be realized (calculated on a pro forma basis as though such items had been realized on the first day of the applicable Test Period) as a result of actions taken or to be taken in connection with any Pro Forma Event, net of the amount of actual benefits realized during such period that are

otherwise included in the calculation of Consolidated Adjusted EBITDA from such actions, provided that (A)(1) such cost savings, operating expense reductions, other operating improvements and synergies are reasonably identifiable, factually supportable and reasonably anticipated to be realized within 24 months after the consummation of such Pro Forma Event, as determined in good faith by the Borrower and (2) the Compliance Certificate for any Test Period with respect to which any amount shall have been added pursuant to this clause (ix) with respect to such Pro Forma Event shall include a certification by a Financial Officer of the Borrower that the requirements of clauses (A)(1) and (A)(2) above with respect to such Pro Forma Event have been satisfied, (B) no cost savings, operating expense reductions, operating improvements and synergies shall be added pursuant to this clause (ix) to the extent duplicative of any items otherwise added in calculating Consolidated Adjusted EBITDA, whether pursuant to the requirements of Section 1.2(b) or otherwise, for such period, and (C) projected (and not yet realized) amounts may no longer be added in calculating Consolidated Adjusted EBITDA pursuant to this clause (ix) after 24 months after the consummation of such Pro Forma Event,

(x) fees, costs and expenses incurred in connection with the Transactions during such period,

(xi) transaction fees and expenses incurred, or amortization thereof, during such period in connection with, to the extent permitted hereunder, any Acquisition or other Investment, any Disposition (other than in the ordinary course of business), any Insurance/Condemnation Event, any incurrence of Indebtedness, any issuance of Equity Interests or any amendments or waivers of the Credit Documents or any agreements or instruments relating to any other Indebtedness permitted hereunder, in each case, whether or not consummated,

(xii) charges, expenses, losses and lost profits for such period to the extent indemnified or insured by a third party, including expenses covered by indemnification provisions in connection with any Acquisition or Disposition permitted by this Agreement and lost profits covered by business interruption insurance, in each case, to extent that coverage has not been denied and only so long as such amounts are either actually reimbursed to the Borrower or any Restricted Subsidiary during such period or the Borrower has made a good faith determination that there exists reasonable evidence that such amounts will be reimbursed to the Borrower or any Restricted Subsidiary within 12 months after the related amount is first added to Consolidated Adjusted EBITDA pursuant to this clause (xii),

(xiii) cash receipts (or any netting arrangements resulting in reduced cash expenses) during such period not included in Consolidated Adjusted EBITDA in any prior period to the extent non-cash gains relating to such receipts were deducted in the calculation of Consolidated Adjusted EBITDA pursuant to clause (c) below for any prior period and not added back,

(xiv) net losses during such period (A) resulting from fair value accounting required by FASB Accounting Standard Codification 815, (B) relating to mark-to-market of amounts denominated in foreign currencies resulting from the application of FASB Accounting Standard Codification 830 or (C) attributable to foreign currency translation,

(xv) any losses for such period attributable to early extinguishment of Indebtedness or obligations under any Hedge Agreement or other derivative instrument,

(xvi) cash expenses relating to contingent or deferred payments in connection with any Acquisition or other Investment permitted hereunder (including earn-outs, non-compete payments, consulting payments and similar obligations) and any adjustments thereof and any purchase price adjustments for such period, and

(xvii) any income (or loss) attributable to non-controlling interests in any non-wholly owned Restricted Subsidiary; minus

(c) an amount which, in the determination of Consolidated Net Income for such period, has been included for, without duplication:

(i) all extraordinary, unusual or nonrecurring gains and items of income during such period,

(ii) any gains or income attributable to disposed, abandoned or discontinued operations,

(iii) any after-tax gains attributable to any Disposition of assets by the Borrower or any Restricted Subsidiary, other than Dispositions of inventory and other Dispositions in the ordinary course of business,

(iv) any non-cash gains or income (other than the accrual of revenue in the ordinary course) during such period, but excluding any such items in respect of which cash was received in a prior period or will be received in a future period,

(v) net gains during such period (A) resulting from fair value accounting required by FASB Accounting Standard Codification 815, (B) relating to mark-to-market of amounts denominated in foreign currencies resulting from the application of FASB Accounting Standard Codification 830 or (C) attributable to foreign currency translation, and

(vi) any gains for such period attributable to early extinguishment of Indebtedness or obligations under any Hedge Agreement or other derivative instrument; minus

(d) to the extent not deducted in Consolidated Net Income during such period, all cash payments made during such period on account of non-cash charges that were added back in calculating Consolidated Adjusted EBITDA for a prior period in reliance on the proviso to clause (b)(vii) above.

"**Consolidated Capital Expenditures**" means, for any period, the aggregate of all expenditures made by the Borrower and the Restricted Subsidiaries during such period that are required to be included in "purchase of property, plant and equipment" or similar items on a consolidated statement of cash flows, or that are otherwise required to be capitalized on a consolidated balance sheet, of the Borrower and the Restricted Subsidiaries for such period prepared in conformity with GAAP; provided that Consolidated Capital Expenditures shall not include any expenditures (a) for assets to the extent made with Net Proceeds reinvested pursuant to Section 2.13(a) or 2.13(b) or (b) that constitute an Acquisition or other Investment permitted under Section 6.6.

"**Consolidated Current Assets**" means the total assets of the Borrower and the Restricted Subsidiaries on a consolidated basis that may properly be classified as current assets in conformity with GAAP, excluding (a) Cash and Cash Equivalents, (b) assets relating to current or deferred Taxes based on income or profits and (c) assets held for sale.

"**Consolidated Current Liabilities**" means the total liabilities of the Borrower and the Restricted Subsidiaries on a consolidated basis that may properly be classified as current liabilities in conformity with GAAP, excluding (a) the current portion of Long-Term Indebtedness, (b) accruals for current or deferred Taxes based on income or profits, (c) accruals of interest expense not overdue, (d) accruals of expense for restructuring reserves and (e) revolving credit Indebtedness, including the Revolving Loans.

"**Consolidated Excess Cash Flow**" means, with respect to any period, an amount, not less than zero, equal to:

(a) the sum, without duplication, of (i) Consolidated Net Income for such period, plus (ii) the amount of all non-cash charges (including depreciation expense, amortization expense and deferred tax expense) deducted in arriving at Consolidated Net Income, plus (iii) the aggregate net amount of non-cash loss on the Disposition of assets by the Borrower and the Restricted Subsidiaries (other than Dispositions of inventory and other Dispositions in the ordinary course of business), to the extent deducted in arriving at Consolidated Net Income, plus (iv) the aggregate amount of any non-cash loss for such period attributable to the early extinguishment of Indebtedness, Hedge Agreements or other derivative instruments, to the extent deducted in arriving at Consolidated Net Income; minus

(b) the sum, without duplication (in each case, for the Borrower and the Restricted Subsidiaries on a consolidated basis), of:

(i) Consolidated Capital Expenditures that are (A) actually made during such period, to the extent financed with Internally Generated Cash, or (B) at the option of the Borrower, committed during such period pursuant to binding contracts with third parties to be made during the period of four consecutive Fiscal Quarters immediately following the end of such period; provided that (1) if any Consolidated Capital Expenditures are deducted from Consolidated Excess Cash Flow pursuant to clause (B) above, such amount shall be added to the Consolidated Excess Cash Flow for the immediately succeeding period of four consecutive Fiscal Quarters of the Borrower to the extent the expenditure is not actually made within such initial period of four consecutive Fiscal Quarters or is financed other than with Internally Generated Cash and (2) no deduction shall be taken in the immediately succeeding period of four consecutive Fiscal Quarters when such amounts deducted pursuant to clause (B) are actually spent,

(ii) the aggregate principal amount of Indebtedness of the Borrower and the Restricted Subsidiaries repaid or prepaid by the Borrower and the Restricted Subsidiaries during such period, to the extent financed with Internally Generated Cash, including, to the extent so financed, (A) the principal component of payments in respect of Capital Lease Obligations, (B) scheduled Installments of Loans made pursuant to Section 2.11 and (C) the aggregate amount of Cash paid by the Borrower to acquire any Loans assigned to it pursuant to Section 10.6(i) (only to the extent of the amount of Cash so paid), but excluding (1) any prepayment of Loans pursuant to Section 2.12 or 2.13, (2) any repayment or prepayment of Revolving Loans or other revolving extensions of credit (except, other than in the case of Revolving Loans, to the extent that any repayment or prepayment of such Indebtedness is accompanied by a permanent reduction in related commitments), (3) repayments or prepayments of Permitted Pari Passu Secured

Indebtedness to the extent reducing the required prepayment of Term Loans in respect of such period pursuant to Section 2.13(d) and (4) repayments or prepayments of Junior Indebtedness except to the extent permitted by Section 6.4(i) (it being understood and agreed that any amount excluded pursuant to clauses (1) through (4) above may not be deducted under any other clause of this definition),

(iii) to the extent not deducted in arriving at Consolidated Net Income, Restricted Junior Payments of the type referred to in clause (a) or (b) of the definition of such term made by the Borrower and the Restricted Subsidiaries in Cash during such period under Sections 6.4(e), 6.4(f), 6.4(g), 6.4(l), 6.4(m) (solely to the extent made in reliance on clause (a)(i) of the Available Basket Amount) and 6.4(n) to the extent financed with Internally Generated Cash,

(iv) (A) to the extent not deducted in arriving at Consolidated Net Income, the aggregate amount of any premium, make-whole or penalty payments actually paid in Cash during such period that are required to be made in connection with any prepayment or satisfaction and discharge of Indebtedness, to the extent financed with Internally Generated Cash, and (B) to the extent included in arriving at Consolidated Net Income, the aggregate amount of any income for such period attributable to the early extinguishment of Indebtedness, Hedge Agreements or other derivative instruments,

(v) to the extent not deducted in arriving at Consolidated Net Income, payments actually made in Cash during such period in satisfaction of noncurrent liabilities (other than Indebtedness),

(vi) to the extent not deducted in arriving at Consolidated Net Income for such period or any prior period, Cash fees and expenses paid in Cash during such period in connection with the Transactions or, to the extent permitted hereunder, any Acquisition or other Investment permitted under Section 6.6, any issuance of Equity Interests in the Borrower or any incurrence of Indebtedness (whether or not consummated), in each case to the extent financed with Internally Generated Cash,

(vii) to the extent not deducted in arriving at Consolidated Net Income for such period or any prior period, the aggregate amount of other expenditures that are actually made in Cash during such period (including expenditures for payment of financing fees),

(viii) the amount of Cash payments (A) actually made during such period to consummate any Acquisition or other Investment permitted under Sections 6.6(b), 6.6(j), 6.6(k), 6.6(r) (solely to the extent made in reliance on clause (a)(i) of the definition of "Available Basket Amount"), 6.6(u) and 6.6(v), to the extent financed with Internally Generated Cash, or (B) at the option of the Borrower, committed during such period pursuant to binding contracts with third parties to make such Acquisition or other Investments during the period of four consecutive Fiscal Quarters of the Borrower immediately following the end of such period; provided that (1) if any amount is deducted from Consolidated Excess Cash Flow pursuant to clause (B) above, such amount shall be added to Consolidated Excess Cash Flow for the immediately succeeding period of four consecutive Fiscal Quarters of the Borrower to the extent such Acquisition or other Investment is not actually consummated during such period of four consecutive Fiscal Quarters or is financed other than with Internally Generated Cash and (2) no deduction shall be taken in the immediately succeeding period of four consecutive Fiscal Quarters when such amounts deducted pursuant to clause (B) are actually spent,

(ix) to the extent not deducted in arriving at such Consolidated Net Income for such period or any prior period, the amount of Cash payments made in respect of pensions and other postemployment benefits during such period,

(x) Cash expenditures in respect of Hedge Agreements during such period to the extent they exceed the amount of expenditures expensed in determining Consolidated Net Income for such period,

(xi) to the extent not deducted in arriving at Consolidated Net Income for such period or any prior period, the aggregate amount of all Cash taxes paid or tax reserves set aside or payable (without duplication), including penalties and interest, for such period, and

(xii) to the extent included in arriving at such Consolidated Net Income, the aggregate net amount of non-cash gain on the Disposition of assets by the Borrower and the Restricted Subsidiaries (other than Dispositions of inventory and other Dispositions in the ordinary course of business); plus

(c) the Consolidated Working Capital Adjustment.

"**Consolidated Net Income**" means, for any period, the net income (or loss) of the Borrower and its Subsidiaries for such period, determined on a consolidated basis in conformity with GAAP and to the extent attributable to the Borrower, provided

that (a) any net income (or loss) of any Person (including any Unrestricted Subsidiary or any Person accounted for by the equity method of accounting) that is not the Borrower or a Restricted Subsidiary shall be excluded, except to the extent of the amount of Cash and Cash Equivalents (or of other assets, but only to the extent of Cash and Cash Equivalents received during the same accounting period as such distribution of such assets as a result of a conversion of such assets into Cash or Cash Equivalents) actually distributed during such period by any such Person to the Borrower or a Restricted Subsidiary as a dividend or similar distribution (and except that the provisions of this clause (a) will not apply to the extent inclusion of such net income (or loss) of such Person is required for any calculation of Consolidated Adjusted EBITDA on a Pro Forma Basis), (b) the net income (or loss) of any Person accrued prior to the date it becomes a Restricted Subsidiary or is merged or consolidated with or into the Borrower or any Restricted Subsidiary shall be excluded (except to the extent inclusion of such net income (or loss) of such Person is required for any calculation of Consolidated Adjusted EBITDA on a Pro Forma Basis), (c) the cumulative effect of a change in accounting principles during such period shall be excluded, (d) the accounting effects during such period of adjustments to inventory, property and equipment, goodwill and other intangible assets and deferred revenue required or permitted by GAAP (including the effects of such adjustments pushed down to the Borrower and the Restricted Subsidiaries), and all other impacts of the application of purchase accounting, as a result of any Acquisition shall be excluded and (e) solely for the purpose of determining the Available Basket Amount pursuant to clause (a)(ii) of the definition of such term, the income of any Restricted Subsidiary that is not a Guarantor shall be excluded to the extent that, on the date of determination, the declaration or payment of Cash dividends or similar distributions by such Restricted Subsidiary of such income is not permitted without approval of any Governmental Authority that has not been obtained or is not permitted by operation of the terms of the Organizational Documents of such Restricted Subsidiary or any Contractual Obligation, judgment, decree, order or other applicable law applicable to such Restricted Subsidiary or its equity holders that has not been waived, except (solely to the extent permitted to be paid) to the extent of the amount of Cash and Cash Equivalents actually distributed during such period by such Restricted Subsidiary to the Borrower or any other Credit Party as a dividend or similar distribution.

"**Consolidated Secured Net Debt**" means, as of any date, (a) the aggregate principal amount of Indebtedness of the Borrower and the Restricted Subsidiaries outstanding as of such date, in the amount that would be reflected on a balance sheet prepared as of such date on a consolidated basis in conformity with GAAP (but without giving effect to any accounting principle that results in the amount of any such Indebtedness (other than zero coupon Indebtedness) as reflected on such balance sheet to be below the stated principal amount of such Indebtedness), consisting solely of Indebtedness for borrowed money, obligations evidenced by bonds, debentures, notes or similar instruments, Capital Lease Obligations and purchase money Indebtedness, in each case only if such Indebtedness is secured by a Lien on any asset of the Borrower or any Restricted Subsidiary, minus (b) the aggregate amount of Unrestricted Cash as of such date (but disregarding the proceeds of Indebtedness that is incurred on such date).

"**Consolidated Total Assets**" means, as of any date, the consolidated total assets of the Borrower and the Restricted Subsidiaries as set forth on the consolidated balance sheet of the Borrower as of the last day of the applicable Test Period prepared in conformity with GAAP (but excluding all amounts attributable to Unrestricted Subsidiaries); provided that prior to the first delivery of financial statements pursuant to Section 5.1(a) or 5.1(b), determinations under this definition shall be made based on the Historical Financial Statements.

"**Consolidated Total Net Debt**" means, as of any date, (a) the aggregate principal amount of Indebtedness of the Borrower and the Restricted Subsidiaries outstanding as of such date, in the amount that would be reflected on a balance sheet prepared as of such date on a consolidated basis in conformity with GAAP (but without giving effect to any accounting principle that results in the amount of any such Indebtedness (other than zero coupon Indebtedness) as reflected on such balance sheet to be below the stated principal amount of such Indebtedness), consisting solely of Indebtedness for borrowed money, obligations evidenced by bonds, debentures, notes or similar instruments, Capital Lease Obligations and purchase money Indebtedness, minus (b) the aggregate amount of Unrestricted Cash as of such date (but disregarding the proceeds of Indebtedness that is incurred on such date).

"**Consolidated Working Capital**" means, as of any date, the excess of (a) Consolidated Current Assets as of such date over (b) Consolidated Current Liabilities as of such date.

"**Consolidated Working Capital Adjustment**" means, for any period, the amount (which may be a negative number) by which Consolidated Working Capital as of the beginning of such period exceeds (or is less than) Consolidated Working Capital as of the end of such period. In calculating the Consolidated Working Capital Adjustment for any period, there shall be excluded the effect of reclassification during such period of current assets to long term assets and current liabilities to long term liabilities and the effect of any Acquisition consummated during such period; provided that there shall be included with respect to any Acquisition consummated during such period an amount (which may be a negative number) by which the Consolidated Working Capital attributable to the Persons or assets acquired in such Acquisition as of the date of the consummation thereof exceeds (or is less than) the Consolidated Working Capital attributable to such Persons or assets as of the end of such period.

"**Contractual Obligation**" means, with respect to any Person, any provision of any Security issued by such Person or any indenture, mortgage, deed of trust, contract, undertaking or other agreement or instrument to which such Person is a party or

by which such Person or any of its properties is bound or to which such Person or any of its properties is subject.

"**Control**" means, with respect to any Person, the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies, or the dismissal or appointment of the management, of such Person, whether through the ownership of Securities, by contract or otherwise. The words "Controlling", "Controlled by" and "under common Control with" have correlative meanings.

"**Conversion/Continuation Date**" means the effective date of a continuation or conversion, as the case may be, as set forth in the applicable Conversion/Continuation Notice.

"**Conversion/Continuation Notice**" means a Conversion/Continuation Notice substantially in the form of Exhibit D.

"**Counterpart Agreement**" means a Counterpart Agreement substantially in the form of Exhibit E.

"**Credit Date**" means the date of any Credit Extension, including the Closing Date.

"**Credit Document**" means each of this Agreement, the Collateral Documents, the Post-Closing Letter Agreement, the Counterpart Agreements, the Extension/Modification Agreements, the Incremental Facility Agreements, the Refinancing Facility Agreements, any Permitted Intercreditor Agreement and, except for purposes of Section 10.5, the Notes, if any, any agreement designating an additional Issuing Bank as contemplated by Section 2.3(i) and any documents or certificates executed by the Borrower in favor of any Issuing Bank relating to Letters of Credit (including any fee letter relating to the fees payable to such Issuing Bank pursuant to Section 2.10(b).

"**Credit Extension**" means the making of a Loan or the issuance, amendment (if increasing the face amount thereof) or extension of a Letter of Credit.

"**Credit Parties**" means the Borrower and the Guarantor Subsidiaries.

"**Debtor Relief Laws**" means the Bankruptcy Code and all other liquidation, conservatorship, bankruptcy, assignment for the benefit of creditors, moratorium, arrangement (including under corporate statutes), rearrangement, receivership, insolvency, reorganization or similar debtor relief laws of the United States of America or other applicable jurisdictions from time to time in effect.

"**Declined Mandatory Prepayment Retained Amount**" means any portion of the amount of any mandatory prepayment of Loans required pursuant to Section 2.13(a), 2.13(b) or 2.13(d) that has been declined by the Lenders in accordance with Section 2.14(c), but only to the extent retained by the Borrower in accordance with Section 2.14(c).

"**Default**" means a condition or event that, after notice or lapse of time or both, would constitute an Event of Default.

**"Default Right" has the meaning assigned to that term in, and shall be interpreted in accordance with, 12 C.F.R. §§ 252.81, 47.2 or 382.1, as applicable.**

"**Defaulting Lender**" means, subject to Section 2.21(b), any Lender that (a) has failed (i) to fund all or any portion of its Loans within two Business Days of the date such Loans were required to be funded hereunder, unless such Lender notifies the Administrative Agent and the Borrower in good faith in writing that such failure is the result of such Lender's determination that one or more conditions precedent to funding (which conditions precedent, together with the applicable Default, if any, shall be specifically identified in such writing) has not been satisfied, or (ii) to pay to the Administrative Agent, the Collateral Agent, any Issuing Bank or any other Lender any other amount required to be paid by it hereunder (including in respect of its participation in Letters of Credit) within two Business Days of the date when due, (b) has notified the Borrower, the Administrative Agent or any Issuing Bank in writing that it does not intend to comply with its funding obligations hereunder, or has made a public statement to that effect (unless such writing or public statement relates to such Lender's obligation to fund a Loan hereunder and states that such position is based on such Lender's determination that a condition precedent to funding (which condition precedent, together with the applicable Default, if any, shall be specifically identified in such writing or public statement) cannot be satisfied), (c) has failed, within three Business Days after written request by the Administrative Agent or the Borrower, to confirm in writing to the Administrative Agent and the Borrower that it will comply with its prospective funding obligations hereunder (provided that such Lender shall cease to be a Defaulting Lender pursuant to this clause (c) upon receipt of such written confirmation by the Administrative Agent and the Borrower) or (d) is, or a direct or indirect parent company of such Lender is (i) the subject of a Bail-In Action, (ii) insolvent, or is generally unable to pay its debts as they become due, or admits in writing its inability to pay its debts as they become due, or makes a general assignment for the benefit of its creditors or (iii) the subject of a proceeding under any Debtor Relief Laws, or a receiver, trustee, conservator, intervenor or sequestrator or the like (including the Federal Deposit Insurance Corporation or any other state or federal regulatory authority acting in a like capacity with respect to such Lender) has

been appointed for such Lender or its direct or indirect parent company, or such Lender or its direct or indirect parent company has taken any action in furtherance of or indicating its consent to or acquiescence in any such proceeding or appointment; provided that a Lender shall not be a Defaulting Lender solely by virtue of the ownership or acquisition of any Equity Interest in such Lender or any direct or indirect parent company thereof by a Governmental Authority so long as such ownership interest does not result in or provide such Lender with immunity from the jurisdiction of courts within the United States or from the enforcement of judgments or writs of attachment on its assets or permit such Lender (or such Governmental Authority) to reject, repudiate, disavow or disaffirm any contracts or agreements made with such Lender.

"**Designated Subsidiary**" means each Restricted Subsidiary other than (a) any Subsidiary that is not a wholly owned Subsidiary, (b) any Subsidiary that is a CFC or a CFC Holding Company, (c) unless otherwise agreed by the Borrower, any Subsidiary that is not a Material Subsidiary, (d) any Subsidiary that is prohibited or restricted by applicable law or, in the case of any Person that becomes a Subsidiary after the Closing Date, any Contractual Obligation in effect at the time such Person becomes a Subsidiary (and not entered into in contemplation of or in connection with such Person becoming a Subsidiary) from providing an Obligations Guarantee (including any such prohibition or restriction arising from any requirement to obtain the consent of any Governmental Authority or any third party under such contract or other agreement), (e) any captive insurance company, (f) any not-for-profit Subsidiary, (g) any Receivables Subsidiary or (h) any Subsidiary where the provision of an Obligations Guarantee by such Subsidiary would result in material adverse tax consequences to the Borrower, as reasonably determined by the Borrower in consultation with the Administrative Agent; provided that no Subsidiary shall be excluded pursuant to any of the foregoing clauses of this definition if such Subsidiary shall be an obligor (including pursuant to a Guarantee) under any Permitted Credit Agreement Refinancing Indebtedness or any Permitted Incremental Equivalent Indebtedness.

"**Disposition**" means any sale, transfer, lease or other disposition (including any sale or issuance of Equity Interests in a Restricted Subsidiary) of any property by any Person, including any sale, transfer or other disposition, with or without recourse, of any notes or accounts receivable or any rights and claims associated therewith. "**Dispose**" has the meaning correlative thereto.

"**Disqualified Equity Interest**" means, with respect to any Person, any Equity Interest in such Person that, by its terms (or by the terms of any security or other Equity Interests into which it is convertible or for which it is exchangeable, either mandatorily or at the option of the holder thereof), or upon the occurrence of any event or condition, (a) matures or is mandatorily redeemable (other than solely for Equity Interests in such Person that are not Disqualified Equity Interests and Cash in lieu of fractional shares of such Equity Interests), whether pursuant to a sinking fund obligation or otherwise, (b) is redeemable at the option of the holder thereof (other than solely for Equity Interests in such Person that do not constitute Disqualified Equity Interests and Cash in lieu of fractional shares of such Equity Interests), in whole or in part, or is required to be repurchased by the Borrower or any Restricted Subsidiary, in whole or in part, at the option of the holder thereof or (c) is or becomes convertible into or exchangeable for, either mandatorily or at the option of the holder thereof, Indebtedness or any other Equity Interests (other than solely for Equity Interests in such Person that do not constitute Disqualified Equity Interests and Cash in lieu of fractional shares of such Equity Interests), in each case, prior to the date that is 91 days after the latest Maturity Date (determined as of the date of issuance thereof or, in the case of any such Equity Interests outstanding on the date hereof, the date hereof), except, in the case of clauses (a) and (b), as a result of a "change of control" or "asset sale", so long as any rights of the holders thereof upon the occurrence of such a change of control or asset sale event are subject to the prior payment in full of all Obligations described in clause (a) of the definition of the term "Obligations", the cancelation or expiration of all Letters of Credit and the termination of the Commitments; provided that an Equity Interest in any Person that is issued to any employee or to any plan for the benefit of employees or by any such plan to such employees shall not constitute a Disqualified Equity Interest solely because it may be required to be repurchased by such Person or any of its Subsidiaries in order to satisfy applicable statutory or regulatory obligations or as a result of such employee's termination, death or disability.

"**Disqualified Institution**" means (a) such competitors of the Borrower and its Subsidiaries as have been identified by name in writing by the Borrower to the Administrative Agent prior to the Closing Date or from time to time thereafter and (b) Affiliates of any such Person identified pursuant to clause (a) above (i) that have been identified by name in writing by the Borrower to the Administrative Agent prior to the Closing Date or from time to time thereafter or (ii) where such Affiliate's relationship to such Person is readily apparent on its face from the name of such Affiliate, in each case other than any such Affiliate that is a bank, financial institution or bona fide debt fund or investment vehicle that is engaged in the making, purchasing, holding or otherwise investing in commercial loans or similar extensions of credit in the ordinary course of business and for which no personnel involved with the relevant competitor (A) make investment decisions or (B) have access to non-public information relating to the Borrower or any Subsidiary). Upon the request of any Lender, the Administrative Agent shall make the list of Disqualified Institutions that have been so identified by name pursuant to this definition available to such Lender. It is understood and agreed that any identification by the Borrower pursuant to this definition after the Closing Date shall not apply retroactively to disqualify any assignment or participation to any Person that shall have become a Lender or a participant prior thereto (but that no further assignments or delegations to, or sales of participations by, may be made to any such Person thereafter). Notwithstanding anything to the contrary in this Agreement, each of the parties hereto acknowledges and agrees that the Administrative Agent (x) except for any Person expressly identified by name in writing by the Borrower to the Administrative Agent, shall not have any

responsibility or obligation to determine whether any Lender or any potential assignee Lender is a Disqualified Institution and (y) shall not have any liability with respect to any assignment or participation made to a Disqualified Institution.

"**Dollars**" and the sign "**$**" mean the lawful money of the United States of America.

"**Domestic Subsidiary**" means any Subsidiary organized under the laws of the United States of America, any State thereof or the District of Columbia.

"**Drawing Document**" means any Letter of Credit or other document presented for purposes of drawing under any Letter of Credit.

"**EEA Financial Institution**" means (a) any credit institution or investment firm established in any EEA Member Country that is subject to the supervision of an EEA Resolution Authority, (b) any entity established in an EEA Member Country that is a parent of an institution described in clause (a) above or (c) any financial institution established in an EEA Member Country that is a subsidiary of an institution described in clause (a) or (b) above and is subject to consolidated supervision with its parent.

"**EEA Member Country**" means any of the member states of the European Union, Iceland, Liechtenstein and Norway.

"**EEA Resolution Authority**" means any public administrative authority or any Person entrusted with public administrative authority of any EEA Member Country (including any delegee) having responsibility for the resolution of any EEA Financial Institution.

"**Effective Yield**" means, at any time, with respect to any Loan or other Indebtedness, the all-in yield to stated maturity of such Loan or other Indebtedness based on the interest rate or rates applicable thereto and giving effect to all upfront or similar fees or original issue discount payable to the Lenders or other applicable creditors advancing such Loan or other Indebtedness with respect thereto (but not any arrangement fees, structuring fees, commitment fees, underwriting fees or other fees not paid generally to all such Lenders or other applicable creditors, and excluding any ticking or amendment fees previously paid with respect to such Loans or other Indebtedness) (in each case, with upfront or similar fees being deemed to constitute like amounts of original issue discount, and such fees and original discount being equated to interest margins in a manner consistent with generally accepted financial practice based on an assumed life to maturity of the lesser of four years and the tenor of such Loan or other Indebtedness) and, in the manner set forth below, to any interest rate "floor". If the applicable Loans or other Indebtedness includes any "LIBOR" interest rate floor and, at the time of determination, such floor is greater than the Adjusted LIBO Rate for an Interest Period of three months on such date, such excess amount shall be equated to interest rate margins for purposes of calculating the Effective Yield with respect to such Loans or such Indebtedness, as the case may be. For the purposes of determining Effective Yield with respect to the Term Loans of any Class, if the Term Loans of such Class shall have been incurred at different times with different amounts of original issue discount or upfront or similar fees, then the Effective Yield with respect to the Term Loans of such Class will be determined on the basis of the higher of (i) the original issue discount or upfront or similar fees with respect to such of the Term Loans of such Class as shall have been first made under this Agreement and (ii) the weighted average of the amounts of the original issue discount and/or upfront or similar fees with respect to all the Term Loans of such Class. For purposes of determining the Effective Yield of any floating rate Indebtedness at any time, the rate of interest applicable to such Indebtedness at such time shall be assumed to be the rate applicable at all times prior to maturity; provided that appropriate adjustments shall be made for any scheduled changes in rates of interest provided for in the documents governing such Indebtedness. Determinations of the Effective Yield shall be made by the Administrative Agent at the request of the Borrower and in a manner determined by the Administrative Agent to be consistent with accepted financial practice, and any such determination shall be conclusive, absent manifest error.

"**Eligible Assignee**" means (a) any Lender, any Affiliate of any Lender and any Related Fund (any two or more Related Funds of any Lender being treated as a single Eligible Assignee for all purposes hereof) and (b) any commercial bank, insurance company, investment or mutual fund or other Person that is an "accredited investor" (as defined in Regulation D under the Securities Act) and that extends credit or buys loans in the ordinary course of business; provided that in no event shall any natural person (or any holding company, investment vehicle or trust for, or owned or operated for the primary benefit of, a natural person), any Defaulting Lender, any Disqualified Institution, the Borrower, any Subsidiary or any other Affiliate of the Borrower be an Eligible Assignee.

"**Employee Benefit Plan**" means any "employee benefit plan", as defined in Section 3(3) of ERISA, that is sponsored, maintained or contributed to by, or required to be contributed to by, the Borrower, any Restricted Subsidiary or any of their respective ERISA Affiliates.

"**Environmental Claim**" means any investigation, written notice or demand, claim, action, suit, proceeding, abatement order or other order or directive (conditional or otherwise) by any Governmental Authority or by or on behalf of any other Person, arising (a) pursuant to or in connection with any actual or alleged violation of, or liability under, any Environmental Law, (b) in connection with any presence or Release of any Hazardous Material or any actual or alleged Hazardous Materials

Activity or (c) in connection with any actual or alleged damage, injury, threat or harm to the health and safety of any Person or to natural resources or the environment.

"**Environmental Laws**" means all applicable laws (including common law), statutes, ordinances, orders, rules, regulations, codes, decrees, directives, judgments, Governmental Authorizations or any other requirements of, or binding agreements with, Governmental Authorities relating to (a) pollution or protection of the environment and natural resources, (b) the generation, use, storage, transportation, recycling or disposal, including the arrangement for recycling or disposal, or Release of, or exposure to, Hazardous Materials or (c) occupational safety and health or industrial hygiene, each with respect to the protection of human health from exposure to Hazardous Materials.

"**Equity Interests**" means any and all shares, interests, participations or other equivalents (however designated) of capital stock of a corporation, any and all equivalent ownership interests in a Person (other than a corporation), including partnership interests and membership interests, and any and all warrants, rights or options to purchase or acquire any of the foregoing (other than, prior to the date of such conversion, Indebtedness that is convertible into any such Equity Interests).

"**ERISA**" means the Employee Retirement Income Security Act of 1974.

"**ERISA Affiliate**" means, with respect to any Person, (a) any corporation that is a member of a controlled group of corporations within the meaning of Section 414(b) of the Internal Revenue Code of which such Person is a member, (b) any trade or business (whether or not incorporated) that is a member of a group of trades or businesses under common control within the meaning of Section 414(c) of the Internal Revenue Code of which such Person is a member and (c) for purposes of provisions relating to Section 412 of the Internal Revenue Code, any member of an affiliated service group within the meaning of Section 414(m) or 414(o) of the Internal Revenue Code of which such Person, any corporation described in clause (a) above or any trade or business described in clause (b) above is a member. Any Person that was, but has since ceased to be, an ERISA Affiliate (within the meaning of the previous sentence) of the Borrower or any Restricted Subsidiary shall continue to be considered an ERISA Affiliate of the Borrower or such Restricted Subsidiary within the meaning of this definition for six years after such creation.

"**ERISA Event**" means (a) a "reportable event" within the meaning of Section 4043(c) of ERISA and the regulations issued thereunder with respect to any Pension Plan (excluding those for which the provision for notice to the PBGC is waived), (b) the failure of the Borrower, any Restricted Subsidiary or any of their respective ERISA Affiliates to meet the minimum funding standard of Section 412 of the Internal Revenue Code or Section 302 of ERISA with respect to any Pension Plan, (c) the filing pursuant to Section 412(c) of the Internal Revenue Code or Section 302(c) of ERISA of an application for a waiver of the minimum funding standard with respect to any Pension Plan, (d) the failure to make by its due date a required installment under Section 430(j) of the Internal Revenue Code with respect to any Pension Plan or the failure of the Borrower, any Restricted Subsidiary or any of their respective ERISA Affiliates to make any required contribution to a Multiemployer Plan (unless any such failures are corrected by the final due date for the plan year for which such failures occurred), (e) the provision by the administrator of any Pension Plan pursuant to Section 4041(a)(2) of ERISA of a written notice of intent to terminate such plan in a distress termination described in Section 4041(c) of ERISA, (f) the withdrawal by the Borrower, any Restricted Subsidiary or any of their respective ERISA Affiliates from any Pension Plan with two or more contributing sponsors or the termination of any such Pension Plan resulting in liability to the Borrower, any Restricted Subsidiary or any of their respective Affiliates pursuant to Section 4063 or 4064 of ERISA, (g) the institution by the PBGC of proceedings to terminate any Pension Plan, or the occurrence of any condition or event that could reasonably be expected to constitute grounds under ERISA for the termination of, or the appointment of a trustee to administer, any Pension Plan, (h) the imposition of liability on the Borrower, any Restricted Subsidiary or any of their respective ERISA Affiliates pursuant to Section 4062(e) or 4069 of ERISA or by reason of the application of Section 4212(c) of ERISA, (i) the withdrawal of the Borrower, any Restricted Subsidiary or any of their respective ERISA Affiliates in a complete or partial withdrawal (within the meaning of Sections 4203 and 4205 of ERISA) from any Multiemployer Plan if there is any potential liability therefor, (j) the receipt by the Borrower, any Restricted Subsidiary or any of their respective ERISA Affiliates of notice from any Multiemployer Plan (i) concerning the imposition of withdrawal liability, (ii) that such Multiemployer Plan is in insolvency pursuant to 4245 of ERISA, (iii) that such Multiemployer Plan is in "endangered" or "critical" status (within the meaning of Section 432 of the Internal Revenue Code or Section 305 of ERISA) or (iv) that such Multiemployer Plan intends to terminate or has terminated under Section 4041A or 4042 of ERISA, (k) the occurrence of an act or omission that could reasonably be expected to give rise to the imposition on the Borrower, any Restricted Subsidiary or any of their respective ERISA Affiliates of fines, penalties, taxes or related charges under Chapter 43 of the Internal Revenue Code in respect of any Employee Benefit Plan, (l) the occurrence of an act or omission that could reasonably be expected to give rise to the imposition on the Borrower or any Restricted Subsidiary of fines, penalties, taxes or related charges under Section 409, Section 502(c), 502(i) or 502(l), or Section 4071 of ERISA in respect of any Employee Benefit Plan, (m) the assertion of a claim (other than routine claims for benefits) against any Employee Benefit Plan other than a Multiemployer Plan or the assets thereof, or against the Borrower, any Restricted Subsidiary or any of their respective ERISA Affiliates in connection with any Employee Benefit Plan, (n) a written determination that any Pension Plan is, or is reasonably expected to be, in "at risk" status (as defined in Section 430(i)(4) of the Internal Revenue Code or Section 303(i)(4) of ERISA) with respect to any plan year, (o) the imposition of a Lien pursuant to Section 430(k) of the Internal Revenue Code or ERISA, (p) the occurrence of a non-exempt "prohibited transaction" (as defined in Section 4975 of the Internal Revenue Code or Section 406 of ERISA) or (q) any Foreign Benefit Event.

"**Escrow Account**" means a deposit or securities account of an Escrow Subsidiary established by it at a financial institution (any such financial institution, an "**Escrow Agent**") and that contains solely Escrow Funds with respect to Escrow Indebtedness issued by such Escrow Subsidiary.

"**Escrow Account Documents**" means the agreement(s) governing an Escrow Account and any other documents entered in order to grant to the applicable Escrow Agent (or its designee) Liens on the Escrow Funds on deposit in or credited to such Escrow Account.

"**Escrow Agent**" as defined in the definition of the term "Escrow Account".

"**Escrow Funds**" means the sum of (a) the net proceeds of any Escrow Indebtedness, (b) an amount equal to (i) all interest that could accrue on such Escrow Indebtedness from and including the date of incurrence thereof to and including the date of any potential "special mandatory redemption" (or similar repayment obligation) to occur if the proceeds of such Escrow Indebtedness are not released from the applicable Escrow Account, plus (ii) the amount of any original issue discount on such Escrow Indebtedness, plus (iii) all fees and expenses that are incurred in connection with the incurrence of such Escrow Indebtedness and all fees, expenses or other amounts (for the avoidance of doubt, other than principal) payable in connection with any "special mandatory redemption" (or similar repayment obligation) applicable to such Escrow Indebtedness, and (c) any income, proceeds or products of the foregoing, in each case, so long as each of the foregoing is on deposit in an Escrow Account.

"**Escrow Indebtedness**" means any Indebtedness of an Escrow Subsidiary incurred after the Closing Date, but only so long as (a) all the net proceeds of such Indebtedness are deposited into an Escrow Account upon the incurrence thereof and, in the event such proceeds are not released from such Escrow Account, such proceeds are required, pursuant to the terms of the definitive documents evidencing or governing such Indebtedness, to be applied to redeem or otherwise discharge or satisfy such Indebtedness pursuant to a "special mandatory redemption" provision (or other similar provision) and (b) such Indebtedness is not Guaranteed by any Person other than an Escrow Subsidiary.

"**Escrow Indebtedness Documents**" means, with respect to any Escrow Indebtedness, (a) the definitive documents evidencing or governing the rights of the holders of such Escrow Indebtedness, (b) the Escrow Account Documents relating to such Escrow Indebtedness and (c) any other documents entered into by the applicable Escrow Subsidiary in connection with such Escrow Indebtedness.

"**Escrow Subsidiary**" means a newly formed Subsidiary that (a) shall have been identified to the Administrative Agent as such promptly following its formation and (b) does not hold or have any assets or liabilities other than any Escrow Indebtedness, any Escrow Funds, any Escrow Accounts and such Subsidiary's rights and obligations under any Escrow Indebtedness Documents.

"**EU Bail-In Legislation Schedule**" means the EU Bail-In Legislation Schedule published by the Loan Market Association (or any successor Person), as in effect from time to time.

"**Eurodollar Rate Borrowing**" means a Borrowing comprised of Eurodollar Rate Loans.

"**Eurodollar Rate Loan**" means a Loan bearing interest at a rate determined by reference to the Adjusted Eurodollar Rate.

"**Event of Default**" means any condition or event set forth in Section 8.1.

"**Exchange Act**" means the United States Securities Exchange Act of 1934.

"**Excluded Property**" as defined in the definition of the term "Collateral and Guarantee Requirement".

"**Excluded Swap Obligation**" means, with respect to any Guarantor at any time, any obligation (a "**Swap Obligation**") to pay or perform under any agreement, contract or transaction that constitutes a "swap" within the meaning of section 1a(47) of the Commodity Exchange Act, if, and to the extent that, all or a portion of the guarantee of such Guarantor of, or the grant by such Guarantor of a security interest to secure, such Swap Obligation (or any guarantee thereof) is illegal at such time under the Commodity Exchange Act or any rule, regulation or order of the Commodity Futures Trading Commission (or the application or official interpretation of any thereof) by virtue of such Guarantor's failure for any reason to constitute an "eligible contract participant" as defined in the Commodity Exchange Act at the time such guarantee or grant of a security interest becomes effective with respect to such related Swap Obligation

"**Excluded Taxes**" means any of the following Taxes imposed on or with respect to a Recipient or required to be withheld or deducted from a payment to a Recipient: (a) Taxes imposed on or measured by net income (however denominated), franchise Taxes and branch profits Taxes, in each case, (i) imposed as a result of such Recipient being organized under the laws of, or having its principal office or, in the case of any Lender, its applicable lending office located in, the jurisdiction imposing such

Tax (or any political subdivision thereof) or (ii) that are Other Connection Taxes, (b) in the case of a Lender, United States federal withholding Taxes imposed (or that would be imposed) on amounts payable to or for the account of such Lender with respect to an applicable interest in a Loan or Commitment pursuant to a law in effect on the date on which (i) such Lender acquires such interest in the Loan or Commitment (other than pursuant to an assignment requested by the Borrower under Section 2.22) or (ii) such Lender changes its lending office, except in each case to the extent that, pursuant to Section 2.19, amounts with respect to such Taxes were payable either to such Lender's assignor immediately before such Lender acquired the applicable interest in such Loan or Commitment or to such Lender immediately before it changed its lending office, (c) Taxes attributable to such Recipient's failure to comply with Section 2.19(g) and (d) any United States federal withholding Taxes imposed under FATCA.

"**Existing Credit Agreements**" means (a) the Term Credit and Guaranty Agreement dated as of April 30, 2014, as amended, and (b) the ABL Credit and Guaranty Agreement dated as of April 30, 2014, as amended, in each case among the Borrower, certain subsidiaries of the Borrower party thereto, the lenders party thereto and Goldman Sachs **Bank USA**, as administrative agent and collateral agent.

"**Existing Letter of Credit**" means (a) each letter of credit previously issued by any Issuing Bank for the account of the Borrower or a Restricted Subsidiary that is outstanding on the Closing Date and listed on Schedule 2.3A and (b) any other letter of credit that is issued by any Issuing Bank for the account of the Borrower or any Restricted Subsidiary and, subject to compliance with the requirements set forth in Section 2.3 as to the maximum Total Utilization of Revolving Commitments and Letter of Credit Usage and expiration of Letters of Credit, is designated as an Existing Letter of Credit by written notice thereof by the Borrower and such Issuing Bank to the Administrative Agent (which notice shall contain a representation and warranty by the Borrower as of the date thereof that the conditions precedent set forth in Sections 3.2(b) and 3.2(c) shall be satisfied immediately after giving effect to such designation).

"**Existing Revolving Borrowings**" as defined in Section 2.23(e)(i).

"**Extended/Modified Commitments**" as defined in the definition of the term "Extension/Modification Permitted Amendment".

"**Extended/Modified Loans**" as defined in the definition of the term "Extension/Modification Permitted Amendment".

"**Extended/Modified Term Loan Maturity Date**" means, with respect to Extended/Modified Term Loans of any Class, the scheduled date on which such Extended/Modified Term Loans shall become due and payable in full hereunder, as specified n the applicable Extension/Modification Agreement.

"**Extended/Modified Term Loans**" as defined in the definition of the term "Extension/Modification Permitted Amendment".

"**Extending/Modifying Lenders**" as defined in Section 2.24(a).

"**Extension/Modification Agreement**" means an Extension/Modification Agreement, in form and substance reasonably satisfactory to the Administrative Agent and the Borrower, among the Borrower, the Administrative Agent and one or more Extending/Modifying Lenders, effecting one or more Extension/Modification Permitted Amendments and such other amendments hereto and to the other Credit Documents as are contemplated by Section 2.24.

"**Extension/Modification Offer**" as defined in Section 2.24(a).

"**Extension/Modification Permitted Amendment**" means an amendment to this Agreement and the other Credit Documents, effected in connection with an Extension/Modification Offer pursuant to Section 2.24, providing for (a) an extension of the Maturity Date and/or (b) an increase or decrease in the yield with respect to such Extended/Modified Term Loans (including any increase or decrease in, or an introduction of, interest margins, benchmark rate floors, fixed interest rates or fees or premiums), in each case, applicable to the Loans and/or Commitments of the Extending/Modifying Lenders of the applicable Extension/Modification Request Class (such Loans or Commitments being referred to as the "**Extended/Modified Loans**" or "**Extended/Modified Commitments**", as applicable) and, in connection therewith:

(a) in the case of any Extended/Modified Loans that are Term Loans of any Class (such Extended/Modified Loans being referred to as the "**Extended/Modified Term Loans**"), any modification of the scheduled amortization resulting therefrom, provided that the weighted average life to maturity of such Extended/Modified Term Loans shall be no shorter than the remaining weighted average life to maturity of the Loans of the applicable Extension/Modification Request Class, determined at the time of such Extension/Modification Offer (and, for purposes of determining the weighted average life to maturity of any such Term Loans, the effects of any prepayments made prior to the date of the determination shall be disregarded),

(b) a modification of voluntary or mandatory prepayments resulting therefrom applicable to such Extended/Modified Term Loans (including prepayment premiums, "no call" terms and other restrictions thereon), provided that in the case of any Extended/Modified Term Loans, such requirements may provide that such Extended/Modified Term Loans may participate in any mandatory prepayments on a pro rata basis (or on a basis that is less than pro rata) with the Term Loans of the applicable Extension/Modification Request Class, but may not provide for mandatory prepayment requirements that are more favorable than those applicable to the Term Loans of the applicable Extension/Modification Request Class,

(c) an increase in the fees payable to, or the inclusion of new fees to be payable to, the Extending/Modifying Lenders in respect of such Extension/Modification Offer or their Extended/Modified Term Loans or Extended/Modified Commitments, as applicable, and/or

(d) an addition of any covenants applicable to the Borrower and/or the Restricted Subsidiaries, provided that to the extent such covenants are not consistent with those applicable to the Loans or Commitments of the applicable Extension/Modification Request Class, such differences shall be reasonably satisfactory to the Administrative Agent (except for covenants (i) beneficial to the Lenders where this Agreement is amended to include such covenants for the benefit of all Lenders or (ii) applicable only to periods after the latest Maturity Date in effect at the time of effectiveness of the applicable Extension/Modification Agreement).

"**Extension/Modification Request Class**" as defined in Section 2.24(a).

"**Facility**" means any real property (including all buildings, fixtures or other improvements located thereon) now, hereafter or heretofore owned, leased, operated or used by the Borrower or any Restricted Subsidiary or any of their respective predecessors or Affiliates.

"**Fair Share**" as defined in Section 7.2(b).

"**Fair Share Contribution Amount**" as defined in Section 7.2(b).

"**FATCA**" means Sections 1471 through 1474 of the Internal Revenue Code, as of the date of this Agreement (or any amended or successor version that is substantively comparable and not materially more onerous to comply with), any current or future regulations or official interpretations thereof, any agreements entered into pursuant to Section 1471(b)(1) of the Internal Revenue Code, and any fiscal or regulatory legislation, rules or practices adopted pursuant to any intergovernmental agreement, treaty or convention among Governmental Authorities and implementing such Sections of the Internal Revenue Code.

"**Federal Funds Effective Rate**" means, for any day, the rate per annum equal to the weighted average of the rates on overnight Federal funds transactions with members of the Federal Reserve System on such day, as published by the Federal Reserve Bank of New York on the Business Day next succeeding such day; provided that (a) if such day is not a Business Day, the Federal Funds Effective Rate for such day shall be such rate on such transactions on the next preceding Business Day as so published on the next succeeding Business Day, and (b) if no such rate is so published on such next succeeding Business Day, the Federal Funds Effective Rate for such day shall be the average rate charged to the Administrative Agent on such day on such transactions as shall be determined by the Administrative Agent, provided that, notwithstanding the foregoing, the Federal Funds Effective Rate shall at no time be less than zero.

"**Financial Covenant**" means the covenant contained in Section 6.7.

"**Financial Officer**" means, with respect to any Person, any individual holding the position of chief financial officer, treasurer, corporate controller or director of treasury operations of such Person; provided that, when such term is used in reference to any document executed by, or a certification of, a Financial Officer, the secretary or assistant secretary of such Person shall have delivered an incumbency certificate to the Administrative Agent as to the authority of such individual.

"**Financial Officer Certification**" means, (a) with respect to any consolidated financial statements of the Borrower, a certificate of the chief financial officer or the chief accounting officer of the Borrower stating that such financial statements present fairly, in all material respects, the consolidated financial position of the Borrower and its Subsidiaries as of the dates indicated and the consolidated results of their operations and their cash flows for the periods indicated in conformity with GAAP applied on a consistent basis (except as otherwise disclosed in such financial statements), subject to changes resulting from audit and normal year-end adjustments and the absence of certain footnotes, and (b) with respect to any Unrestricted Subsidiary Reconciliation Statement, a certificate of the chief financial officer of the Borrower stating that such reconciliation statement accurately reflects all adjustments necessary to treat the Unrestricted Subsidiaries as if they were not consolidated with the Borrower and to otherwise eliminate all accounts of the Unrestricted Subsidiaries and reflects no other adjustment from the related GAAP financial statement (except as otherwise disclosed in such reconciliation statement).

"**Fiscal Quarter**" means a fiscal quarter of any Fiscal Year.

"**Fiscal Year**" means the fiscal year of the Borrower and its Subsidiaries ending on December 31 of each calendar year.

"**Fixed Amounts**" as defined in Section 1.2(c).

"**Flood Certificate**" means a life of loan "Standard Flood Hazard Determination Form" of the Federal Emergency Management Agency.

"**Flood Hazard Property**" means any Real Estate Asset subject to a Mortgage or required pursuant to the terms hereof to become subject to a Mortgage in favor of the Collateral Agent, for the benefit of the Secured Parties, and located in an area designated by the Federal Emergency Management Agency as having special flood or mud slide hazards.

"**Flood Program**" means the National Flood Insurance Program created by the US Congress pursuant to (a) the National Flood Insurance Act of 1968, (b) the Flood Disaster Protection Act of 1973, (c) the National Flood Insurance Reform Act of 1994, (d) the Flood Insurance Reform Act of 2004 and (e) the Biggert-Waters Flood Insurance Reform Act of 2012.

"**Flood Zone**" means areas having special flood hazards as described in the National Flood Insurance Act of 1968, as now or hereafter in effect or any successor statute thereto.

"**Foreign Benefit Event**" means, with respect to any Foreign Pension Plan, (a) the existence of unfunded liabilities in excess of the amount permitted under any applicable law, (b) the failure to make the required contributions or payments, under any applicable law, on or before the due date for such contributions or payments (including any applicable grace period) or (c) the receipt of a notice from an applicable Governmental Authority relating to the intention to terminate any such Foreign Pension Plan or to appoint a trustee or similar official to administer any such Foreign Pension Plan, in either case to protect the interests of the participants or to avoid any unreasonable deterioration of the financial condition of the Foreign Pension Plan or any unreasonable increase in liability with respect to the Foreign Pension Plan or alleging the insolvency of any such Foreign Pension Plan, in each case, which could reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect.

"**Foreign Lender**" means a Lender that is not a US Person.

"**Foreign Pension Plan**" means any material defined benefit plan described in Section 4(b)(4) of ERISA that under applicable law is required to be funded through a trust or other funding vehicle, other than a trust or funding vehicle maintained exclusively by a Governmental Authority.

"**Foreign Subsidiary**" means any Subsidiary that is not a Domestic Subsidiary.

"**Fronting Exposure**" means, at any time there is a Revolving Lender that is a Defaulting Lender, with respect to any Issuing Bank, such Defaulting Lender's applicable Pro Rata Share of the Letter of Credit Usage attributable to Letters of Credit issued by such Issuing Bank, other than any portion of such Pro Rata Share that (a) shall have been funded by such Defaulting Lender pursuant to Section 2.3(e) or (b) has been reallocated to other Revolving Lenders in accordance with Section 2.21(a)(iii) or Cash Collateralized in accordance with the terms hereof.

"**Funding Notice**" means a notice substantially in the form of Exhibit F.

"**GAAP**" means, at any time, subject to Section 1.2(a), United States generally accepted accounting principles as in effect at such time, applied in accordance with the consistency requirements thereof.

~~"**Goldman Sachs**~~" as defined in the preamble hereto.

"**Governmental Act**" means any act or omission, whether rightful or wrongful, of any present or future de jure or de facto government or Governmental Authority.

"**Governmental Authority**" means any federal, state, municipal, national, supranational or other government, governmental department, commission, board, bureau, court, agency or instrumentality or political subdivision thereof or any entity, officer or examiner exercising executive, legislative, judicial, regulatory or administrative functions of or pertaining to any government or any court, in each case whether associated with the United States of America, any State thereof or the District of Columbia or a foreign entity or government (including any supra-national body exercising such powers or functions, such as the European Union or the European Central Bank).

"**Governmental Authorization**" means any permit, license, registration, approval, exemption, authorization, plan, directive, binding agreement, consent order or consent decree made to, or issued, promulgated or entered into by or with, any Governmental Authority.

"**Guarantee**" of or by any Person (the "**guarantor**") means any obligation, contingent or otherwise, of the guarantor guaranteeing or having the economic effect of guaranteeing any Indebtedness of any other Person (the "**primary obligor**") in any manner, whether directly or indirectly, and including any obligation of the guarantor, direct or indirect, (a) to purchase or pay (or advance or supply funds for the purchase or payment of) such Indebtedness or to purchase (or to advance or supply funds for the purchase of) any security for the payment thereof, (b) to purchase or lease property, Securities or services for the purpose of assuring the owner of such Indebtedness of the payment thereof, (c) to maintain working capital, equity capital or any other financial statement condition or liquidity of the primary obligor so as to enable the primary obligor to pay such Indebtedness or (d) as an account party in respect of any letter of credit or letter of guaranty issued to support such Indebtedness; provided that the term "Guarantee" shall not include (i) endorsements for collection or deposit in the ordinary course of business or (ii) reasonable indemnity obligations entered into in connection with any Acquisition or any Disposition permitted hereunder (other than any such obligations with respect to Indebtedness). The amount, as of any date of determination, of any Guarantee shall be the principal amount outstanding on such date of Indebtedness guaranteed thereby (or, in the case of (A) any Guarantee the terms of which limit the monetary exposure of the guarantor or (B) any Guarantee of an obligation that does not have a principal amount, the maximum monetary exposure as of such date of the guarantor under such Guarantee (as determined, in the case of clause (A), pursuant to such terms or, in the case of clause (B), reasonably and in good faith by the chief financial officer of the Borrower)).

"**Guarantor Subsidiary**" means each Restricted Subsidiary that is a party hereto as a "Guarantor Subsidiary" and a party to the Pledge and Security Agreement as a "Grantor" thereunder (it being understood, for the avoidance of doubt, that no Subsidiary that is excluded from being a Designated Subsidiary shall be required to be a Guarantor Subsidiary).

"**Guarantors**" means each Guarantor Subsidiary; provided that, for purposes of Section 7, the term "Guarantors" shall also include the Borrower solely for purposes of the Guarantee of Obligations of the other Credit Parties pursuant to Section 7.

"**Hazardous Materials**" means any chemical, material, waste or substance that is prohibited, limited or regulated by or pursuant to any Environmental Law, and any petroleum products, distillates or byproducts and all other hydrocarbons, radon, asbestos or asbestos-containing materials, urea formaldehyde foam insulation, polychlorinated biphenyls, chlorofluorocarbons and all other ozone-depleting substances, and heavy metals.

"**Hazardous Materials Activity**" means any activity, event or occurrence involving any Hazardous Materials, including the generation, use, storage, transportation, recycling or disposal, including the arrangement for recycling or disposal, or Release of, or exposure to, or presence of, any Hazardous Materials, and any treatment, abatement, removal, remediation, corrective action or response action with respect to any of the foregoing.

"**Hedge Agreement**" means any agreement with respect to any swap, forward, future or derivative transaction, or any option or similar agreement, involving, or settled by reference to, one or more rates, currencies, commodities, prices of equity or debt securities or instruments, or economic, financial or pricing indices or measures of economic, financial or pricing risk or value, or any similar transaction or combination of the foregoing transactions; provided that no phantom stock, stock option, stock appreciation right or similar plan or right providing for payments only on account of services provided by current or former directors, officers, employees or consultants of the Borrower or its Subsidiaries shall be a Hedge Agreement.

"**Highest Lawful Rate**" means the maximum lawful interest rate, if any, that at any time or from time to time may be contracted for, charged or received under the laws applicable to any Lender that are presently in effect or, to the extent allowed by law, under such applicable laws that may hereafter be in effect and that allow a higher maximum nonusurious interest rate than applicable laws now allow.

"**Historical Financial Statements**" means (a) the audited consolidated balance sheets and related audited statements of operations, comprehensive income, equity and cash flows, in each case prepared in conformity with GAAP, of the Borrower and its consolidated Subsidiaries for the Fiscal Year ended December 31, 2017 and (b) the unaudited consolidated balance sheets and related unaudited consolidated statements of operations, comprehensive income, equity and cash flows, in each case prepared in conformity with GAAP, of the Borrower and its consolidated Subsidiaries for the Fiscal Quarters ended March 31, 2018, June 30, 2018 and September 29, 2018.

"**Incremental Amount**" means, as of any date of determination, an amount equal to:

(a) the excess of (i) the sum of (A) the greater of (1) $400,000,000 and (2) 100% of Consolidated Adjusted EBITDA for the Test Period most recently ended on or prior to such date (determined after giving Pro Forma Effect to the incurrence of Indebtedness with respect to which the Incremental Amount is being determined and the use of proceeds thereof), plus (B) the sum of (1) the aggregate principal amount of the Tranche B Term Loans voluntarily prepaid by the Borrower pursuant to Section 2.12(a) or, to the extent of Cash spent, repurchased by the Borrower pursuant to Section 10.6(i), in each case, prior to such date and (2) the aggregate amount of reductions of the Revolving Commitments pursuant to Section 2.12(b) prior to such date (excluding any such reduction in connection with a refinancing thereof), in each case under this clause (B), to the extent not financed with the proceeds of any Long-Term Indebtedness (other than revolving credit Indebtedness), minus (ii) the sum of (A) the aggregate outstanding

principal amount of Incremental Term Loans (or, to the extent established but not yet funded, the aggregate amount of Incremental Term Commitments in effect) that shall have been established prior to such date in reliance on this clause (a), (B) the aggregate amount of Incremental Revolving Commitments that shall have been established prior to such date in reliance on this clause (a) and (C) the aggregate outstanding principal amount of any Permitted Incremental Equivalent Indebtedness that shall have been incurred prior to such date in reliance on this clause (a) (the amounts available on such date under this clause (a) being referred to as the "**Unrestricted Incremental Amount**"), plus

(b) an additional amount so long as, in the case of this clause (b), after giving Pro Forma Effect to the incurrence of Indebtedness with respect to which the Incremental Amount is being determined and the use of proceeds thereof (but without netting the Cash proceeds of such Indebtedness and any other Indebtedness incurred substantially concurrently therewith), and assuming, solely for purposes of this determination, that the entire amount of the Incremental Commitments with respect to which the Incremental Amount is being determined are fully funded as Loans, (i) in the case of the establishment of any Incremental Commitments or the incurrence of any Permitted Incremental Equivalent Indebtedness that is secured, the Secured Net Leverage Ratio, determined as of the last day of the Test Period most recently ended on or prior to such date, shall not exceed 2:75:1.00 or (ii) in the case of incurrence of any Permitted Incremental Equivalent Indebtedness that is Permitted Unsecured Indebtedness, either (A) the Total Net Leverage Ratio, determined as of the last day of the Test Period most recently ended on or prior to such date, shall not exceed 4.50:1.00 or (B) solely in the case of the incurrence of any such Permitted Incremental Equivalent Indebtedness the proceeds of which are used to finance an Acquisition, the Total Net Leverage Ratio, determined as of the last day of the Test Period most recently ended on or prior to such date, shall not exceed the Total Net Leverage Ratio, determined as of such date but without giving Pro Forma Effect to the incurrence of such Indebtedness and the use of proceeds thereof;

provided that (I) if, for purposes of determining capacity under clause (b) above, Pro Forma Effect is given to the entire committed amount of any Indebtedness with respect to which the Incremental Amount is being determined, such committed amount may thereafter be borrowed and reborrowed, in whole or in part, from time to time, without any further testing under this definition (provided that such committed amount shall, solely for purposes of calculating availability under clause (b) above, at all times thereafter be deemed to be fully funded as Indebtedness for borrowed money), (II) in the case of any Incremental Commitments or Permitted Incremental Equivalent Indebtedness established or incurred concurrently in reliance on the Unrestricted Incremental Amount and in reliance on clause (b) above, the amount of such Incremental Commitments or Permitted Incremental Equivalent Indebtedness established or incurred in reliance on the Unrestricted Incremental Amount shall be disregarded for purposes of calculating the Secured Net Leverage Ratio or the Total Net Leverage Ratio, as applicable, under clause (b) above, (III) in the case of any Incremental Commitments or Permitted Incremental Equivalent Indebtedness established or incurred in reliance on clause (b) above, any Revolving Loans incurred concurrently therewith or any other Indebtedness incurred concurrently therewith pursuant to and in accordance with any clause of Section 6.1 that does not require observance of the Secured Net Leverage Ratio or the Total Net Leverage Ratio shall be disregarded for purposes of calculating the Secured Net Leverage Ratio or the Total Net Leverage Ratio, as applicable, under clause (b) above, (IV) in the case of any Incremental Term Loan Commitment or Permitted Incremental Equivalent Indebtedness established or incurred in reliance on clause (b) above, to the extent the proceeds thereof are intended to be applied to finance a Limited Conditionality Transaction, at the election of the Borrower, Pro Forma Compliance with the Secured Net Leverage Ratio or the Total Net Leverage Ratio, as applicable, may be tested in accordance with the provisions of Section 1.2(e), (V) any portion of any Incremental Commitments or Permitted Incremental Equivalent Indebtedness established or incurred in reliance on clause (a) above may be reclassified, as the Borrower may elect from time to time, as incurred under clause (b) above if the Borrower meets the Secured Net Leverage Ratio or the Total Net Leverage Ratio, as applicable, at such time determined on a Pro Forma Basis~~,~~ **and** (VI) any Incremental Commitments and Permitted Incremental Equivalent Indebtedness may be established or incurred in reliance on clause (a) or (b) above regardless of whether there is capacity under any such other clause above, or may be established or incurred in reliance in part on clause (a) or (b) above and in part on any such other clause above, all as determined by the Borrower in its sole discretion, provided that absent an election by the Borrower, to the extent that the applicable requirements have been satisfied, such incurrence shall be deemed to have been made pursuant to clause (b) above ~~and (VII) the Permitted Versum Existing Credit Agreement Indebtedness and the Permitted Versum Existing Notes shall be deemed to have been incurred in reliance on clause (b) above~~.

"**Incremental Commitment**" means an Incremental Revolving Commitment or an Incremental Term Loan Commitment.

"**Incremental Facility Agreement**" means an Incremental Facility Agreement, in form and substance reasonably satisfactory to the Administrative Agent and the Borrower, among the Borrower, the Administrative Agent and one or more Incremental Lenders, establishing Incremental Commitments of any Class, specifying the purposes for which the proceeds of the Loans made pursuant thereto will be used and effecting such other amendments hereto and to the other Credit Documents as are contemplated by Section 2.23.

"**Incremental Lender**" means an Incremental Revolving Lender or an Incremental Term Lender

"**Incremental Revolving Commitment**" means, with respect to any Lender, the commitment, if any, of such Lender, established pursuant to an Incremental Facility Agreement and Section 2.23, to make Revolving Loans and to acquire

participations in Letters of Credit hereunder, expressed as an amount representing the maximum aggregate permitted amount of such Lender's Revolving Exposure under such Incremental Facility Agreement.

"**Incremental Revolving Lender**" means a Lender with an Incremental Revolving Commitment.

"**Incremental Term Lender**" means a Lender with an Incremental Term Loan Commitment or an Incremental Term Loan.

"**Incremental Term Loan**" means a term loan made by an Incremental Term Lender to the Borrower pursuant to Section 2.23.

"**Incremental Term Loan Commitment**" means, with respect to any Lender, the commitment, if any, of such Lender, established pursuant to an Incremental Facility Agreement and Section 2.23, to make Incremental Term Loans of any Class hereunder, expressed as an amount representing the maximum principal amount of the Incremental Term Loans of such Class to be made by such Lender, subject to any increase or reduction pursuant to the terms and conditions hereof. The initial amount of each Lender's Incremental Term Loan Commitment of any Class, if any, is set forth in the Incremental Facility Agreement or Assignment Agreement pursuant to which such Lender shall have established or assumed its Incremental Term Loan Commitment of such Class.

"**Incremental Term Loan Maturity Date**" means, with respect to Incremental Term Loans of any Class, the scheduled date on which such Incremental Term Loans shall become due and payable in full hereunder, as specified in the applicable Incremental Facility Agreement.

"**incur**" means to create, incur, assume or, in the case of any Indebtedness, otherwise become liable with respect to such Indebtedness.

"**Incurrence-Based Amounts**" as defined in Section 1.2(c).

"**Indebtedness**" means, with respect to any Person, without duplication, (a) all obligations of such Person for borrowed money, (b) all obligations of such Person evidenced by bonds, debentures, notes or similar instruments, (c) all obligations of such Person under conditional sale or other title retention agreements relating to property acquired by such Person (excluding trade accounts payable incurred in the ordinary course of business), (d) all obligations of such Person in respect of deferred purchase price of property or services (excluding (i) current accounts payable incurred in the ordinary course of business, (ii) deferred compensation payable to directors, officers or employees of such Person or any of its Subsidiaries and (iii) any purchase price adjustment or earnout obligation incurred in connection with any Acquisition until such obligation (A) becomes fixed and determined and (B) has not been paid within 30 days after becoming due and payable, (e) all Capital Lease Obligations of such Person, (f) the maximum aggregate amount (determined after giving effect to any prior drawings or reductions that have been reimbursed) of all letters of credit and letters of guaranty in respect of which such Person is an account party, (g) the principal component of all obligations, contingent or otherwise, of such Person in respect of bankers' acceptances, (h) all Indebtedness of others secured by any Lien on any property owned or acquired by such Person, whether or not the Indebtedness secured thereby has been assumed by such Person, valued, as of any date of determination, at the lesser of (i) the principal amount of such Indebtedness and (ii) the fair value of such property (as determined in good faith by such Person), (i) all Guarantees by such Person of Indebtedness of others and (j) all Disqualified Equity Interests in such Person, valued, as of the date of determination, at the greater of (i) the maximum aggregate amount that would be payable upon maturity, redemption, repayment or repurchase thereof (or of Disqualified Equity Interests or Indebtedness into which such Disqualified Equity Interests are convertible or exchangeable) and (ii) the maximum liquidation preference of such Disqualified Equity Interests. The Indebtedness of any Person shall include the Indebtedness of any partnership in which such Person is a general partner to the extent such Person is liable therefor as a result of such Person's ownership interest in such other Person, except to the extent the terms of such Indebtedness provide that such Person is not liable therefor.

"**Indemnified Liabilities**" means any and all liabilities, obligations, losses, damages (including natural resource damages), penalties, claims (including Environmental Claims), actions, judgments, suits, costs (including the costs of any investigation, study, sampling, or testing of any Hazardous Materials and any Hazardous Materials Activity), expenses and disbursements of any kind or nature whatsoever (including the reasonable fees, expenses and other charges of counsel and consultants for the Indemnitees in connection with any investigative, administrative or judicial proceeding or hearing commenced or threatened by any Person (including by any Credit Party or any Affiliate thereof), whether or not any such Indemnitee shall be designated as a party or a potential party thereto (but limited, in the case of any one such proceeding or hearing, to fees, expenses and other charges of one firm of primary counsel and one firm of local counsel in each applicable jurisdiction for all the Indemnitees (and, if any Indemnitee shall have advised the Borrower that there is an actual or perceived conflict of interest, one additional firm of primary counsel and one additional firm of local counsel in each applicable jurisdiction for each group of affected Indemnitees that are similarly situated), and any fees or expenses incurred by the Indemnitees in enforcing this indemnity), whether direct, indirect, special, consequential or otherwise and whether based on any federal, state or foreign laws, statutes, rules or regulations (including securities and commercial laws, statutes, rules or regulations and Environmental Laws), on common law

or equitable causes of action or on contract or otherwise, that may be imposed on, incurred by or asserted against any such Indemnitee, in any manner relating to or arising out of (a) this Agreement or the other Credit Documents or the transactions contemplated hereby or thereby (including the Lenders' agreement to make Credit Extensions, the issuance, amendment, extension or renewal of any Letter of Credit by any Issuing Bank (including the failure of any Issuing Bank to honor a drawing under any Letter of Credit as a result of any Governmental Act), the syndication of the credit facilities provided for herein or the use or intended use of the proceeds thereof, any amendments, waivers or consents with respect to any provision of this Agreement or any of the other Credit Documents, or any enforcement of any of the Credit Documents (including any sale of, collection from, or other realization upon any of the Collateral or the enforcement of the Obligations Guarantee)), (b) any commitment letter, engagement letter, fee letter or other letter or agreement delivered by any Agent, any Arranger, any Issuing Bank or any Lender to the Borrower, or any Affiliate thereof, in connection with the arrangement of the credit facilities provided for herein or in connection with the transactions contemplated by this Agreement or (c) any Environmental Claim or any Hazardous Materials Activity directly or indirectly relating to or arising from any past or present activity, operation, land ownership, or practice of the Borrower or any Subsidiary; provided that none of the foregoing shall include any Taxes, other than Taxes that represent liabilities, obligations, losses, damages, penalties, claims, costs, expenses or disbursements relating to or arising from any non-Tax action, judgment, suit or claim.

"**Indemnified Taxes**" means (a) Taxes, other than Excluded Taxes, imposed on or with respect to any payment made by or on account of any obligation of any Credit Party under any Credit Document and (b) to the extent not otherwise described in clause (a), Other Taxes.

"**Indemnitee**" as defined in Section 10.3.

"**Installment**" means (a) when used in respect of the Tranche B Term Loans or Tranche B Term Borrowings, each payment of the principal amount thereof due under Section 2.11(a) (including the payment due on the Tranche B Term Loan Maturity Date) and (b) when used in respect of any Term Loans or Term Borrowings of any other Class, each payment of the principal amount thereof due under Section 2.11(b) (including the payment due on the Maturity Date applicable to the Term Loans of such Class).

"**Insurance/Condemnation Event**" means any casualty or other insured damage to, or any taking under the power of eminent domain or by condemnation or similar proceeding of, or any Disposition under a threat of such taking of, all or any part of any assets of the Borrower or any Restricted Subsidiary, other than any of the foregoing resulting in aggregate Net Proceeds not exceeding $10,000,000.

"**Intellectual Property**" as defined in the Pledge and Security Agreement.

"**Intellectual Property Security Agreements**" as defined in the Pledge and Security Agreement.

"**Intercompany Indebtedness Subordination Agreement**" means an Intercompany Indebtedness Subordination Agreement substantially in the form of Exhibit G.

"**Interest Payment Date**" means (a) with respect to any Base Rate Loan, the last Business Day of March, June, September and December of each year, commencing on the first such date to occur after the Closing Date, and (b) with respect to any Eurodollar Rate Loan, the last day of each Interest Period applicable to such Loan and, in the case of any such Loan with an Interest Period of longer than three months' duration, each date that is three months, or an integral multiple thereof, after the commencement of such Interest Period.

"**Interest Period**" means, with respect to any Eurodollar Rate Borrowing, the period commencing on the date of such Borrowing and ending on the numerically corresponding day in the calendar month that is one week, one month, two months, three months or six months thereafter (or, in the case of any Eurodollar Rate Borrowing of any Class, such longer period thereafter as shall have been consented to by each Lender of such Class), as selected by the Borrower in the applicable Funding Notice or Conversion/Continuation Notice; provided that (a) if an Interest Period would otherwise end on a day that is not a Business Day, such Interest Period shall be extended to the next succeeding Business Day unless (other than in the case of a one week Interest Period) no succeeding Business Day occurs in such month, in which case such Interest Period shall end on the immediately preceding Business Day, (b) any Interest Period of longer than one week that commences on the last Business Day of a calendar month (or on a day for which there is no numerically corresponding day in the calendar month at the end of such Interest Period) shall, subject to clause (c) below, end on the last Business Day of the last calendar month of such Interest Period and (c) notwithstanding anything to the contrary in this Agreement, no Interest Period for a Eurodollar Rate Borrowing of any Class may extend beyond the Maturity Date for Borrowings of such Class. For purposes hereof, the date of a Eurodollar Rate Borrowing shall initially be the date on which such Borrowing is made and thereafter shall be the effective date of the most recent conversion or continuation of such Borrowing.

"**Interest Rate Determination Date**" means, with respect to any Interest Period, the date that is two Business Days prior to the first day of such Interest Period.

"**Internal Revenue Code**" means the Internal Revenue Code of 1986, as amended.

"**Internally Generated Cash**" means, with respect to any period, net Cash of the Borrower and the Restricted Subsidiaries provided by operating activities of the Borrower and the Restricted Subsidiaries during such period, excluding (a) Net Proceeds of any Disposition (other than Dispositions of inventory and other Dispositions in the ordinary course of business) or any Insurance/Condemnation Event, (b) proceeds of any incurrence or issuance of Long-Term Indebtednesses (other than revolving credit Indebtedness) and (c) proceeds of any issuance or sale of Equity Interests in the Borrower.

"**Investment**" means, with respect to a specified Person, any Equity Interests, evidences of Indebtedness or other Securities (including any option, warrant or other right to acquire any of the foregoing) of, or any capital contribution or loans or advances (other than advances made in the ordinary course of business that would be recorded as accounts receivable on the balance sheet of the specified Person prepared in conformity with GAAP) to, Guarantees of any Indebtedness of (including any such Guarantees arising as a result of the specified Person being a co-maker of any note or other instrument or a joint and several co-applicant with respect to any letter of credit or letter of guaranty), or any investment in the form of a transfer of property for consideration that is less than the fair value thereof (as determined reasonably and in good faith by the chief financial officer of the Borrower) to, any other Person that are held or made by the specified Person. The amount, as of any date of determination, of (a) any Investment in the form of a loan or an advance shall be the aggregate principal amount thereof made on or prior to such date of determination, minus the amount, as of such date of determination, of any Returns with respect thereto, but without any adjustment for write-downs or write-offs (including as a result of forgiveness of any portion thereof) with respect to such loan or advance after the date thereof, (b) any Investment in the form of a Guarantee shall be determined in accordance with the definition of the term "Guarantee", (c) any Investment in the form of a purchase or other acquisition for value of any Equity Interests, evidences of Indebtedness or other Securities of any Person shall be the fair value (as determined reasonably and in good faith by the chief financial officer of the Borrower) of the consideration therefor (including any Indebtedness assumed in connection therewith), plus the fair value (as so determined) of all additions, as of such date of determination, thereto, and minus the amount, as of such date of determination, of any Returns with respect thereto, but without any other adjustment for increases or decreases in value of, or write-ups, write-downs or write-offs with respect to, such Investment after the time of such Investment and (d) any Investment (other than any Investment referred to in clause (a), (b) or (c) above) in the form of a transfer of Equity Interests or other property by the investor to the investee, including any such transfer in the form of a capital contribution, shall be the fair value (as determined reasonably and in good faith by the chief financial officer of the Borrower) of such Equity Interests or other property as of the time of such transfer (less, in the case of any investment in the form of transfer of property for consideration that is less than the fair value thereof, the fair value (as so determined) of such consideration as of the time of the transfer), minus the amount, as of such date of determination, of any Returns with respect thereto, but without any other adjustment for increases or decreases in value of, or write-ups, write-downs or write-offs with respect to, such Investment after the time of such transfer.

"**IRS**" means the United States Internal Revenue Service.

"**ISP**" means, with respect to any Letter of Credit, the "International Standby Practices 1998" published by the Institute of International Banking Law & Practice, Inc. (or such later version thereof as may be in effect at the time of issuance).

"**Issuance Notice**" means an Issuance Notice substantially in the form of Exhibit H.

"**Issuing Bank**" means (a) each Person set forth on Schedule 2.3B **(for the avoidance of doubt, as of the Amendment No. 2 Effective Date, as amended and restated pursuant to Amendment No. 2)** and (b) any other Revolving Lender (or an Affiliate thereof) that shall have become an Issuing Bank as provided herein, other than any such Person that shall have ceased to be an Issuing Bank as provided herein, each in its capacity as an issuer of Letters of Credit hereunder. Each Issuing Bank may, in its discretion, arrange for one or more Letters of Credit to be issued by Affiliates of such Issuing Bank, in which case the term "Issuing Bank" shall include any such Affiliate with respect to Letters of Credit issued by such Affiliate (it being agreed that such Issuing Bank shall, or shall cause such Affiliate to, comply with the requirements of Section 2.4 with respect to such Letters of Credit).

"**Junior Indebtedness**" means (a) any Permitted Senior Notes Indebtedness, (b) any Permitted Credit Agreement Refinancing Indebtedness and any Permitted Incremental Equivalent Indebtedness that, in each case, is Permitted Junior Lien Secured Indebtedness or Permitted Unsecured Indebtedness and (c) any Subordinated Indebtedness, other than any Subordinated Indebtedness owing to the Borrower or any Restricted Subsidiary.

"**Junior Lien Intercreditor Agreement**" means, with respect to any Permitted Junior Lien Secured Indebtedness, an intercreditor agreement, in form and substance reasonably satisfactory to the Administrative Agent and the Borrower, that contains terms and conditions that are within the range of terms and conditions customary for intercreditor agreements that are of the type that govern intercreditor relationships between holders of senior secured credit facilities and holders of the same type of Indebtedness as such Permitted Junior Lien Secured Indebtedness.

"**Leasehold Property**" means, as of any time of determination, any leasehold interest then owned by any Credit Party in any leased real property.

"**Lender**" means each Person listed on the signature pages hereto as a Lender, and any other Person that shall have become a party hereto in accordance with the terms hereof pursuant to an Assignment Agreement, an Incremental Facility Agreement or a Refinancing Facility Agreement, other than any such Person that shall have ceased to be a party hereto pursuant to an Assignment Agreement.

"**Lender Presentation**" means the Lender Presentation dated October 25, 2018, including the private supplement thereto, relating to this Agreement and the credit facilities provided for herein.

"**Letter of Credit**" means a letter of credit issued or to be issued by any Issuing Bank pursuant to this Agreement and any Existing Letter of Credit, in each case other than any Letter of Credit that ceases to be a "Letter of Credit" outstanding hereunder pursuant to Section 10.8.

"**Letter of Credit Indemnified Costs**" as defined in Section 2.3(k).

"**Letter of Credit Issuing Commitment**" means, with respect to any Issuing Bank, the commitment, if any, of such Issuing Bank to issue Letters of Credit, expressed as an amount representing the maximum aggregate Letter of Credit Usage attributable to Letters of Credit issued by such Issuing Bank. The ~~initial~~ amount of each Issuing Bank's Letter of Credit Issuing Commitment on the ~~Closing~~**Amendment No. 2 Effective** Date~~, if any,~~ is set forth on Schedule 2.3B **(for the avoidance of doubt, as of the Amendment No. 2 Effective Date, as amended and restated pursuant to Amendment No. 2)**. The aggregate amount of the Letter of Credit Issuing Commitments as of the ~~Closing~~**Amendment No. 2 Effective** Date is $35,000,000.

"**Letter of Credit Sublimit**" means $35,000,000; provided that the Letter of Credit Sublimit may be increased at any time by the written agreement of the Borrower, the Administrative Agent and each Issuing Bank that will provide a Letter of Credit Issuing Commitment to the Borrower in an aggregate amount for the Issuing Banks party to such agreement that is not less than the amount of such increase.

"**Letter of Credit Usage**" means, at any time, the sum of (a) the maximum aggregate amount that is, or at any time thereafter pursuant to the terms thereof may become, available for drawing under all Letters of Credit outstanding at such time (regardless of whether any conditions for drawing could then be met) and (b) the aggregate amount of all drawings under Letters of Credit honored by the Issuing Banks and not theretofore reimbursed by or on behalf of the Borrower. For all purposes of this Agreement, if on any date of determination a Letter of Credit has expired by its terms but any amount may still be drawn thereunder by reason of the operation of Rule 3.14 of the ISP, such Letter of Credit shall be deemed to be "outstanding" in the amount so remaining available to be drawn.

"**Lien**" means any lien, mortgage, pledge, assignment, security interest, charge or encumbrance of any kind (including any conditional sale or other title retention agreement, and any lease or license in the nature thereof) and any option, trust or other preferential arrangement having the practical effect of any of the foregoing.

"**Limited Conditionality Transaction**" means (a) any Acquisition or Investment (other than an intercompany Investment), including by way of merger, amalgamation or consolidation, (b) any Disposition or (c) any Restricted Junior Payment of the type referred to in clause (c) of the definition of such term with respect to which an irrevocable notice of prepayment or redemption is required.

"**Loan**" means a Revolving Loan, a Tranche B Term Loan, an Incremental Term Loan of any Class, an Extended/Modified Term Loan of any Class or a Refinancing Term Loan of any Class.

"**Long-Term Indebtedness**" means any Indebtedness that, in conformity with GAAP, constitutes (or, when incurred, constituted) a long-term liability.

"**Majority in Interest**", when used in reference to Lenders of any Class, means, at any time, (a) in the case of the Revolving Lenders, Lenders having Revolving Exposures and unused Revolving Commitments representing more than 50% of the sum of the Revolving Exposures and unused Revolving Commitments of all the Revolving Lenders at such time and (b) in the case of the Term Lenders of any Class, Lenders having Term Loan Exposure of such Class representing more than 50% of the Term Loan Exposure of all the Term Lenders of such Class at such time. For purposes of this definition, the amount of Revolving Exposures, unused Revolving Commitments and Term Loan Exposures of any Class shall be determined by excluding the Revolving Exposure, unused Revolving Commitment and Term Loan Exposure of such Class of any Defaulting Lender.

"**Margin Stock**" as defined in Regulation U.

"**Material Adverse Effect**" means a material adverse effect on (a) the business, results of operations, assets, liabilities (actual or contingent) or financial condition of the Borrower and the Restricted Subsidiaries taken as a whole, (b) the

ability of the Credit Parties (taken as a whole) to fully and timely perform any of their payment obligations under the Credit Documents or (c) the rights and remedies available to, or conferred upon, any Agent or any Lender under the Credit Documents.

"**Material Indebtedness**" means (a) any Permitted Senior Notes Indebtedness, any Permitted Credit Agreement Refinancing Indebtedness and any Permitted Incremental Equivalent Indebtedness and (b) any other Indebtedness (other than the Loans and Guarantees under the Credit Documents), or obligations in respect of one or more Hedge Agreements, of any one or more of the Borrower and the Restricted Subsidiaries in an aggregate principal amount of $100,000,000 or more. In the case of any Material Indebtedness that is a Guarantee of any other Indebtedness, each reference to "Material Indebtedness" shall be deemed to include a reference to such Guaranteed Indebtedness. For purposes of determining Material Indebtedness, (i) the "principal amount" of the obligations of the Borrower or any Restricted Subsidiary in respect of any Hedge Agreement at any time shall be the maximum aggregate amount (giving effect to any netting agreements) that the Borrower or such Restricted Subsidiary would be required to pay if such Hedge Agreement were terminated at such time and (ii) the principal amount of any Permitted Securitization shall be determined as set forth in the definition of such term.

"**Material Real Estate Asset**" means each Real Estate Asset located in the United States acquired by any Credit Party after the Closing Date (or owned by any Person that becomes a Credit Party after the Closing Date and located in the United States) that, together with the improvements thereon and all contiguous and all related parcels and the improvements thereon, has a fair value of $20,000,000 or more (as determined reasonably and in good faith by an Authorized Officer of the Borrower), in each case, as of the time of acquisition of such Real Estate Asset by such Credit Party or as of the time such Person becomes a Credit Party, as applicable.

"**Material Subsidiary**" means each Restricted Subsidiary (a) the total assets of which (determined on a consolidated basis for such Restricted Subsidiary and its Restricted Subsidiaries, but excluding all amounts attributable to Unrestricted Subsidiaries) equal 2.5% or more of the Consolidated Total Assets or (b) the consolidated revenues of which (determined on a consolidated basis for such Restricted Subsidiary and its Restricted Subsidiaries) equal 2.5% or more of the consolidated revenues of the Borrower and the Restricted Subsidiaries, in each case as of the last day of the most recently ended Test Period; provided that if at the end of or for any Test Period the combined consolidated total assets or combined consolidated revenues of all Restricted Subsidiaries that under clauses (a) and (b) above would not constitute Material Subsidiaries would, but for this proviso, exceed 5.0% of the Consolidated Total Assets or 5.0% of the consolidated revenues of the Borrower and the Restricted Subsidiaries, then one or more of such excluded Restricted Subsidiaries shall for all purposes of this Agreement be deemed to be Material Subsidiaries in descending order based on the amounts (determined on a consolidated basis for such Restricted Subsidiary and its Restricted Subsidiaries) of their total assets or revenues, as the case may be, until such excess shall have been eliminated. At all times prior to the first delivery of financial statements pursuant to Section 5.1(a) or 5.1(b), determinations under this definition shall be made based on the Historical Financial Statements.

"**Maturity Date**" means the Revolving Maturity Date, the Tranche B Term Loan Maturity Date, the Incremental Term Loan Maturity Date with respect to the Incremental Term Loans of any Class, the Extended/Modified Term Loan Maturity Date with respect to the Extended/Modified Term Loans of any Class or the Refinancing Term Loan Maturity Date with respect to the Refinancing Term Loans of any Class, as the context requires.

"**Moody's**" means Moody's Investors Service, Inc., or any successor to its rating agency business.

**"Morgan Stanley**" as defined in the preamble hereto.

"**Mortgage**" means a mortgage, deed of trust, assignment of leases and rents or other security document granting a Lien on any Material Real Estate Asset in favor of the Collateral Agent, for the benefit of the Secured Parties, as security for the Obligations. Each Mortgage shall be in form and substance reasonably satisfactory to the Collateral Agent.

"**Multiemployer Plan**" means any Employee Benefit Plan that is a "multiemployer plan" as defined in Section 3(37) of ERISA to which the Borrower, any Restricted Subsidiary or any of their respective ERISA Affiliates makes or is obligated to make contributions.

"**Net Proceeds**" means, with respect to any event, (a) the Cash (which term, for purposes of this definition, shall include Cash Equivalents) proceeds (including, in the case of any Insurance/Condemnation Event, insurance, condemnation and similar proceeds) received in respect of such event, including any Cash received in respect of any non-Cash proceeds, but only as and when received, net of (b) the sum, without duplication, of (i) all fees and out of pocket costs and expenses incurred in connection with such event by the Borrower or any Restricted Subsidiary to Persons that are not Affiliates of the Borrower (including attorneys', accountants' and consultants' fees, investment banking and advisory fees and underwriting discounts and commissions), (ii) in the case of any Asset Sale or any Insurance/Condemnation Event, (A) the amount of all payments (including in respect of principal, accrued interest and premiums) required to be made by the Borrower and the Restricted Subsidiaries as a result of such event (x) to repay Indebtedness (other than Loans, Permitted Credit Agreement Refinancing Indebtedness or Permitted Incremental Equivalent Indebtedness) secured by the assets subject thereto and (y) in the case of any Asset Sale by, or any Insurance/Condemnation Event affecting the assets of, a Restricted Subsidiary that is CFC or CFC Holding Company, to repay

any Indebtedness of such CFC or CFC Holding Company and (B) the amount of all payments reasonably estimated to be required to be made by the Borrower and the Restricted Subsidiaries in respect of purchase price adjustment, indemnification and similar contingent liabilities that are directly attributable to such event or in respect of any retained liabilities associated with such event (including pension and other post-employment benefit liabilities and environmental liabilities), (iii) the amount of all Taxes (including transfer taxes, deed or recording taxes and repatriation taxes or any withholding or deduction) paid (or reasonably estimated to be payable) by the Borrower and the Restricted Subsidiaries in connection with such event and (iv) in the case of any proceeds from any Asset Sale by, or any Insurance/Condemnation Event affecting the assets of, a Restricted Subsidiary that is not a wholly-owned Subsidiary, the portion of such proceeds received by such Restricted Subsidiary attributable to the noncontrolling interests in such Restricted Subsidiary, in each case as determined reasonably and in good faith by the chief financial officer of the Borrower. For purposes of this definition, in the event any estimate with respect to contingent liabilities or Taxes as described in clause (b)(ii)(B) or (b)(iii) above shall be reduced, the amount of such reduction shall, except to the extent such reduction is made as a result of a payment having been made in respect of the applicable contingent liabilities or Taxes, be deemed to be receipt, on the date of such reduction, of Cash proceeds in respect of such event.

"**Non-Defaulting Lender**" means, at any time, each Lender that is not a Defaulting Lender at such time.

"**Note**" means a promissory note issued to any Lender pursuant to Section 2.6(c).

"**Obligations**" means (a) all obligations of every nature of each Credit Party under this Agreement and the other Credit Documents, whether for principal, interest (including default interest accruing pursuant to Section 2.9 and interest (including such default interest) that would continue to accrue pursuant to Credit Documents on any such obligation after the commencement of any proceeding under any Debtor Relief Law with respect to any Credit Party, whether or not such interest is allowed or allowable against such Credit Party in any such proceeding), reimbursement of amounts drawn under Letters of Credit, fees (including commitment fees and prepayment fees), reimbursement of expenses, indemnification or otherwise, (b) all Specified Hedge Obligations, excluding, with respect to any Guarantor, Excluded Swap Obligations with respect to such Guarantor, and (c) all Specified Cash Management Services Obligations.

"**Obligations Guarantee**" means the Guarantee of the Obligations created under Section 7.

"**OFAC**" means the United States Treasury Department Office of Foreign Assets Control.

"**Open Market Purchase**" as defined in Section 10.6(i)(B).

"**Organizational Documents**" means (a) with respect to any corporation or company, its certificate or articles of incorporation, organization or association, as amended, and its bylaws, as amended, (b) with respect to any limited partnership, its certificate or declaration of limited partnership, as amended, and its partnership agreement, as amended, (c) with respect to any general partnership, its partnership agreement, as amended, and (d) with respect to any limited liability company, its certificate of formation or articles of organization, as amended, and its operating agreement, as amended, and in the case of any Foreign Subsidiary, any analogous organizational documents. In the event any term or condition of this Agreement or any other Credit Document requires any Organizational Document to be certified by a secretary of state or similar governmental official, the reference to any such "Organizational Document" shall only be to a document of a type customarily certified by such governmental official.

"**Other Connection Taxes**" means, with respect to any Recipient, Taxes imposed as a result of a present or former connection between such Recipient and the jurisdiction imposing such Tax (other than connections arising solely from such Recipient having executed, delivered, become a party to, performed its obligations under, received payments under, received or perfected a security interest under, engaged in any other transaction pursuant to or enforced any Credit Document, or sold or assigned an interest in any Loan or Credit Document).

"**Other Taxes**" means any and all present or future stamp, court or documentary, intangible, recording, filing or similar Taxes that arise from any payment made under, from the execution, delivery, performance, enforcement or registration of, from the receipt or perfection of a security interest under, or otherwise with respect to, this Agreement or any other Credit Document, except any such Taxes that are Other Connection Taxes imposed with respect to an assignment (other than an assignment made pursuant to Section 2.22)

"**Pari Passu Intercreditor Agreement**" means, with respect to any Permitted Pari Passu Secured Indebtedness, an intercreditor agreement that is in form and substance reasonably satisfactory to the Administrative Agent and the Borrower and containing terms and conditions that are within the range of terms and conditions customary for intercreditor agreements that are of the type that govern intercreditor relationships between holders of senior secured credit facilities and holders of the same type of Indebtedness as such Permitted Pari Passu Secured Indebtedness ~~or, in the case of the Permitted Versum Existing Credit Agreement Indebtedness, is substantially in the form of Exhibit L~~.

"**Participant Register**" as defined in Section 10.6(g)(i).

"**PATRIOT Act**" means the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act (Title III of Pub. L. 107-56).

"**PBGC**" means the Pension Benefit Guaranty Corporation.

"**Pension Plan**" means any Employee Benefit Plan, other than a Multiemployer Plan, that is subject to Section 412 of the Internal Revenue Code or is covered by Title IV of ERISA.

"**Permitted Acquisition**" means any Acquisition by the Borrower or any of its wholly owned Restricted Subsidiaries; provided that:

(a) immediately prior and after giving effect thereto, no Event of Default shall have occurred and be continuing or would result therefrom;

(b)(i) in the case of any Acquisition of Equity Interests in a Person, each of such Person and its Subsidiaries will become a Restricted Subsidiary (or will be merged or consolidated with or into the Borrower or any Restricted Subsidiary, with the continuing or surviving Person being the Borrower (in the case of any such transaction involving the Borrower) or a Restricted Subsidiary) and (ii) in the case of any Acquisition of other assets, such assets will be owned by the Borrower or any Restricted Subsidiary;

(c) all actions required to be taken with respect to such Person or such assets, as the case may be, in order to satisfy the requirements set forth in clauses (a), (b) and (c) of the definition of the term "Collateral and Guarantee Requirement" (subject to the discretion of the Collateral Agent set forth in such definition) shall have been taken (or arrangements for the taking of such actions satisfactory to the Collateral Agent shall have been made) (it being understood that all other requirements set forth in such definition that are applicable to such Acquisition shall be required to be satisfied in accordance with (and within the time periods provided in) Sections 5.10 and 5.11); and

(d) the business of any such acquired Person, or such acquired assets, as the case may be, constitutes a business permitted by Section 6.11.

"**Permitted Credit Agreement Refinancing Indebtedness**" means Indebtedness permitted under Section 6.1(k).

"**Permitted Credit Agreement Refinancing Indebtedness Documents**" means any credit agreement, indenture or other agreement or instrument evidencing or governing the rights of the holders of any Permitted Credit Agreement Refinancing Indebtedness.

"**Permitted Encumbrances**" means:

(a) Liens imposed by law for Taxes that are not overdue by more than 30 days or are being contested in good faith in compliance with Section 5.3, if adequate reserves with respect thereto are maintained by the applicable Person in conformity with GAAP;

(b) carriers', warehousemen's, mechanics', materialmen's, repairmen's, construction contractors' and other like Liens imposed by law (other than any Lien imposed pursuant to Section 430(k) of the Internal Revenue Code or Section 303(k) of ERISA or a violation of Section 436 of the Internal Revenue Code) arising in the ordinary course of business and securing obligations that are not overdue by more than 30 days or are being contested in compliance with Section 5.3, if adequate reserves with respect thereto are maintained by the applicable Person in conformity with GAAP;

(c) pledges and deposits made (i) in the ordinary course of business in compliance with workers' compensation, unemployment insurance and other social security laws (other than any Lien imposed pursuant to Section 430(k) of the Internal Revenue Code or Section 303(k) of ERISA or a violation of Section 436 of the Internal Revenue Code) and (ii) in respect of letters of credit, bank guarantees or similar instruments issued for the account of the Borrower or any Restricted Subsidiary in the ordinary course of business supporting obligations of the type set forth in clause (i) above;

(d) pledges and deposits made (i) in the ordinary course of business to secure the performance of bids, trade contracts (other than for payment of Indebtedness), leases (other than capital leases), statutory obligations (other than any Lien imposed pursuant to Section 430(k) of the Internal Revenue Code or Section 303(k) of ERISA or a violation of Section 436 of the Internal Revenue Code), surety and appeal bonds, performance bonds, completion guarantees and other obligations of a like nature (including those to secure health, safety and environmental obligations) and (ii) in respect of letters of credit, bank guarantees or similar instruments issued for the account of the Borrower or any Restricted Subsidiary in the ordinary course of business supporting obligations of the type set forth in clause (i) above;

(e) judgment liens in respect of judgments that do not constitute an Event of Default under Section 8.1(h);

(f) easements, zoning restrictions, rights-of-way, encroachments, protrusions and similar encumbrances on real property imposed by law or arising in the ordinary course of business that do not secure any monetary obligations and do not materially detract from the value of the affected property or interfere with the ordinary conduct of business of the Borrower and the Restricted Subsidiaries, taken as a whole and other matters on title that are reasonably acceptable to the Collateral Agent;

(g) any zoning or similar law or right reserved to or vested in any Governmental Authority to control or regulate the use of any real property that does not materially interfere with the ordinary conduct of the business of the Borrower and the Restricted Subsidiaries, taken as a whole;

(h) ground leases in respect of real property on which facilities owned or leased by the Borrower or any Restricted Subsidiary are located;

(i) banker's liens, rights of set-off or similar rights and remedies as to deposit accounts or other funds maintained with depository institutions; provided that such deposit accounts or funds are not established or deposited for the purpose of providing collateral for any Indebtedness and are not subject to restrictions on access by the Borrower or any Restricted Subsidiary in excess of those required by applicable banking regulations;

(j) Liens encumbering reasonable customary initial deposits and margin deposits and similar Liens attaching to commodity trading accounts or other brokerage accounts incurred in the ordinary course of business and not for speculative purposes;

(k) Liens of a collection bank arising under Section 4-210 of the Uniform Commercial Code on the items in the course of collection;

(l) Liens arising by virtue of precautionary UCC financing statement filings (or similar filings under applicable law) regarding operating leases entered into by the Borrower and the Restricted Subsidiaries in the ordinary course of business;

(m) Liens representing any interest or title of a lessor or sublessor, or a lessee or sublessee, in the property subject to any lease (other than any capital lease) permitted by this Agreement (and all encumbrances and other matters affecting such interest or title);

(n) Liens in favor of customs and revenue authorities arising as a matter of law to secure payment of customs duties in connection with the importation of goods;

(o) (i) Liens arising out of conditional sale, title retention, consignment or similar arrangements for the sale of goods in the ordinary course of business and bailment arrangements entered into in the ordinary course of business (excluding any general inventory financing) and permitted by this Agreement and (ii) Liens arising by operation of law under Article 2 of the Uniform Commercial Code (and any similar provision of any other requirement of law) in favor of a seller or buyer of goods;

(p) Liens that are customary contractual rights of set-off;

(q) Liens on specific items of inventory or other goods and proceeds thereof securing obligations in respect of documentary letters of credit issued to facilitate the purchase, shipment or storage of such inventory or such other goods;

(r) deposits of Cash with the owner or lessor of premises leased and operated by the Borrower or any Restricted Subsidiary to secure the performance of its obligations under the lease for such premises, in each case in the ordinary course of business; and

(s) leases, nonexclusive licenses, subleases or nonexclusive sublicenses granted to others in the ordinary course of business that do not interfere in any material respect with the ordinary course of business of the Borrower and the Restricted Subsidiaries, taken as a whole; and

(t) Liens on Cash and Cash Equivalents deposited with a trustee or a similar Person to defease or to satisfy and discharge any Permitted Senior Notes Indebtedness or any other Indebtedness, provided that such defeasance or satisfaction and discharge is permitted hereunder;

provided that the term "Permitted Encumbrances" shall not include any Lien securing Indebtedness, other than Liens referred to in clauses (c), (d), (q) or (t) above securing letters of credit, bank guarantees and similar instruments.

"**Permitted Incremental Equivalent Indebtedness**" means Indebtedness permitted under Section 6.1(j).

"**Permitted Incremental Equivalent Indebtedness Documents**" means any credit agreement, indenture or other agreement or instrument evidencing or governing the rights of the holders of any Permitted Incremental Equivalent Indebtedness.

"**Permitted Intercreditor Agreement**" means any Junior Lien Intercreditor Agreement or any Pari Passu Intercreditor Agreement.

"**Permitted Junior Lien Secured Indebtedness**" means any secured Indebtedness of the Borrower and/or any Guarantor Subsidiary in the form of one or more series of junior lien secured notes, bonds, debentures or loans, and the Guarantees thereof by any Credit Party; provided that (a) such Indebtedness is secured by Liens on all or a portion of the Collateral on a junior priority basis with the Liens on the Collateral securing the Obligations and is not secured by any assets of the Borrower or any Restricted Subsidiary other than the Collateral, (b) such Indebtedness is not Guaranteed by any Subsidiaries other than the Guarantor Subsidiaries and (c) the administrative agent, collateral agent, trustee and/or any similar representative acting on behalf of the holders of such Indebtedness shall have become party to a Junior Lien Intercreditor Agreement providing that the Liens on the Collateral securing such Indebtedness shall rank junior in priority to the Liens on the Collateral securing the Obligations; provided that if such Indebtedness is the initial Permitted Junior Lien Secured Indebtedness incurred by the Borrower and the Guarantor Subsidiaries, then the Borrower and the Guarantor Subsidiaries shall have executed and delivered the Junior Lien Intercreditor Agreement (or an acknowledgement thereof in the form specified therein) and the Administrative Agent agrees to execute and deliver, on behalf of the Lenders and the other Secured Parties, the Junior Lien Intercreditor Agreement. It is understood and agreed that, notwithstanding Section 1.2(d), Permitted Junior Lien Secured Indebtedness may only be incurred and outstanding in reliance on Section 6.1(j) or 6.1(k).

"**Permitted Lien**" means any Lien permitted by Section 6.2.

"**Permitted Pari Passu Secured Indebtedness**" means any secured Indebtedness of the Borrower and/or any Guarantor Subsidiary in the form of one or more series of senior secured notes, bonds, debentures or loans, and the Guarantees thereof by any Credit Party; provided that (a) such Indebtedness is secured by Liens on all or a portion of the Collateral on a pari passu basis with the Liens on the Collateral securing the Obligations (it being understood that the determination as to whether such Liens are on a pari passu basis shall be made without regard to control of remedies) and is not secured by any assets of the Borrower or any Restricted Subsidiary other than the Collateral, (b) such Indebtedness is not Guaranteed by any Subsidiaries other than the Guarantor Subsidiaries and (c) the administrative agent, collateral agent, trustee and/or any similar representative acting on behalf of the holders of such Indebtedness shall have become party to a Pari Passu Intercreditor Agreement providing that the Liens on the Collateral securing such Indebtedness shall rank equal in priority to the Liens on the Collateral securing the Obligations (it being understood that the determination as to whether such Liens rank equal in priority shall be made without regard to control of remedies); provided that if such Indebtedness is the initial Permitted Pari Passu Secured Indebtedness incurred by the Borrower and the Guarantor Subsidiaries, then the Borrower and the Guarantor Subsidiaries shall have executed and delivered the Pari Passu Intercreditor Agreement (or an acknowledgement thereof in the form specified therein) and the Administrative Agent agrees to execute and deliver, on behalf of the Lenders and the other Secured Parties, the Pari Passu Intercreditor Agreement. It is understood and agreed that, notwithstanding Section 1.2(d), Permitted Pari Passu Secured Indebtedness may only be incurred and outstanding in reliance on Section 6.1(j) or 6.1(k).

"**Permitted Securitization**" means any receivables financing program providing for (a) the sale, transfer or conveyance of trade receivables by the Borrower or its Subsidiaries to a Receivables Subsidiary in a transaction or series of transactions purporting to be sales, and (b) the sale, transfer or conveyance of, or granting a Lien in, such trade receivables by a Receivables Subsidiary to any other Person, in each case under clause (a) or (b) above, without any recourse to the Borrower and its Subsidiaries (other than the Receivables Subsidiaries), whether pursuant to a Guarantee or otherwise, other than customary representations, warranties, covenants, indemnities and servicing obligations that are usual and customary for securitization transactions involving trade receivables. The "amount" or "principal amount" of any Permitted Securitization shall be deemed at any time to be (i) in the case of any Permitted Securitization where the sale, transfer or conveyance referred to in clause (a) above is funded by the incurrence of Indebtedness or other Securities that are to receive payments from, or that represent interests in, the cash flow derived from the applicable trade receivables, the aggregate principal or stated amount of such Indebtedness or other Securities (or, if there shall be no such principal or stated amount, the uncollected amount of the trade receivable sold, transferred or conveyed pursuant to such Permitted Securitization, net of any such trade receivable that have been written off as uncollectible), and (ii) in the case of any Permitted Securitization involving a direct sale, transfer or conveyance by a Receivables Subsidiary to one or more investors or purchasers, the uncollected amount of the trade receivables transferred pursuant to such Permitted Securitization, net of any such trade receivables that have been written off as uncollectible.

"**Permitted Senior Notes Indebtedness**" means Indebtedness permitted under Section 6.1(l).

"**Permitted Senior Notes Indebtedness Documents**" means the Senior Notes and any other credit agreement, indenture or other agreement or instrument evidencing or governing the rights of the holders of any Permitted Senior Notes Indebtedness.

"**Permitted Stock Repurchases**" as defined in Section 6.4(g).

"**Permitted Unsecured Indebtedness**" means any Indebtedness of the Borrower and/or any Guarantor Subsidiary in the form of one or more series of senior unsecured or subordinated unsecured notes, bonds, debentures or loans; provided that (a) such Indebtedness is not secured by any Liens on any assets of the Borrower or any Restricted Subsidiary and (b) such Indebtedness is not Guaranteed by any Subsidiaries other than the Guarantor Subsidiaries.

~~"**Permitted Versum Existing Credit Agreement Indebtedness**" means any Indebtedness of the Borrower and/or any Guarantor Subsidiary under the Versum Existing Credit Agreement; provided that (a) the aggregate principal amount of all such Indebtedness at any time outstanding shall not exceed the lesser of (A) the sum of (i) the aggregate principal amount of the "Term Loans" under, and as defined in, the Versum Existing Credit Agreement outstanding on the Amendment No. 1 Effective Date and (ii) the aggregate amount of the "Revolving Commitments" under, and as defined in, the Versum Existing Credit Agreement in effect on the Amendment No. 1 Effective Date or (B) the sum of (i) the aggregate principal amount of such "Term Loans" outstanding on the date of the consummation of the Versum Merger (after giving effect to any repayment thereof on such date) and (ii) the aggregate amount of such "Revolving Commitments" in effect on the date of the consummation of the Versum Merger (after giving effect to any termination thereof on such date) and (b) such Indebtedness qualifies as Permitted Pari Passu Secured Indebtedness.~~

~~"**Permitted Versum Existing Notes**" means any Indebtedness of the Borrower and/or any Guarantor Subsidiary under the Versum Existing Notes; provided that (a) the aggregate principal amount of all such Indebtedness at any time outstanding shall not exceed the lesser of (i) the aggregate principal amount of the Versum Existing Notes outstanding on the Amendment No. 1 Effective Date and (ii) the aggregate principal amount of the Versum Existing Notes outstanding on the date of the consummation of the Versum Merger (after giving effect to any redemption thereof on such date) and (b) such Indebtedness qualifies as Permitted Unsecured Indebtedness.~~

"**Person**" means any natural person, corporation, limited partnership, general partnership, limited liability company, limited liability partnership, joint stock company, joint venture, association, company, trust, bank, trust company, land trust, business trust or other organization, whether or not a legal entity, and any Governmental Authority.

"**Platform**" means IntraLinks/IntraAgency, SyndTrak or another similar website or other information platform.

"**Pledge and Security Agreement**" means the Pledge and Security Agreement dated as of the date hereof, among the Credit Parties and the Collateral Agent, together with all supplements thereto.

"**Post-Closing Letter Agreement**" means the Post-Closing Letter Agreement dated as of the date hereof, among the Borrower, the Administrative Agent and the Collateral Agent.

"**Previously Absent Financial Maintenance Covenant**" means, at any time, (a) any financial maintenance covenant that is not included in this Agreement at such time and (b) any financial maintenance covenant that is included in this Agreement at such time but has covenant levels or effectiveness triggers that are more restrictive on the Borrower and the Restricted Subsidiaries than the covenant levels or effectiveness triggers set forth in this Agreement at such time.

"**Prime Rate**" means the rate of interest quoted in the print edition of *The Wall Street Journal*, Money Rates Section as the Prime Rate (currently defined as the base rate on corporate loans posted by at least 70% of the nation's 10 largest banks), as in effect from time to time. The Prime Rate is a reference rate and does not necessarily represent the lowest or best rate actually charged to any customer. Any Agent and any Lender may make commercial loans or other loans at rates of interest at, above or below the Prime Rate.

"**Private Lenders**" means Lenders that wish to receive Private-Side Information.

"**Private-Side Information**" means any information with respect to the Borrower and its Subsidiaries that is not Public-Side Information.

"**Pro Forma Basis**", "**Pro Forma Compliance**" and "**Pro Forma Effect**" means, with respect to any Pro Forma Event, that such Pro Forma Event and the following transactions in connection therewith (to the extent applicable) shall be deemed to have occurred as of the first day of the applicable period of measurement for the applicable covenant or requirement: (a) historical income statement items (whether positive or negative) attributable to the property or Person, if any, subject to such Pro Forma Event, (i) in the case of a Disposition of a business unit, division, product line or line of business of the Borrower or a Restricted Subsidiary, a Disposition that otherwise results in a Restricted Subsidiary ceasing to be a Subsidiary or a designation of a Subsidiary as an Unrestricted Subsidiary, shall be excluded, and (ii) in the case of an Acquisition by the Borrower or a Restricted Subsidiary, whether by merger, consolidation or otherwise, or any other Investment that results in a Person becoming a Restricted Subsidiary or a designation of a Subsidiary as a Restricted Subsidiary, shall be included, (b) any repayment, retirement, redemption, satisfaction and discharge or defeasance of Indebtedness and (c) any Indebtedness incurred or assumed by the Borrower or any of

the Restricted Subsidiaries in connection therewith, and if such Indebtedness has a floating or formula rate, such Indebtedness shall have an implied rate of interest for the applicable period for purposes of this definition determined by utilizing the rate which is or would be in effect with respect to such Indebtedness as at the relevant date of determination (taking into account any hedging obligations applicable to such Indebtedness if such hedging obligation has a remaining term in excess of 12 months). "Pro Forma Basis", "Pro Forma Compliance" and "Pro Forma Effect" in respect of any Pro Forma Event shall be calculated in a reasonable and factually supportable manner by the Borrower and in the manner that is consistent with the definition of Consolidated Adjusted EBITDA. For the avoidance of doubt, the amount of net cost savings, operating expense reductions, other operating improvements and synergies projected by the Borrower in good faith to be realized as a result of actions taken or to be taken in connection with any Pro Forma Event may be included in Consolidated Adjusted EBITDA in the manner, and subject to the limitations, set forth in the definition of such term.

"**Pro Forma Event**" means (a) any Acquisition by the Borrower or a Restricted Subsidiary, whether by merger, consolidation or otherwise, or any other Investment, that results in a Person becoming a Subsidiary, (b) any Disposition of a business unit, division, product line or line of business of the Borrower or a Restricted Subsidiary and any other Disposition that results in a Restricted Subsidiary ceasing to be a Subsidiary, (c) any designation of a Subsidiary as a Restricted Subsidiary or as an Unrestricted Subsidiary, (d) any incurrence or issuance or repayment, retirement, redemption, satisfaction and discharge or defeasance of Indebtedness or (e) any Restricted Junior Payment or any other transaction where the consummation thereof, or the determination of whether such transaction is permitted to be consummated under this Agreement, requires that a financial ratio or test be calculated on a Pro Forma Basis or after giving Pro Forma Effect to such transaction; provided that any such Acquisition, Investment or Disposition involving consideration of less than $50,000,000 shall, in each case in the sole discretion of the Borrower, be deemed not to constitute a Pro Forma Event hereunder.

"**Pro Rata Share**" means, with respect to any Lender, at any time, (a) when used in reference to payments, computations and other matters relating to the Tranche B Term Loans or Tranche B Term Borrowings, the percentage obtained by dividing (i) the Tranche B Term Loan Exposure of such Lender at such time by (ii) the aggregate Tranche B Term Loan Exposure of all the Lenders at such time, (b) when used in reference to payments, computations and other matters relating to Term Loan Commitments, Term Loans or Term Borrowings of any other Class, the percentage obtained by dividing (i) the Term Loan Exposure of such Lender with respect to such Class at such time by (ii) the aggregate Term Loan Exposure of all the Lenders with respect to such Class at such time, (c) when used in reference to payments, computations and other matters relating to the Revolving Commitments, Revolving Loans, Revolving Borrowings or Letters of Credit or participations therein or Letter of Credit Usage, the percentage obtained by dividing (i) the Revolving Commitment of such Lender at such time by (ii) the aggregate Revolving Commitments of all the Lenders at such time, provided that if the Revolving Commitments have terminated or expired, the Pro Rata Share under this clause (c) shall be determined based upon the Revolving Commitments most recently in effect, giving effect to any assignments, and (d) when used for any other purpose (including under Section 9.6), the percentage obtained by dividing (i) an amount equal to the sum of the Tranche B Term Loan Exposure, the Term Loan Exposure of each such other Class and the Revolving Commitments of such Lender at such time by (ii) an amount equal to the sum of the aggregate Tranche B Term Loan Exposure, the aggregate Term Loan Exposure of each such other Class and the aggregate Revolving Commitments of all the Lenders at such time; provided that if the Revolving Commitments have terminated or expired, the Pro Rata Share under this clause (d) shall be determined based upon the Revolving Commitments most recently in effect, giving effect to any assignments.

"**Projections**" means the projections of the Borrower and the Restricted Subsidiaries for each Fiscal Quarter of the Fiscal Year 2019 and for each Fiscal Year thereafter through and including the Fiscal Year 2023.

"**PTE**" means a prohibited transaction class exemption issued by the U.S. Department of Labor, as any such exemption may be amended from time to time.

"**Public Lenders**" means Lenders that do not wish to receive Private-Side Information.

"**Public-Side Information**" means information that is either (a) available to all holders of Traded Securities of the Borrower and its Subsidiaries or (b) not material non-public information (for purposes of United States federal, state or other applicable securities laws).

**"QFC" has the meaning assigned to the term "qualified financial contract" in, and shall be interpreted in accordance with, 12 U.S.C. § 5390(c)(8)(D).**

**"QFC Credit Support" has the meaning set forth in Section 10.26.**

"**Qualified ECP Guarantor**" means, in respect of any Swap Obligation, each Credit Party that has total assets exceeding $10,000,000 at the time such Swap Obligation is incurred or such other Person as constitutes an "eligible contract participant" under the Commodity Exchange Act or any regulations promulgated thereunder and can cause another Person to qualify as an "eligible contract participant" at such time by entering into a keepwell under Section 1a(18)(A)(v)(II) of the Commodity Exchange Act.

"**Real Estate Asset**" means any interest owned by any Credit Party in fee in any real property.

"**Receivables Subsidiary**" means any special purpose, bankruptcy remote wholly-owned Subsidiary of the Borrower formed for the sole and exclusive purpose of engaging in activities in connection with a Permitted Securitization.

"**Recipient**" means (a) any Agent, (b) any Lender and (c) any Issuing Bank, as applicable.

"**Refinancing Commitment**" means a Refinancing Revolving Commitment or a Refinancing Term Loan Commitment.

"**Refinancing Facility Agreement**" means a Refinancing Facility Agreement, in form and substance reasonably satisfactory to the Administrative Agent and the Borrower, among the Borrower, the Administrative Agent and one or more Refinancing Lenders, establishing Refinancing Commitments and effecting such other amendments hereto and to the other Credit Documents as are contemplated by Section 2.25.

"**Refinancing Indebtedness**" means, in respect of any Indebtedness (the "**Original Indebtedness**"), any Indebtedness that extends, renews, refinances or replaces such Original Indebtedness (or any Refinancing Indebtedness in respect thereof); provided that (a) the principal amount of such Refinancing Indebtedness shall not exceed the principal amount of such Original Indebtedness except by an amount not greater than accrued and unpaid interest on such Original Indebtedness, any original issue discount applicable to such Refinancing Indebtedness, any unused commitments in respect of such Original Indebtedness (only if and to the extent that, had such Original Indebtedness been incurred under such commitments at the time such Refinancing Indebtedness is incurred, it would have been permitted hereunder) and any reasonable fees, premiums and expenses relating to such extension, renewal or refinancing; (b) the stated final maturity of such Refinancing Indebtedness shall not be earlier than that of such Original Indebtedness; (c) the weighted average life to maturity of such Refinancing Indebtedness shall not be shorter than the remaining weighted average life to maturity of such Original Indebtedness (and, for purposes of determining the weighted average life to maturity of such Original Indebtedness, the effects of any prepayments made prior to the date of the determination shall be disregarded); (d) such Refinancing Indebtedness shall not constitute an obligation (including pursuant to a Guarantee) of any Restricted Subsidiary that shall not have been (or, in the case of after-acquired Subsidiaries, shall not have been required to become) an obligor in respect of such Original Indebtedness; (e) if such Original Indebtedness shall have been subordinated to the Obligations, such Refinancing Indebtedness shall also be subordinated to the Obligations on terms not less favorable in any material respect to the Lenders; (f) if such Original Indebtedness shall be Permitted Credit Agreement Refinancing Indebtedness or Permitted Incremental Equivalent Indebtedness, then (i) such Refinancing Indebtedness satisfies the Specified Permitted Indebtedness Documentation Requirements, (ii) if such Original Indebtedness was Permitted Pari Passu Secured Indebtedness, such Refinancing Indebtedness, if secured, shall be Permitted Pari Passu Secured Indebtedness or Permitted Junior Lien Secured Indebtedness and (iii) if such Original Indebtedness was Permitted Junior Lien Secured Indebtedness, such Refinancing Indebtedness, if secured, shall be Permitted Junior Lien Secured Indebtedness or Permitted Pari Passu Secured Indebtedness; and (g) such Refinancing Indebtedness shall not be secured by any Lien on any asset other than the assets that secured (or, in the case of after-acquired assets, would be required to secure pursuant to the terms thereof) such Original Indebtedness or, to the extent such assets would have been required to secure such Original Indebtedness pursuant to the terms thereof, that are proceeds and products of, or after-acquired property that is affixed or incorporated into, the assets that secured such Original Indebtedness.

"**Refinancing Lenders**" means the Refinancing Revolving Lenders and the Refinancing Term Lenders.

"**Refinancing Loans**" means the Refinancing Revolving Loans and the Refinancing Term Loans.

"**Refinancing Revolving Commitments**" as defined in Section 2.25(a).

"**Refinancing Revolving Lender**" as defined in Section 2.25(a).

"**Refinancing Revolving Loans**" as defined in Section 2.25(a).

"**Refinancing Term Lender**" as defined in Section 2.25(a).

"**Refinancing Term Loan Commitments**" as defined in Section 2.25(a).

"**Refinancing Term Loan Maturity Date**" means, with respect to Refinancing Term Loans of any Class, the scheduled date on which such Refinancing Term Loans shall become due and payable in full hereunder, as specified in the applicable Refinancing Facility Agreement.

"**Refinancing Term Loans**" as defined in Section 2.25(a).

"**Register**" as defined in Section 2.6(b).

"**Regulation D**" means Regulation D of the Board of Governors.

"**Regulation T**" means Regulation T of the Board of Governors.

"**Regulation U**" means Regulation U of the Board of Governors.

"**Regulation X**" means Regulation X of the Board of Governors.

"**Reimbursement Date**" as defined in Section 2.3(d).

"**Related Fund**" means, with respect to any Lender that is an investment fund, any other investment fund that invests in commercial loans and that is managed or advised by the same investment advisor as such Lender or by an Affiliate of such investment advisor.

"**Related Parties**" means, with respect to any Person, such Person's Affiliates and the directors, officers, partners, members, trustees, employees, controlling persons, agents, administrators, managers, representatives and advisors of such Person and of such Person's Affiliates.

"**Release**" means any release, spill, emission, leaking, pumping, pouring, injection, escaping, deposit, disposal, discharge, dispersal, dumping, leaching or migration of any Hazardous Material into or through the indoor or outdoor environment, including the abandonment or disposal of any barrels, containers or other closed receptacles containing any Hazardous Material.

"**Repricing Event**" means, with respect to any Tranche B Term Loan, (a) any prepayment or repayment of such Tranche B Term Loan with the proceeds of, or made in connection with the incurrence of, any Indebtedness that has an Effective Yield lower than the Effective Yield of such Tranche B Term Loan at the time of such prepayment or repayment and (b) any amendment or other modification of this Agreement that, directly or indirectly, reduces the Effective Yield of such Tranche B Term Loan; provided the primary purpose of such prepayment, repayment, amendment or other modification was to reduce the Effective Yield applicable to the Tranche B Term Loans.

"**Requisite Lenders**" means, at any time, Lenders having or holding Revolving Exposure, unused Revolving Commitments, Tranche B Term Loan Exposure and Term Loan Exposure of any other Class representing more than 50% of the sum of the Revolving Exposure, unused Revolving Commitments, Tranche B Term Loan Exposure and Term Loan Exposure of each such other Class of all the Lenders at such time. For purposes of this definition, the amount of Revolving Exposure, unused Revolving Commitments, Tranche B Term Loan Exposure and Term Loan Exposure of any other Class shall be determined by excluding the Revolving Exposure, unused Revolving Commitments, Tranche B Term Loan Exposure and Term Loan Exposure of each such other Class of any Defaulting Lender.

"**Restricted Junior Payment**" means (a) any dividend or other distribution, direct or indirect (whether in Cash, Securities or other property), with respect to any Equity Interests in the Borrower or any Restricted Subsidiary, (b) any payment or distribution, direct or indirect (whether in Cash, Securities or other property), including any sinking fund or similar deposit, on account of any redemption, retirement, purchase, acquisition, exchange, conversion, cancelation or termination of, or any other return of capital with respect to, any Equity Interests in the Borrower or any Restricted Subsidiary and (c) any payment or other distribution, direct or indirect (whether in Cash, Securities or other property) of or in respect of principal of or interest or premium on any Junior Indebtedness, or any payment or other distribution (whether in Cash, Securities or other property), including any sinking fund or similar deposit, on account of the redemption, retirement, purchase, acquisition, defeasance (including in-substance or legal defeasance), exchange, conversion, cancelation or termination of any Junior Indebtedness; provided that any Special Mandatory Redemption/Repayment shall be deemed not to be a Restricted Junior Payment.

"**Restricted Subsidiary**" means any Subsidiary that is not an Unrestricted Subsidiary.

"**Resulting Revolving Borrowings**" as defined in Section 2.23(e)(iv).

"**Retained ECF Percentage**" means, with respect to any Fiscal Year, (a) 100% minus (b) the Applicable ECF Percentage with respect to such Fiscal Year.

"**Returns**" means (a) with respect to any Investment in the form of a loan or advance, the repayment to the investor in Cash or Cash Equivalents of principal thereof and (b) with respect to any Acquisition or other Investment, any return of capital (including dividends, distributions and similar payments and profits on sale to a Person other than the Borrower or a Subsidiary) received by the investor in Cash or Cash Equivalents in respect of such Acquisition or other Investment.

"**Revolving Borrowing**" means a Borrowing comprised of Revolving Loans.

"**Revolving Commitment**" means, with respect to any Lender, the commitment, if any, of such Lender to make Revolving Loans and to acquire participations in Letters of Credit hereunder, expressed as an amount representing the maximum aggregate permitted amount of such Lender's Revolving Exposure hereunder. ~~The initial~~**As of the Amendment No. 2 Effective Date, the** amount of each Lender's Revolving Commitment, if any, is set forth on Schedule 2.1 ~~or in~~**(for** the ~~applicable Assignment~~

~~Agreement or Incremental Facility Agreement, as applicable, subject to any increase or reduction~~**avoidance of doubt, as amended and restated** pursuant to ~~the terms and conditions hereof~~**Amendment No. 2)**. The aggregate amount of the Revolving Commitments as of the ~~Closing~~**Amendment No. 2 Effective** Date is $300,000,000.

"**Revolving Commitment Period**" means the period from the Closing Date to but excluding the Revolving Commitment Termination Date.

"**Revolving Commitment Termination Date**" means the earlier to occur of (a) the Revolving Maturity Date and (b) the date on which all the Revolving Commitments are terminated or permanently reduced to zero pursuant hereto.

"**Revolving Exposure**" means, with respect to any Lender at any time, the sum of (a) the aggregate principal amount of the Revolving Loans of such Lender outstanding at such time and (b) such Lender's applicable Pro Rata Share of the Letter of Credit Usage at such time.

"**Revolving Facility Test Condition**" means, as of any date of determination, that (a) the sum of (i) the aggregate principal amount of the Revolving Loans outstanding on such date and (ii) the Letter of Credit Usage as of such date, excluding, in the case of this clause (ii), (A) any portion thereof that shall have been Cash Collateralized and (B) in the case of Letter of Credit Usage referred to in clause (a) of the definition of such term, the portion thereof not in excess of $5,000,000, exceeds an amount equal to 35% of the Total Revolving Commitments as of such date.

"**Revolving Lender**" means a Lender with a Revolving Commitment or Revolving Exposure.

"**Revolving Loan**" means a loan made by a Lender to the Borrower pursuant to Section 2.2(a).

"**Revolving Maturity Date**" means the date that is five years after the Closing Date (or, if such date is not a Business Day, the immediately preceding Business Day).

"**Rollover Indebtedness**" means Indebtedness of any Credit Party issued to any Lender in lieu of such Lender's applicable Pro Rata Share of any prepayment of any Borrowing made pursuant to Section 2.12(a)(i).

"**S&P**" means Standard & Poor's Financial Services LLC, a subsidiary of S&P Global Inc., or any successor to its rating agency business.

"**Sale/Leaseback Transaction**" means an arrangement relating to property owned by the Borrower or any Restricted Subsidiary whereby the Borrower or such Restricted Subsidiary Disposes of such property to any Person and the Borrower or any Restricted Subsidiary leases such property, or other property that it intends to use for substantially the same purpose or purposes as the property Disposed of, from such Person or its Affiliates.

"**Sanctioned Country**" means, at any time, a country, region or territory that is itself the subject or target of any Sanctions (at the date of this Agreement, Crimea, Cuba, Iran, North Korea and Syria).

"**Sanctioned Person**" means, at any time, (a) any Person listed in any Sanctions-related list of designated Persons maintained by the United States Department of State, the United States Department of Treasury (including OFAC), the United Nations Security Council, the European Union or Her Majesty's Treasury of the United Kingdom, (b) any Person operating, organized or resident in a Sanctioned Country or (c) any Person controlled or 50% or more owned by any such Person or Persons described in clause (a) or (b) above.

"**Sanctions**" as defined in Section 4.23(a).

"**Sanctions Laws**" as defined in Section 4.23(a).

"**SEC**" means the United States Securities and Exchange Commission.

"**Secured Net Leverage Ratio**" means, as of any date, the ratio of (a) Consolidated Secured Net Debt as of such date to (b) Consolidated Adjusted EBITDA for the period of four consecutive Fiscal Quarters of the Borrower most recently ended on or prior to such date.

"**Secured Parties**" as defined in the Pledge and Security Agreement.

"**Securities**" means any stock, shares, partnership interests, voting trust certificates, certificates of interest or participation in any profit-sharing agreement or arrangement, options, warrants, bonds, debentures, notes or other evidences of indebtedness, secured or unsecured, convertible, subordinated or otherwise, or in general any instruments commonly known as "securities" or any certificates of interest, shares or participations in temporary or interim certificates for the purchase or acquisition of, or any right to subscribe to, purchase or acquire, any of the foregoing.

"**Securities Act**" means the United States Securities Act of 1933.

"**Senior Notes**" means the 4.625% Senior Notes due 2026 issued by the Borrower on November 10, 2017.

"**Solvency Certificate**" means a Solvency Certificate executed by the chief financial officer of the Borrower substantially in the form of Exhibit I.

"**Solvent**" means that, as of the date of determination, (a) the fair value of the assets of the Borrower and the Restricted Subsidiaries, on a consolidated basis, exceeds their debts and liabilities, subordinated, contingent or otherwise, on a consolidated basis, (b) the present fair saleable value of the property of the Borrower and the Restricted Subsidiaries, on a consolidated basis, is greater than the amount that will be required to pay the probable liability, on a consolidated basis, of their debts and other liabilities, subordinated, contingent or otherwise, on a consolidated basis, as such debts and other liabilities become absolute and matured, (c) the Borrower and the Restricted Subsidiaries, on a consolidated basis, are able to pay their debts and liabilities, subordinated, contingent or otherwise, on a consolidated basis, as such liabilities become absolute and matured and (d) the Borrower and the Restricted Subsidiaries, on a consolidated basis, are not engaged in, and are not about to engage in, business for which they have unreasonably small capital. For purposes of this definition, the amount of any contingent liability at any time shall be computed as the amount that would reasonably be expected to become an actual and matured liability.

"**Special Mandatory Redemption/Repayment**" means, with respect to any Indebtedness incurred to finance, in whole or in part, any Acquisition and any related transactions, the redemption or other satisfaction and discharge thereof pursuant to a "special mandatory redemption" provision (or other similar provision) as a result of such Acquisition not having been consummated by the date specified in the definitive documents evidencing or governing such Indebtedness.

"**Specified Cash Management Services Agreement**" means any agreement relating to Cash Management Services that is entered into, or was entered into prior to the Closing Date and is in existence on the Closing Date, between the Borrower or any Restricted Subsidiary and a Cash Management Services Provider.

"**Specified Cash Management Services Obligations**" means all obligations of every nature of the Borrower and each Restricted Subsidiary (whether absolute or contingent and howsoever and whensoever created, arising, evidenced or acquired (including all renewals, extensions and modifications thereof and substitutions therefor)) arising in respect of Cash Management Services provided under any Specified Cash Management Services Agreement, including obligations for interest (including interest that would continue to accrue pursuant to such Specified Cash Management Services Agreement on any such obligation after the commencement of any proceeding under the Debtor Relief Laws with respect to the Borrower or any Restricted Subsidiary, whether or not such interest is allowed or allowable against the Borrower or such Restricted Subsidiary in any such proceeding), fees, expenses, indemnification or otherwise.

"**Specified Hedge Agreement**" means any Hedge Agreement the obligations under which constitute Specified Hedge Obligations.

"**Specified Hedge Obligations**" means, with respect to each Hedge Agreement in respect of interest rates or foreign currency exchange rates that (a) is with a counterparty that is, or was on the Closing Date, an Agent, an Arranger or any Affiliate of any of the foregoing, whether or not such counterparty shall have been an Agent, an Arranger or any Affiliate of any of the foregoing at the time such Hedge Agreement was entered into, (b) is in effect on the Closing Date with a counterparty that is a Lender or an Affiliate of a Lender as of the Closing Date or (c) is entered into after the Closing Date with a counterparty that is a Lender or an Affiliate of a Lender at the time such Hedge Agreement is entered into, all obligations of every nature of the Borrower or any Restricted Subsidiary under such Hedge Agreement (whether absolute or contingent and howsoever and whensoever created, arising, evidenced or acquired (including all renewals, extensions and modifications thereof and substitutions therefor)), including obligations for interest (including interest that would continue to accrue pursuant to such Hedge Agreement on any such obligation after the commencement of any proceeding under any Debtor Relief Law with respect to the Borrower or any Restricted Subsidiary, whether or not such interest is allowed or allowable against the Borrower or such Restricted Subsidiary in any such proceeding), payments for early termination of such Hedge Agreement, fees, expenses, indemnification or otherwise.

"**Specified Permitted Indebtedness Documentation Requirements**" means, with respect to any Indebtedness, the requirements that the terms of such Indebtedness (except with respect to Effective Yield and components thereof, fees, lien priority, prepayment or redemption terms (including "no call" terms and other restrictions thereunder) and premiums) are, when taken as a whole, either (a) not materially more favorable to the lenders or holders providing such Indebtedness than those applicable under this Agreement when taken as a whole (other than terms benefitting such lenders or holders (i) where this Agreement is amended to include such beneficial terms for the benefit of all Lenders or (ii) applicable only to periods after the latest Maturity Date in effect at the time of incurrence of such Indebtedness) or (b) otherwise on current market terms for such type of Indebtedness; provided that a certificate of an Authorized Officer of the Borrower delivered to the Administrative Agent at least five Business Days prior to the incurrence of such Indebtedness, together with a reasonably detailed description of the material terms and conditions of such Indebtedness or drafts of the documentation relating thereto, stating that the Borrower has determined in good faith that such terms and conditions satisfy the requirement of this definition shall be conclusive evidence that such terms and conditions satisfy such

requirement unless the Administrative Agent notifies the Borrower in writing within such five Business Day period that it disagrees with such determination (including a reasonable description of the basis upon which it disagrees)); provided further that such Indebtedness shall not include any Previously Absent Financial Maintenance Covenant unless such Previously Absent Financial Maintenance Covenant applies only to periods after the latest Maturity Date in effect at the time of incurrence of such Indebtedness or this Agreement is amended to include such Previously Absent Financial Maintenance Covenant for the benefit of all Lenders. ~~Notwithstanding the foregoing, the terms and conditions of the Versum Existing Credit Agreement, the Versum Existing Notes and the Versum Existing Indentures, in each case, as in effect on the Amendment No. 1 Effective Date, shall be deemed to satisfy the Specified Permitted Indebtedness Documentation Requirements.~~

"**Standard Letter of Credit Practice**" means, for any Issuing Bank, any domestic or foreign law or letter of credit practices applicable in the city in which such Issuing Bank issued the applicable Letter of Credit or, for its branch or correspondent, such laws and practices applicable in the city in which it has advised, confirmed or negotiated such Letter of Credit, as the case may be, in each case, (a) which letter of credit practices are of banks that regularly issue letters of credit in the particular city, and (b) which laws or letter of credit practices are required or permitted under ISP or UCP, as chosen in the applicable Letter of Credit.

"**Subordinated Indebtedness**" of any Person means any Indebtedness of such Person that is contractually subordinated in right of payment to any other Indebtedness of such Person.

"**Subsidiary**" means, with respect to any Person (the "**parent**") at any date, (a) any Person the accounts of which would be consolidated with those of the parent in the parent's consolidated financial statements if such financial statements were prepared in conformity with GAAP as of such date and (b) any other Person of which Equity Interests representing more than 50% of the equity value or more than 50% of the ordinary voting power or, in the case of a partnership, more than 50% of the general partnership interests are, as of such date, owned, controlled or held, by the parent or one or more subsidiaries of the parent or by the parent and one or more subsidiaries of the parent. Unless otherwise specified, all references herein to Subsidiaries shall be deemed to refer to Subsidiaries of the Borrower.

"**Supplemental Collateral Questionnaire**" means a certificate in the form of Exhibit J or any other form approved by the Collateral Agent.

**"Supported QFC" has the meaning set forth in Section 10.26.**

"**Swap Obligation**" as defined in "Excluded Swap Obligation".

"**Tax**" means all present or future taxes, levies, imposts, duties, deductions, withholdings (including backup withholding), assessments, fees or other charges imposed by any Governmental Authority, including any interest, additions to tax or penalties applicable thereto.

"**Term Borrowing**" means a Borrowing comprised of Term Loans.

"**Term Lender**" means a Lender with a Term Loan Commitment or a Term Loan.

"**Term Loan**" means a Tranche B Term Loan, an Incremental Term Loan of any Class, an Extended/Modified Term Loan of any Class or a Refinancing Term Loan of any Class.

"**Term Loan Commitment**" means a Tranche B Term Loan Commitment, an Incremental Term Loan Commitment of any Class or a Refinancing Term Loan Commitment of any Class.

"**Term Loan Exposure**" means, with respect to any Lender, for any Class of Term Loan Commitments or Term Loans at any time, (a) prior to the making of the Term Loans of such Class, the Term Loan Commitment of such Class of such Lender at such time and (b) after the making of the Term Loans of such Class, the aggregate principal amount of the Term Loans of such Class of such Lender at such time.

"**Test Period**" means, on any date of determination, the period of four consecutive Fiscal Quarters of the Borrower most recently ended on or prior to such date for which financial statements have been delivered (or, for purposes of Section 6.7, are required to have been delivered) pursuant to Section 5.1(a) or 5.1(b), or, if earlier (and other than as such term is used in Section 6.7), for which financial statements are internally available.

"**Total Net Leverage Ratio**" means, as of any date, the ratio of (a) Consolidated Total Net Debt as of such date to (b) Consolidated Adjusted EBITDA for the period of four consecutive Fiscal Quarters of the Borrower most recently ended on or prior to such date.

"**Total Revolving Commitments**" means, at any time, the sum of the Revolving Commitments of all the Revolving Lenders in effect at such time.

"**Total Utilization of Revolving Commitments**" means, at any time, the sum of (a) the aggregate principal amount of all Revolving Loans outstanding at such time and (b) the Letter of Credit Usage at such time.

"**Traded Securities**" means any debt or equity Securities issued pursuant to a public offering registered under the Securities Act or Rule 144A offering or other similar private placement.

"**Tranche B Term Borrowing**" means a Borrowing comprised of Tranche B Term Loans.

"**Tranche B Term Loan**" means a term loan made by a Lender to the Borrower pursuant to Section 2.1(a)(i).

"**Tranche B Term Loan Commitment**" means, with respect to any Lender, the commitment, if any, of such Lender to make a Tranche B Term Loan hereunder, expressed as an amount representing the maximum principal amount of the Tranche B Term Loan to be made by such Lender, subject to any increase or reduction pursuant to the terms and conditions hereof. The initial amount of each Lender's Tranche B Term Loan Commitment, if any, is set forth on Schedule 2.1 or in the Assignment Agreement pursuant to which such Lender shall have assumed its Tranche B Term Loan Commitment. The aggregate amount of the Tranche B Term Loan Commitments as of the Closing Date is $400,000,000.

"**Tranche B Term Loan Exposure**" means, with respect to any Lender at any time, (a) prior to the making of Tranche B Term Loans hereunder, the Tranche B Term Loan Commitment of such Lender at such time and (b) after the making of Tranche B Term Loans hereunder, the aggregate principal amount of the Tranche B Term Loans of such Lender outstanding at such time.

"**Tranche B Term Loan Maturity Date**" means the date that is seven years after the Closing Date (or, if such date is not a Business Day, the immediately preceding Business Day).

"**Transactions**" means (a) the execution, delivery and performance by each Credit Party of the Credit Documents to which it is to be a party, the creation of the Liens provided for in the Collateral Documents and, in the case of the Borrower, the borrowing of Loans and the use of the proceeds thereof and (b) the payment of fees and expenses in connection with the foregoing.

"**Type**" when used in reference to any Loan or Borrowing, refers to whether the rate of interest on such Loan, or on the Loans comprising such Borrowing, is determined by reference to the Adjusted Eurodollar Rate or the Base Rate.

"**UCC**" means the Uniform Commercial Code (or any similar or equivalent legislation) as in effect from time to time in any applicable jurisdiction.

"**UCP**" means, with respect to any Letter of Credit, the Uniform Customs and Practice for Documentary Credits 2007 Revision, International Chamber of Commerce Publication No. 600 and any subsequent revision thereof adopted by the International Chamber of Commerce on the date such Letter of Credit is issued.

"**Unrestricted Cash**" means, on any date, Cash and Cash Equivalents owned on such date by the Borrower or any Restricted Subsidiary, as reflected on a balance sheet prepared as of such date in conformity with GAAP, provided that (a) such Cash and Cash Equivalents do not appear (and would not be required to appear) as "restricted" on a consolidated balance sheet of such Person prepared in conformity with GAAP and (b) the use of such Cash and Cash Equivalents for application to the payment of Indebtedness is not prohibited in any material respect by applicable law or any material Contractual Obligation and such Cash and Cash Equivalents are not contractually restricted in any material respect from being distributed to the Borrower.

"**Unrestricted Subsidiary**" means (a) any Escrow Subsidiary, (b) any Subsidiary of the Borrower that is designated as an Unrestricted Subsidiary in the manner provided below and not subsequently redesignated as a "Restricted Subsidiary" in the manner provided below and (c) each Subsidiary of an Unrestricted Subsidiary.

The Borrower may designate any Subsidiary to be an "Unrestricted Subsidiary" by delivering to the Administrative Agent a certificate of a Financial Officer of the Borrower specifying such designation and certifying that such designated Subsidiary satisfies the requirements set forth in this definition (and including reasonably detailed calculations demonstrating satisfaction of the requirement in clause (b) below); provided that no Subsidiary may be designated as an Unrestricted Subsidiary unless (a) no Default or Event of Default has occurred and is continuing or would result therefrom, (b) immediately after giving Pro Forma Effect to such designation, the Total Net Leverage Ratio, determined as of the last day of the then most recently ended Test Period, shall not exceed 2.95:1.00, (c) such Subsidiary does not own any Equity Interests in any of the Restricted Subsidiaries, (d) such Subsidiary does not own (or hold or control by lease, exclusive license or otherwise) any asset (including any Intellectual Property) that is material to the operation in the ordinary course of business of (i) the Borrower and the Restricted Subsidiaries, taken as a whole, or (ii) the Borrower and the Restricted Subsidiaries that are Domestic Subsidiaries, taken as a whole, (e) each Subsidiary of such Subsidiary has been designated as (and, for so long as it is a Subsidiary of the Borrower, continues as) an "Unrestricted Subsidiary" in accordance with this definition, (f) the Investments in such Unrestricted Subsidiary by the Borrower and the Restricted Subsidiaries (including, after giving effect to the next sentence, those resulting from such designation) are

permitted under Section 6.6, (g) such Subsidiary shall have been or will promptly be designated an "unrestricted subsidiary" (or otherwise not be subject to the covenants) under any Permitted Credit Agreement Refinancing Indebtedness and any Permitted Incremental Equivalent Indebtedness and (h) no Subsidiary may be designated as an Unrestricted Subsidiary if it was previously an Unrestricted Subsidiary that has been redesignated as a Restricted Subsidiary. Upon the designation of any Subsidiary as an Unrestricted Subsidiary, the Borrower and the Restricted Subsidiaries shall be deemed to have made an Investment in such Unrestricted Subsidiary in an amount equal at the time of such designation to the fair value of such Subsidiary (as determined reasonably and in good faith by a Financial Officer of the Borrower). The Borrower shall cause each Unrestricted Subsidiary to satisfy at all times the requirements set forth in clauses (c), (d) and (g) above.

The Borrower may designate any Unrestricted Subsidiary (other than any Escrow Subsidiary) as a "Restricted Subsidiary" by delivering to the Administrative Agent a certificate of a Financial Officer of the Borrower specifying such redesignation and certifying that such redesignation satisfies the requirements set forth in this paragraph; provided that (a) no Default or Event of Default has occurred and is continuing or would result therefrom, (b) the redesignation of an Unrestricted Subsidiary as a Restricted Subsidiary shall constitute the incurrence, at the time of such redesignation, of any Indebtedness, Liens and Investments of such Subsidiary existing at such time and (c) such Subsidiary shall have been or will promptly be designated a "restricted subsidiary" (or otherwise be subject to the covenants) under any Permitted Credit Agreement Refinancing Indebtedness and any Permitted Incremental Equivalent Indebtedness.

Notwithstanding anything in this Agreement or any other Credit Document to the contrary, nothing shall restrict or prohibit (a) the formation of an Escrow Subsidiary and (b) the holding by any Escrow Subsidiary of any Escrow Funds in any Escrow Account and the granting by any Escrow Subsidiary of, or the existence of, any Liens on any Escrow Account, the Escrow Funds or any documentation relating thereto, in each case, in favor of any Escrow Agent (or its designee).

"**Unrestricted Subsidiary Reconciliation Statement**" means, with respect to any balance sheet or statement of operations, comprehensive income, equity or cash flows of the Borrower, such financial statement (in substantially the same form) prepared on the basis of consolidating the accounts of the Borrower and the Restricted Subsidiaries and treating Unrestricted Subsidiaries as if they were not consolidated with the Borrower and otherwise eliminating all accounts of Unrestricted Subsidiaries, together with an explanation of reconciliation adjustments in reasonable detail.

"**US Person**" means any Person that is a "United States Person" as defined in Section 7701(a)(30) of the Internal Revenue Code.

**"US Special Resolution Regime" has the meaning set forth in Section 10.26.**

"**US Tax Compliance Certificate**" as defined in Section 2.19(g)(ii)(B)(3).

~~"**Versum**" means Versum Materials, Inc., a Delaware corporation.~~

~~"**Versum Existing Credit Agreement**" means that certain Credit Agreement dated as of September 30, 2016, among Versum, the lenders party thereto and Citibank, N.A., as administrative agent and collateral agent, as amended by that certain First Amendment thereto, dated as of October 10, 2017, that certain Second Amendment thereto, dated as of February 8, 2019.~~

~~"**Versum Existing Indenture**" means that certain Indenture dated as of September 30, 2016, among Versum, the guarantors party thereto and Wells Fargo Bank, National Association, as trustee.~~

~~"**Versum Existing Notes**" means the 5.500% Senior Notes due 2024 issued by Versum pursuant to the Versum Existing Indenture on September 30, 2016.~~

~~"**Versum Merger**" means the merger of Versum with and into the Borrower, with the Borrower surviving the merger, pursuant to the Versum Merger Agreement.~~

~~"**Versum Merger Agreement**" means that certain Agreement and Plan of Merger dated as of January 27, 2019, between the Borrower and Versum.~~

"**wholly owned**", when used in reference to a Subsidiary of any Person, means that all the Equity Interests in such Subsidiary (other than directors' qualifying shares and other nominal amounts of Equity Interests that are required to be held by other Persons under applicable law) are owned, beneficially and of record, by such Person, another wholly owned Subsidiary of such Person or any combination thereof.

"**Write-Down and Conversion Powers**" means, with respect to any EEA Resolution Authority, the write-down and conversion powers of such EEA Resolution Authority from time to time under the Bail-In Legislation for the applicable EEA Member Country, which write-down and conversion powers are described in the EU Bail-In Legislation Schedule.

**1.2. Accounting Terms; Certain Calculations**. Except as otherwise expressly provided herein, all terms of an accounting or financial nature used herein shall be construed in conformity with GAAP as in effect from time to time; provided that (i) if the Borrower, by notice to the Administrative Agent, shall request an amendment to any provision hereof to eliminate the effect of any change occurring after the date hereof in GAAP or in the application thereof on the operation of such provision (or if the Administrative Agent or the Requisite Lenders, by notice to the Borrower, shall request an amendment to any provision hereof for such purpose) (in each case, other than as a result of the adoption of the *Accounting Standards Update, Leases (Topic 842)*), regardless of whether any such notice is given before or after such change in GAAP or in the application thereof, then such provision shall be interpreted on the basis of GAAP as in effect and applied immediately before such change shall have become effective until such notice shall have been withdrawn or such provision amended in accordance herewith, it being agreed that the Lenders and the Borrower shall negotiate in good faith such amendment, and (ii) notwithstanding any other provision contained herein, all terms of an accounting or financial nature used herein shall be construed, and all computations of amounts and ratios referred to herein shall be made, without giving effect to (A) any election under Financial Accounting Standards Board Accounting Standards Codification 825-10-25 (previously referred to as Statement of Financial Accounting Standards 159) (or any other Accounting Standards Codification or Financial Accounting Standard having a similar result or effect) (and related interpretations) to value any Indebtedness or other liabilities of the Borrower or any Restricted Subsidiary at "fair value", as defined therein and (B) any treatment of Indebtedness in respect of convertible debt instruments under Accounting Standards Codification 470-20 (or any other Accounting Standards Codification or Financial Accounting Standard having a similar result or effect) to value any such Indebtedness in a reduced or bifurcated manner as described therein, and such Indebtedness shall at all times be valued at the full stated principal amount thereof. It is understood and agreed that when any term of an accounting or financial nature refers to a determination being made on a "consolidated basis", when such reference is made with respect to the Borrower and the Restricted Subsidiaries (or any Restricted Subsidiary and its Restricted Subsidiaries), such determination shall exclude from such consolidation the accounts of the Unrestricted Subsidiaries.

(a) Notwithstanding anything to the contrary contained herein, for purposes of determining compliance with any test or covenant contained in this Agreement, the Secured Net Leverage Ratio, the Total Net Leverage Ratio and any other financial ratio shall be calculated giving Pro Forma Effect to each Pro Forma Event occurring during the applicable period of four consecutive Fiscal Quarters to which such calculation relates or after the end of such period of four consecutive Fiscal Quarters but not later than the date of such calculation (notwithstanding that such ratio may be said to be determined as of the end of a Test Period); provided that, notwithstanding the foregoing, when calculating any leverage ratio for purposes of (i) determining the Applicable ECF Percentage, the Applicable Rate or the Commitment Fee Rate and (ii) determining actual compliance (and not Pro Forma Compliance or compliance after giving Pro Forma Effect or on a Pro Forma Basis) with the Financial Covenant or any financial maintenance covenant that might be added hereto after the date hereof, any Pro Forma Event and any related adjustment contemplated in the definitions of Pro Forma Basis, Pro Forma Compliance and Pro Forma Effect (and corresponding provisions of the definition of Consolidated Adjusted EBITDA) that occurred subsequent to the end of the applicable period of four consecutive Fiscal Quarters shall not be given Pro Forma Effect.

(b) Notwithstanding anything to the contrary herein, with respect to any amounts incurred or transactions entered into (or consummated) in reliance on a provision of this Agreement that does not require compliance with a financial ratio (including Section 6.7, any Secured Net Leverage Ratio test and/or any Total Net Leverage Ratio test) (any such amounts, the "**Fixed Amounts**") substantially concurrently with any amounts incurred or transactions entered into (or consummated) in reliance on a provision of this Agreement that requires compliance with a financial ratio (including Section 6.7, any Secured Net Leverage Ratio test and/or any Total Net Leverage Ratio test) (any such amounts, the "**Incurrence-Based Amounts**"), it is understood and agreed that the Fixed Amounts (even if part of the same transaction or, in the case of Indebtedness, the same tranche as any Incurrence-Based Amounts) shall be disregarded in the calculation of the financial ratio applicable to the Incurrence-Based Amounts, but giving full Pro Forma Effect to any increase in the amount of Consolidated Adjusted EBITDA or Consolidated Total Assets (including Unrestricted Cash) resulting from the reliance on the Fixed Amounts.

(c) It is understood and agreed that any Indebtedness, Lien, Restricted Junior Payment, Investment, Disposition and/or any other action subject to the limitations set forth in Section 6 need not be permitted solely by reference to one clause or subclause of Section 6.1, 6.2, 6.4, 6.6 or 6.8 or other applicable Section, respectively, but may instead be permitted in part under any combination thereof, all as classified or, to the extent such alternative classification would have been permitted at the time of the relevant action, reclassified by the Borrower in its sole discretion, and shall constitute a usage of any availability under such clause or subclause only to the extent so classified or reclassified thereto; provided that (i) Indebtedness incurred under this Agreement may only be classified under Section 6.1(a) and the Liens securing such Indebtedness may only be classified under Section 6.2(a) (and may not be reclassified) and (ii) Indebtedness incurred under Section 6.1(j) or 6.1(k) (in each case, other than any such Indebtedness that is unsecured), and the Liens securing such Indebtedness pursuant to Section 6.2(f) or 6.2(g), as applicable, may not be reclassified to any other clause of Section 6.1 or 6.2, as applicable. In addition, for purposes of determining compliance at any time with Section 6.1, 6.2, 6.4 or 6.6, the Borrower may, in its sole discretion, reclassify any Indebtedness, Lien, Restricted Junior Payment or Investment (or a portion thereof), as applicable, that was previously incurred, made or otherwise undertaken as having been incurred, made or otherwise undertaken under any "ratio-based" basket set forth in such Section if such item (or such portion thereof) would, using the figures as of the end of or for the most recently ended Test Period, be permitted

under the applicable "ratio-based" basket; provided that, in the case of Sections 6.1 and 6.2, any such reclassification shall be subject to the limitations set forth in the proviso to the immediately preceding sentence.

(d) Notwithstanding anything to the contrary herein, to the extent that the terms of this Agreement require (including any such requirement that is to be determined on a Pro Forma Basis) (i) compliance with any financial ratio or test (including Section 6.7), any Secured Net Leverage Ratio test or any Total Net Leverage Ratio test) and/or any cap expressed as a percentage of Consolidated Adjusted EBITDA or Consolidated Total Assets or (ii) the absence of any Default or Event of Default (or any type of Default or Event of Default) as a condition to the consummation or making of any Limited Conditionality Transaction (or, in each case, any incurrence of any Indebtedness in connection therewith, including any Incremental Loans) (but, for the avoidance of doubt, not for purposes of determining whether the Borrower has actually complied with Section 6.7 itself nor for purposes of determining the "Applicable ECF Percentage", "Applicable Rate" or "Commitment Fee Rate"), the determination of whether the relevant condition is satisfied may be made, at the election of the Borrower, (A) in the case of any Acquisition or other Investment, at the time of (or on the basis of the financial statements for the most recently ended Test Period at the time of) either (x) the execution of the definitive agreement with respect to such Acquisition or Investment or (y) the consummation of such Acquisition or Investment, (B) in the case of any Disposition, at the time of (or on the basis of the financial statements for the most recently ended Test Period at the time of) either (x) the execution of the definitive agreement with respect to such Disposition or (y) the consummation of such Disposition and (C) in the case of any Restricted Junior Payment constituting a Limited Conditionality Transaction, at the time of (or on the basis of the financial statements for the most recently ended Test Period at the time of) (x) delivery of irrevocable (which may be conditional) notice with respect to such Restricted Junior Payment or (y) the making of such Restricted Junior Payment, in each case, after giving effect to the relevant Acquisition, Investment, Disposition and/or Restricted Junior Payment on a Pro Forma Basis. If the Borrower has exercised its election to apply clause (A)(x), (B)(x) or (C)(x) above in connection with any Limited Conditionality Transaction, then, in connection with any subsequent calculation of financial ratios or tests (but not for purposes of determining whether the Borrower has actually complied with Section 6.7 itself nor for purposes of determining the "Applicable ECF Percentage", "Applicable Rate" or "Commitment Fee Rate") on or following the relevant date referred to in such applicable clause and prior to the earlier of (1) the date on which such Limited Conditionality Transaction is consummated and (2) the date that the definitive agreement for such Limited Conditionality Transaction is terminated or expires without consummation of such Limited Conditionality Transaction, any such financial ratios or tests shall be calculated on a Pro Forma Basis assuming such Limited Conditionality Transaction and the other transactions in connection therewith (including any incurrence of any Indebtedness in connection therewith, including any Incremental Loans) have been consummated. ~~In connection with any calculation of financial ratios or tests (but not for purposes of determining whether the Borrower has actually complied with Section 6.7 itself~~ nor for purposes of determining the "Applicable ECF Percentage", "Applicable Rate" or "Commitment Fee Rate"~~) on or following the Amendment No. 1 Effective Date and prior to the earlier of (1) the date on which the Versum Merger is consummated and (2) the date that the Versum Merger Agreement is terminated in accordance with its terms or expires without the consummation of the Versum Merger, any such ratios or tests shall be calculated on a Pro Forma Basis assuming that the Versum Merger and the other transactions in connection therewith (including any incurrence (including by way of assumption) of any Indebtedness in connection therewith, including any Incremental Loans, any Permitted Versum Existing Credit Agreement Indebtedness (solely for this purpose, assuming that the aggregate amount of the "Revolving Commitments" under, and as defined in, the Versum Existing Credit Agreement shall have been funded) and/or any Permitted Versum Existing Notes) have been consummated.~~

(e) For purposes of determining the permissibility of any action, change, transaction or event that requires a calculation of any financial ratio or test (including Section 6.7, any Secured Net Leverage Ratio test or any Total Net Leverage Ratio test and/or the amount of Consolidated Adjusted EBITDA or Consolidated Total Assets), such financial ratio or test shall be calculated at the time such action is taken, such change is made, such transaction is consummated or such event occurs, as the case may be (or, in each case, such other time as is applicable thereto pursuant to Section 1.2(e)), and no Default or Event of Default shall be deemed to have occurred solely as a result of a subsequent change in such financial ratio or test.

**1.3. Interpretation, Etc**. Any of the terms defined herein may, unless the context otherwise requires, be used in the singular or the plural, depending on the reference. References herein to any Article, Section, Schedule or Exhibit shall be to an Article or a Section of, or a Schedule or an Exhibit to, this Agreement, unless otherwise specifically provided. The words "include", "includes" and "including" shall be deemed to be followed by the phrase "without limitation". The word "will" shall be construed to have the same meaning and effect as the word "shall". The words "asset" and "property" shall be construed to have the same meaning and effect and to refer to any and all real and personal, tangible and intangible assets and properties, including Cash, Securities, accounts and contract rights. The word "law" shall be construed as referring to all statutes, rules, regulations, codes and other laws (including official rulings and interpretations thereunder having the force of law or with which affected Persons customarily comply), and all judgments, orders, writs and decrees, of all Governmental Authorities. Except as otherwise expressly provided herein and unless the context requires otherwise, (a) any definition of or reference to any agreement, instrument or other document (including this Agreement and the other Credit Documents) shall be construed as referring to such agreement, instrument or other document as from time to time amended, supplemented or otherwise modified (subject to any restrictions on such amendments, supplements or modifications set forth herein), (b) any definition of or reference to any statute, rule or regulation shall be construed as referring thereto as from time to time amended, supplemented or otherwise modified (including by succession

of comparable successor laws), and all references to any statute shall be construed as referring to all rules, regulations, rulings and official interpretations promulgated or issued thereunder, (c) any reference herein to any Person shall be construed to include such Person's successors and assigns (subject to any restrictions on assignment set forth herein) and, in the case of any Governmental Authority or any self-regulating entity, any other Governmental Authority or entity that shall have succeeded to any or all functions thereof, and (d) the words "herein", "hereof" and "hereunder", and words of similar import, shall be construed to refer to this Agreement in its entirety and not to any particular provision hereof. Terms defined in the UCC as in effect in the State of New York on the Closing Date and not otherwise defined herein shall, unless the context otherwise indicates, have the meanings provided by those definitions.

**1.4. Currency Translation**. For purposes of any determination under Sections 6 and 8, amounts incurred or outstanding, or proposed to be incurred or outstanding, in currencies other than Dollars shall be translated into Dollars at the currency exchange rates in effect on the date of such determination; provided that (a) for purposes of any determination under Sections 6.1, 6.4, 6.6 and 6.8, the amount of each applicable transaction denominated in a currency other than Dollars shall be translated into Dollars at the applicable currency exchange rate in effect on the date of the consummation thereof, which currency exchange rates shall be determined reasonably and in good faith by the Borrower, and (b) for purposes of the Financial Covenant, any other financial test and the related definitions, amounts in currencies other than Dollars shall be translated into Dollars at the currency exchange rates then most recently used in preparing the consolidated financial statements of the Borrower. Notwithstanding anything to the contrary set forth herein but subject to clause (b) above, (i) no Default shall arise as a result of any limitation or threshold expressed in Dollars in this Agreement being exceeded in respect of any transaction solely as a result of changes in currency exchange rates from those applicable for determining compliance with this Agreement at the time of, or at any time following, such transaction and (ii) in the case of any Indebtedness outstanding under any clause of Section 6.1 or secured under any clause of Section 6.2 that contains a limitation expressed in Dollars and that, as a result of changes in exchange rates, is so exceeded, such Indebtedness will be permitted to be refinanced with Refinancing Indebtedness in respect thereof incurred under such clause notwithstanding that, after giving effect to such refinancing, such excess shall continue.

**1.5. Classification of Loans and Borrowings**. For purposes of this Agreement, Loans and Borrowings may be classified and referred to by Class (e.g., a "Revolving Loan" or "Revolving Borrowing") or by Type (e.g., a "Eurodollar Rate Loan" or "Eurodollar Rate Borrowing") or by Class and Type (e.g., a "Eurodollar Rate Revolving Loan" or "Eurodollar Rate Revolving Borrowing").

**1.6. Divisions**. For all purposes under the Credit Documents, in connection with any division or plan of division under Delaware law (or any comparable event under a different jurisdiction's laws): (a) if any asset, right, obligation or liability of any Person becomes the asset, right, obligation or liability of a different Person, then it shall be deemed to have been transferred from the original Person to the subsequent Person, and (b) if any new Person comes into existence, such new Person shall be deemed to have been organized on the first date of its existence by the holders of its Equity Interests at such time.

## SECTION 2. LOANS AND LETTERS OF CREDIT

**2.1. Term Loans**. Term Loan Commitments. Subject to the terms and conditions hereof, each Lender agrees to make, on the Closing Date, a term loan to the Borrower in Dollars in a principal amount not to exceed such Lender's Tranche B Term Loan Commitment. Amounts borrowed pursuant to this Section 2.1(a) that are repaid or prepaid may not be reborrowed. Each Lender's Tranche B Term Loan Commitment shall terminate immediately and without any further action upon the making of a Tranche B Term Loan, as applicable, by such Lender or, if earlier, at 5:00 p.m. (New York City time) on the Closing Date.

(i) Additional Classes of Term Loan Commitments may be established as provided in Section 2.23 or 2.25, and the Term Loans thereunder shall be made in accordance with, and subject to the terms and conditions set forth in, such Section.

(b) Borrowing Mechanics for Term Loans.

(i) Each Term Loan shall be made as part of a Borrowing consisting of Term Loans of the same Class and Type made by the Lenders of such Class proportionately to their applicable Pro Rata Shares. At the commencement of each Interest Period for any Eurodollar Rate Term Borrowing, such Borrowing shall be in an aggregate amount of $5,000,000 or an integral multiple of $1,000,000 in excess of such amount; provided that a Eurodollar Rate Term Borrowing that results from a continuation of an outstanding Eurodollar Rate Term Borrowing may be in an aggregate amount that is equal to the amount of such outstanding Borrowing.

(ii) To request a Term Borrowing, the Borrower shall deliver to the Administrative Agent a fully completed and executed Funding Notice (A) in the case of a Eurodollar Rate Term Borrowing, not later than 1:00 p.m. (New York City time) at least three Business Days in advance of the proposed Credit Date (which shall be a Business Day) (or, in the case of a Tranche B Term Borrowing, such shorter period as may be acceptable to the Administrative Agent) and (B) in the case of a Base Rate Term Borrowing, not later than 1:00 p.m. (New York City time) on the proposed Credit Date (which shall be a Business Day) (or, in each case, with respect to any Borrowing of Incremental Term Loans or Refinancing Term Loans, not

later than such other time as shall be specified therefor in the applicable Incremental Facility Agreement or Refinancing Facility Agreement). Promptly upon receipt by the Administrative Agent of a Funding Notice in accordance with this paragraph, the Administrative Agent shall notify each Term Lender of the applicable Class of the details thereof and of the amount of such Lender's Term Loan to be made as part of the requested Term Borrowing. Following delivery of a Funding Notice for a Eurodollar Rate Term Borrowing, any failure to make such Borrowing shall be subject to Section 2.17(c).

(iii) Each Lender shall make the principal amount of each Term Loan required to be made by it hereunder on any Credit Date available to the Administrative Agent not later than 2:00 p.m. (New York City time) on such Credit Date (or, with respect to any Borrowing of Incremental Term Loans or Refinancing Term Loans, not later than such other time as shall be specified therefor in the applicable Incremental Facility Agreement or Refinancing Facility Agreement) by wire transfer of same day funds in Dollars to the account of the Administrative Agent most recently designated by it for such purpose by notice to the Lenders. The Administrative Agent will make each such Term Loan available to the Borrower by promptly remitting the amounts so received, in like funds, to the account specified by the Borrower in the applicable Funding Notice.

**2.2. Revolving Loans**. Revolving Commitments. During the Revolving Commitment Period, subject to the terms and conditions hereof, each Lender agrees to make loans to the Borrower in Dollars in an aggregate principal amount at any one time outstanding that will not result in (i) such Lender's Revolving Exposure exceeding its Revolving Commitment or (ii) the Total Utilization of Revolving Commitments exceeding the Total Revolving Commitments. Amounts borrowed pursuant to this Section 2.2(a) that are repaid or prepaid may, subject to the terms and conditions hereof, be reborrowed during the Revolving Commitment Period. Each Lender's Revolving Commitment shall terminate on the Revolving Commitment Termination Date.

(a) Borrowing Mechanics for Revolving Loans.

(i) Each Revolving Loan shall be made as part of a Borrowing consisting of Revolving Loans of the same Type made by the Revolving Lenders proportionately to their applicable Pro Rata Shares. At the commencement of each Interest Period for any Eurodollar Rate Revolving Borrowing, such Borrowing shall be in an aggregate amount of $1,000,000 or an integral multiple of $500,000 in excess of such amount; provided that a Eurodollar Rate Revolving Borrowing that results from a continuation of an outstanding Eurodollar Rate Revolving Borrowing may be in an aggregate amount that is equal to the amount of such outstanding Borrowing. At the time each Base Rate Revolving Borrowing is made, such Borrowing shall be in an aggregate amount of $500,000 or an integral multiple of $100,000 in excess of such amount; provided that such Borrowing may be in an aggregate amount that is equal to the entire unused balance of the Total Revolving Commitments or that is required to finance the reimbursement of a drawing under a Letter of Credit as contemplated by Section 2.3(d).

(ii) To request a Revolving Borrowing, the Borrower shall deliver to the Administrative Agent a fully completed and executed Funding Notice (A) in the case of a Eurodollar Rate Revolving Borrowing, not later than 1:00 p.m. (New York City time) at least three Business Days in advance of the proposed Credit Date (which shall be a Business Day) and (B) in the case of a Base Rate Revolving Borrowing, not later than 1:00 p.m. (New York City time) on the proposed Credit Date (which shall be a Business Day). Promptly upon receipt by the Administrative Agent of a Funding Notice in accordance with this paragraph, the Administrative Agent shall notify each Revolving Lender of the details thereof and of the amount of such Lender's Revolving Loan to be made as part of the requested Revolving Borrowing. Following delivery of a Funding Notice or a telephonic notice for a Eurodollar Rate Revolving Borrowing, any failure to make such Borrowing shall be subject to Section 2.17(c).

(iii) Each Lender shall make the principal amount of the Revolving Loan required to be made by it hereunder on any Credit Date available to the Administrative Agent not later than 2:00 p.m. (New York City time) (or, in the case of a Base Rate Revolving Loan, not later than 3:00 p.m. (New York City time)) on such Credit Date by wire transfer of same day funds in Dollars to the account of the Administrative Agent most recently designated by it for such purpose by notice to the Lenders. The Administrative Agent will make each such Revolving Loan available to the Borrower by promptly remitting the amounts so received, in like funds, to the account specified by the Borrower in the applicable Funding Notice (or, in the case of a Base Rate Revolving Borrowing specified by the Borrower in the applicable Funding Notice as made to finance reimbursement of a drawing under a Letter of Credit as contemplated by Section 2.3(d), to the applicable Issuing Bank).

**2.3. Letters of Credit**. General. During the Revolving Commitment Period, subject to the terms and conditions hereof, each Issuing Bank agrees to issue Letters of Credit for the account of the Borrower or, so long as the Borrower is a joint and several co-applicant with respect thereto, the account of any Restricted Subsidiary, and to amend or extend Letters of Credit previously issued by it as requested by the Borrower; provided that no Letter of Credit shall be, or shall be required to be, issued, amended or extended by any Issuing Bank unless (i) such Issuing Bank (if other than the Person serving as the Administrative Agent) shall have given written notice thereof to the Administrative Agent pursuant to Section 2.3(g), (ii) immediately after giving effect thereto (A) the Total Utilization of Revolving Commitments shall not exceed the Total Revolving Commitments, (B) the Letter of Credit Usage shall not exceed the Letter of Credit Sublimit and (C) the Letter of Credit Usage attributable to Letters of

Credit issued by such Issuing Bank shall not exceed the Letter of Credit Issuing Commitment of such Issuing Bank, (iii) such Letter of Credit shall be denominated in Dollars and shall be of the type approved for issuance by such Issuing Bank (it being understood that standby Letters of Credit are deemed to be approved, and no Issuing Bank shall be required to issue any trade or commercial Letter of Credit unless otherwise expressly agreed to by such Issuing Bank), (iv) such Letter of Credit shall have an expiration date that is not later than the earlier of (A) five Business Days prior to the Revolving Maturity Date as in effect at the time of the issuance thereof (or, in the case of an extension of any Letter of Credit, at the time thereof) and (B) the date that is one year after the date of issuance of such Letter of Credit (or, in the case of an extension of any Letter of Credit, one year after the date thereof), provided that, in the case of any Letter of Credit, (x) such Issuing Bank may agree that such Letter of Credit will automatically extend for one or more successive periods not to exceed one year each (but in any event to a date not later than five Business Days prior to the Revolving Maturity Date as in effect at the time of the issuance thereof (or, in the case of an extension of any Letter of Credit, at the time thereof)) unless such Issuing Bank elects not to extend for any such additional period or (y) such Letter of Credit will expire after the applicable date referred to above if such Letter of Credit is, at the time it is issued, extended, Cash Collateralized or otherwise backstopped in an amount and manner and pursuant to documentation approved in writing by such Issuing Bank (any such Letter of Credit referred to in this clause (y) being a "Backstopped Letter of Credit"), and (v) such issuance (or amendment or extension) is in accordance with such Issuing Bank's standard operating procedures. Each Letter of Credit shall be in a form acceptable to the applicable Issuing Bank in its reasonable discretion, it being agreed that the Borrower is responsible for preparing or approving the final text of each Letter of Credit issued by any Issuing Bank, irrespective of any assistance such Issuing Bank may provide such as drafting or recommending text or by such Issuing Bank's use or refusal to use text submitted by the Borrower. The Borrower is solely responsible for the suitability of the Letter of Credit for the Borrower's purposes. With respect to any Letter of Credit containing an "automatic amendment" to extend the expiration date of such Letter of Credit, the applicable Issuing Bank, in its sole and absolute discretion, may give notice of non-extension of such Letter of Credit and, if the Borrower does not at any time want such Letter of Credit to be extended, the Borrower will so notify the Administrative Agent and the applicable Issuing Bank at least 15 calendar days before such Issuing Bank is required to notify the beneficiary of such Letter of Credit or any advising bank of such non-extension pursuant to the terms of such Letter of Credit. Each Existing Letter of Credit shall be deemed, for all purposes of this Agreement (including Sections 2.3(d) and 2.3(e) of this Section), to be a Letter of Credit issued hereunder for the account of the Borrower. The Borrower unconditionally and irrevocably agrees that, in connection with any Existing Letter of Credit, it will be fully responsible for the reimbursement of drawings thereunder, the payment of interest thereon in accordance with Section 2.7(e) and the payment of fees due under Section 2.10 with respect thereto to the same extent as if it were the account party in respect of such Existing Letter of Credit.

(a) Request for Issuance, Amendment or Extension. To request the issuance of a Letter of Credit (or the amendment or extension (other than an automatic extension permitted under Section 2.3(a)) of an outstanding Letter of Credit), the Borrower shall deliver to the Administrative Agent and the applicable Issuing Bank a fully completed and executed Issuance Notice not later than 1:00 p.m. (New York City time) at least three Business Days, or such shorter period as may be agreed to by such Issuing Bank in any particular instance, in advance of the proposed date of issuance, amendment or extension. In connection with any such request, the Borrower shall specify (i) the amount of such Letter of Credit, (ii) the requested date of issuance, amendment or extension of such Letter of Credit, (iii) the requested expiration date of such Letter of Credit, (iv) the name and address of the beneficiary of such Letter of Credit and (v) such other information (including the conditions to drawing, and, in the case of an amendment or extension, identification of the Letter of Credit to be so amended or extended) as shall be necessary to prepare, amend or extend such Letter of Credit. If requested by the applicable Issuing Bank, the Borrower also shall submit, not later than the time set forth above, a completed and executed letter of credit application on such Issuing Bank's standard form in connection with any such request and shall provide such other documents or information as such Issuing Bank may reasonably require in connection with the issuance, amendment or extension of the applicable Letter of Credit; provided that in the event of any inconsistency or conflict between the terms and conditions of such letter of credit application and the terms and conditions of this Agreement or any other Credit Document, it is the intention of the parties hereto that such provisions be read together and construed, to the fullest extent possible, to be in concert with each other. In the event of any actual, irreconcilable conflict that cannot be resolved as aforesaid, the terms and provisions of this Agreement or such Credit Document shall govern and control.

(b) Responsibility of the Issuing Banks. In determining whether to honor any drawing under any Letter of Credit, the sole responsibility of an Issuing Bank shall be to examine the documents delivered under such Letter of Credit with reasonable care so as to ascertain whether such documents appear on their face to be in accordance with the terms and conditions of such Letter of Credit, it being agreed that, with respect to such documents that appear on their face to be in substantial compliance, but are not in strict compliance, with the terms of such Letter of Credit, the applicable Issuing Bank may, in its sole discretion, either accept and make payment upon such documents without responsibility for further investigation, regardless of any notice or information to the contrary, or refuse to accept and make payment upon such documents. As between the Borrower and any Issuing Bank, the Borrower assumes all risks of the acts and omissions of, or misuse of any Letter of Credit by, the beneficiary of any Letter of Credit. In furtherance and not in limitation of the foregoing, any act taken or omitted to be taken by any Issuing Bank under or in connection with any Letter of Credit or any documents or certificates delivered thereunder, if taken or omitted in good faith and in the absence of gross negligence or willful misconduct on the part of such Issuing Bank (such absence to be presumed unless otherwise determined in a final, non-appealable judgment of a court of competent jurisdiction), shall not give rise to any

liability on the part of such Issuing Bank to the Borrower, and none of the Issuing Banks or any of their respective Related Parties shall have any responsibility for (and none of their rights or powers hereunder shall be affected or impaired by):

(i) the form, validity, accuracy, genuineness or legal effect of any document submitted by any Person in connection with the application for and issuance of any Letter of Credit, even if it should in fact prove to be in any or all respects invalid, inaccurate, fraudulent or forged;

(ii) the validity or effectiveness of any instrument transferring or assigning or purporting to transfer or assign any Letter of Credit or the rights or benefits thereunder or proceeds thereof, in whole or in part, that may prove to be invalid or ineffective for any reason;

(iii) failure of the beneficiary of any Letter of Credit to comply with any conditions required in order to draw upon such Letter of Credit, other than presentation that on its face substantially complies with the terms and conditions of such Letter of Credit;

(iv) the misapplication by the beneficiary of any Letter of Credit of the proceeds of any drawing under such Letter of Credit;

(v) honor of a presentation under any Letter of Credit that on its face substantially complies with the terms and conditions of such Letter of Credit, even if such Letter of Credit requires strict compliance by the beneficiary;

(vi) honor of a presentation of any Drawing Document that appears on its face to have been signed, presented or issued (A) by any purported successor or transferee of any beneficiary or other Person required to sign, present or issue such Drawing Document or (B) under a new name of the beneficiary;

(vii) acceptance as a draft of any written or electronic demand or request for payment under a Letter of Credit, even if nonnegotiable or not in the form of a draft or notwithstanding any requirement that such draft, demand or request bear any or an adequate reference to such Letter of Credit so long as the applicable Drawing Document on its face substantially complies with the terms and conditions of such Letter of Credit;

(viii) the identity or authority of any presenter or signer of any Drawing Document or the form, accuracy, genuineness or legal effect of any Drawing Document (so long as such Issuing Bank determines that such Drawing Document on its face substantially complies with the terms and conditions of the Letter of Credit);

(ix) acting upon any instruction or request relative to a Letter of Credit or a requested Letter of Credit that such Issuing Bank in good faith believes to have been given by a Person authorized to give such instruction or request;

(x) any errors, omissions, interruptions, loss or delays in transmission or delivery of any message, advice or document (regardless of how sent or transmitted) or for errors in interpretation of technical terms or in translation or any delay in giving or failing to give notice to the Borrower;

(xi) any acts, omissions or fraud by, or the insolvency of, any beneficiary, any nominated person or entity or any other Person or any breach of contract between any beneficiary and the Borrower or any of the parties to the underlying transaction to which any Letter of Credit relates;

(xii) assertion or waiver of any provision of the ISP or UCP that primarily benefits an issuer of a letter of credit, including any requirement that any Drawing Document be presented to it at a particular hour or place;

(xiii) payment to any paying or negotiating bank (designated or permitted by the terms of the applicable Letter of Credit) claiming that it rightfully honored or is entitled to reimbursement or indemnity under Standard Letter of Credit Practice applicable to it;

(xiv) acting or failing to act as required or permitted under Standard Letter of Credit Practice applicable to where such Issuing Bank has issued, confirmed, advised or negotiated such Letter of Credit, as the case may be;

(xv) honor of a presentation after the expiration date of any Letter of Credit notwithstanding that a presentation was made prior to such expiration date and dishonored by such Issuing Bank if subsequently such Issuing Bank or any court or other finder of fact determines such presentation should have been honored;

(xvi) dishonor of any presentation that does not strictly comply or that is fraudulent, forged or otherwise not entitled to honor;

(xvii) honor of a presentation that is subsequently determined by the applicable Issuing Bank to have been made in violation of international, federal, state or local restrictions on the transaction of business with certain prohibited Persons; or

(xviii) any consequences arising from causes beyond the control of the applicable Issuing Bank, including any Governmental Acts;

provided that, subject to Sections 2.3(k) and 2.3(l) and the other provisions hereof, the foregoing shall not release an Issuing Bank from such liability to the Borrower as may be determined in a final, non-appealable judgment of a court of competent jurisdiction against such Issuing Bank following reimbursement or payment of the obligations and liabilities, including reimbursement and other payment obligations, of the Borrower to such Issuing Bank arising under, or in connection with, this Section 2.3 or any Letter of Credit.

(c) Reimbursement by the Borrower. In the event an Issuing Bank shall have determined to honor a drawing under any Letter of Credit, it shall promptly notify the Borrower and the Administrative Agent thereof, and the Borrower shall reimburse such Issuing Bank for such drawing by paying to such Issuing Bank an amount in Dollars in same day funds equal to the amount of such drawing not later than (i) if the Borrower shall have received notice of such drawing prior to 10:00 a.m. (New York City time) on any Business Day, then 2:00 p.m. (New York City time) on such Business Day or (ii) otherwise, 2:00 p.m. (New York City time) on the Business Day next following the day that the Borrower receives such notice (the date on which the Borrower is required to reimburse a drawing under any Letter of Credit being referred to herein as the "**Reimbursement Date**" in respect of such drawing); provided that the Borrower may, subject to the conditions to borrowing set forth herein, request in accordance with Section 2.2(b) that such reimbursement payment be financed with a Base Rate Revolving Borrowing and, to the extent the applicable Issuing Bank shall have received the proceeds thereof, the Borrower's obligation to make such reimbursement payment shall be discharged and replaced by the resulting Base Rate Revolving Borrowing. The Borrower unconditionally and irrevocably agrees that, in connection with any Letter of Credit issued for the account of any Restricted Subsidiary as provided in Section 2.3(a), the Borrower will be fully responsible for the reimbursement of any drawings thereunder, the payment of interest thereon in accordance with Section 2.7(e) and the payment of fees due under Section 2.10 with respect thereto to the same extent as if it were the sole account party in respect of such Letter of Credit.

(d) Revolving Lenders' Participations in Letters of Credit. Immediately upon the issuance of any Letter of Credit (or an amendment to a Letter of Credit increasing the amount thereof), each Revolving Lender shall be deemed to have purchased from the applicable Issuing Bank, and agrees to fund as set forth herein, a participation in such Letter of Credit and any drawings thereunder in an amount equal to such Lender's applicable Pro Rata Share of the maximum amount that is or at any time may become available to be drawn under such Letter of Credit. In the event the Borrower shall fail for any reason to fully reimburse the applicable Issuing Bank for any drawing under a Letter of Credit, such Issuing Bank shall promptly notify the Administrative Agent thereof and of the unreimbursed amount of such drawing and, promptly upon receipt of such notice, the Administrative Agent shall notify each Revolving Lender of the details of such notice and of such Lender's applicable Pro Rata Share of such unreimbursed amount. Each Revolving Lender shall make available an amount equal to such Lender's applicable Pro Rata Share of such unreimbursed amount to the Administrative Agent not later than 12:00 p.m. (New York City time) on the first Business Day following the date of receipt of such notice, by wire transfer of same day funds in Dollars to the account of the Administrative Agent most recently designated by it for such purpose by notice to the Lenders, and the Administrative Agent shall promptly remit the amounts so received, in like funds, to the applicable Issuing Bank. In the event that any Revolving Lender fails to make available, for the account of any Issuing Bank, any payment referred to in the immediately preceding sentence, such Issuing Bank shall be entitled to recover such amount on demand from such Lender, together with interest thereon for three Business Days at the rate customarily used by such Issuing Bank for the correction of errors among banks and thereafter at the Base Rate. Each Revolving Lender agrees that, in issuing, amending or extending any Letter of Credit, the applicable Issuing Bank shall be entitled to rely, and shall not incur any liability for relying, upon the representation and warranty of the Borrower deemed made pursuant to Section 3.2, unless, at least one Business Day prior to the time such Letter of Credit is issued, amended or extended (or, in the case of any Letter of Credit subject to automatic extension provisions, at least three Business Days prior to the time by which the election not to extend must be made by the applicable Issuing Bank), the Borrower, a Majority in Interest of the Revolving Lenders or the Requisite Lenders shall have notified the applicable Issuing Bank (with a copy to the Administrative Agent and, if the notice is not sent by the Borrower, the Borrower) in writing that, as a result of one or more events or circumstances described in such notice, one or more of the conditions precedent set forth in Section 3.2 would not be satisfied if such Letter of Credit were then issued, amended or extended (it being understood and agreed that, in the event any Issuing Bank shall have received any such notice, or shall otherwise believe in good faith that such conditions would not be satisfied, it shall have no obligation to (and, in the event it shall have received any such notice, shall not) issue, amend or extend any Letter of Credit until and unless it shall be satisfied that the events and circumstances giving rise thereto shall have been cured or otherwise shall have ceased to exist). In the event an Issuing Bank shall have been reimbursed by the Revolving Lenders pursuant to this Section 2.3(e) for all or any portion of any drawing honored by such Issuing Bank under a Letter of Credit, such Issuing Bank shall distribute to each Revolving Lender that has paid all amounts payable by it under this Section 2.3(e) with respect to such drawing such Lender's applicable Pro Rata Share of all payments subsequently received by such Issuing Bank from or on behalf of the Borrower in reimbursement of such drawing when such payments are received; provided that any such payment so distributed shall be repaid to such Issuing Bank if

and to the extent such payment is required to be refunded to the Borrower for any reason. Any payment made by a Revolving Lender pursuant to this Section 2.3(e) to reimburse an Issuing Bank for a drawing under a Letter of Credit (other than the funding of a Base Rate Revolving Borrowing as contemplated by Section 2.3(d)) shall not constitute a Loan and shall not relieve the Borrower of its obligation to reimburse such drawing.

(e) Obligations Absolute. The obligation of the Borrower to reimburse each Issuing Bank for drawings honored under the Letters of Credit issued by such Issuing Bank and the obligations of the Lenders under Section 2.4(e) shall be unconditional and irrevocable and shall be paid and performed strictly in accordance with the terms hereof under all circumstances, notwithstanding:

(i) any lack of validity, enforceability or legal effect of any Letter of Credit or this Agreement or any term or provision therein or herein;

(ii) payment against presentation of any draft, demand or claim for payment under any Drawing Document that does not comply in whole or in part with the terms of the applicable Letter of Credit or which proves to be fraudulent, forged or invalid in any respect or any statement therein being untrue or inaccurate in any respect, or which is signed, issued or presented by a Person or a transferee of such Person purporting to be a successor or transferee of the beneficiary of such Letter of Credit;

(iii) such Issuing Bank or any of its branches or Affiliates being the beneficiary of any Letter of Credit;

(iv) such Issuing Bank or any correspondent honoring a drawing against a Drawing Document up to the amount available under any Letter of Credit even if such Drawing Document claims an amount in excess of the amount available under the Letter of Credit;

(v) the existence of any claim, set-off, defense or other right that the Borrower or any Subsidiary or any Lender may have at any time against any beneficiary, any assignee of proceeds, such Issuing Bank or any other Person or, in the case of any Lender, against the Borrower, whether in connection herewith, with the transactions contemplated herein or with any unrelated transaction (including any underlying transaction between the Borrower or any Subsidiary and the beneficiary under any Letter of Credit);

(vi) any adverse change in the business, operations, properties, condition (financial or otherwise) or prospects of the Borrower or any Subsidiary;

(vii) the fact that any Default or Event of Default shall have occurred and be continuing;

(viii) any force majeure or other event that under any rule of law or uniform practices to which any Letter of Credit is subject (including Section 3.14 of the ISP or any successor publication) permits a drawing to be made under such Letter of Credit after the expiration thereof or after the Revolving Maturity Date; or

(ix) any other event, circumstance or conduct whatsoever, whether or not similar to any of the foregoing that might, but for this Section 2.3(f), constitute a legal or equitable defense to or discharge of, or provide a right of set-off against, the Borrower's, any Subsidiary's or any Lender's reimbursement and other payment obligations and liabilities, arising under, or in connection with, any Letter of Credit, whether against such Issuing Bank, the beneficiary or any other Person;

provided that, subject to Sections 2.3(k) and 2.3(l) and the other provisions hereof, the foregoing shall not release an Issuing Bank from such liability to the Borrower as may be determined in a final, non-appealable judgment of a court of competent jurisdiction against such Issuing Bank following reimbursement or payment of the obligations and liabilities, including reimbursement and other payment obligations, of the Borrower to such Issuing Bank arising under, or in connection with, this Section 2.3 or any Letter of Credit.

(f) Issuing Bank Reports to the Administrative Agent. Unless otherwise agreed by the Administrative Agent, each Issuing Bank shall, in addition to its notification obligations set forth elsewhere in this Section 2.3, report in writing to the Administrative Agent (i) periodic activity (for such period or recurrent periods as shall be requested by the Administrative Agent) in respect of Letters of Credit issued by such Issuing Bank, including all issuances, extensions and amendments, all expirations and cancelations and all honored drawings and reimbursements thereof, (ii) reasonably prior to the time that such Issuing Bank issues, amends or extends any Letter of Credit, the date of such issuance, amendment or extension, and the face amount of the Letters of Credit to be issued, amended or extended by such Issuing Bank and outstanding after giving effect to such issuance, amendment or extension (and whether the amounts thereof shall have changed), (iii) on each day on which such Issuing Bank honors any drawing under any Letter of Credit, the date and amount of the drawing so honored, (iv) on any Business Day on which the Borrower reimburses or fails to reimburse any drawing under a Letter of Credit as required hereunder, the date of such reimbursement or such

failure and the amount of such reimbursed or unreimbursed drawing and (v) on any other Business Day, such other information as the Administrative Agent shall reasonably request as to the Letters of Credit issued by such Issuing Bank.

(g) Cash Collateralization. If any Event of Default shall occur and be continuing, on the day that the Borrower receives a request from an Issuing Bank or notice from the Administrative Agent referred to in Section 8.1, the Borrower shall deposit in a deposit account in the name of the Administrative Agent, for the benefit of the Issuing Banks and the Lenders, an amount in Dollars equal to 103% of the Letter of Credit Usage as of such date; provided that the obligation to deposit such Cash Collateral shall become effective immediately, and such deposit shall become immediately due and payable, without demand or other notice of any kind, upon the occurrence of any Event of Default specified in Section 8.1(f) or 8.1(g). The Borrower also shall deposit Cash Collateral in accordance with this Section 2.3(h) as and to the extent required by Section 2.13(e) or 2.21. Each such deposit shall be held by the Administrative Agent as collateral for the payment and performance of the obligations of the Borrower under this Agreement. The Administrative Agent shall have exclusive dominion and control, including the exclusive right of withdrawal, over such deposit account. Other than any interest earned on the investment of such deposits, which investments shall be made at the option and sole discretion of the Administrative Agent and at the Borrower's risk and expense, such deposits shall not bear interest. Interest or profits, if any, on such investments shall accumulate in such account. Funds in such account shall, notwithstanding anything to the contrary in Section 2.15(f) or 2.16 or the Collateral Documents, be applied by the Administrative Agent to reimburse the Issuing Banks for honored drawings under Letters of Credit for which they have not been reimbursed and, to the extent not so applied, shall be held for the satisfaction of the reimbursement obligations of the Borrower for the Letter of Credit Usage at such time or, if the maturity of the Loans has been accelerated (but subject to (i) the consent of a Majority in Interest of the Revolving Lenders and (ii) in the case of any such application at a time when any Revolving Lender is a Defaulting Lender (but only if, after giving effect thereto, the remaining Cash Collateral shall be less than the aggregate Fronting Exposure), the consent of each Issuing Bank), be applied to satisfy other obligations of the Borrower under this Agreement. If the Borrower is required to provide Cash Collateral as a result of the occurrence of an Event of Default, such Cash Collateral (to the extent not applied as aforesaid) shall be returned to the Borrower promptly after all Events of Default have been cured or waived and the Administrative Agent shall have received a certificate from an Authorized Officer of the Borrower to that effect. If the Borrower is required to provide Cash Collateral pursuant to Section 2.13(e), such Cash Collateral (to the extent not applied as aforesaid) shall be returned to the Borrower to the extent that, after giving effect to such return, the Total Utilization of Revolving Commitments would not exceed the Total Revolving Commitments. If the Borrower is required to provide Cash Collateral pursuant to Section 2.21, such Cash Collateral (to the extent not applied as aforesaid) shall be returned to the Borrower to the extent that, after giving effect to such return, no Issuing Bank shall have any Fronting Exposure.

(h) Termination of any Issuing Bank; Designation of Additional Issuing Banks.

(i) The Borrower may terminate the appointment of any Issuing Bank as an "Issuing Bank" hereunder by providing written notice thereof to such Issuing Bank, with a copy to the Administrative Agent, and terminating such Issuing Bank's Letter of Credit Issuing Commitment. Any such termination shall become effective upon the earlier of (i) such Issuing Bank acknowledging receipt of such notice and (ii) the 10th Business Day following the date of the delivery thereof; provided that no such termination shall become effective until and unless the Letter of Credit Usage attributable to Letters of Credit issued by such Issuing Bank (or its Affiliates) shall have been reduced to zero. At the time any such termination shall become effective, the Borrower shall pay all unpaid fees accrued for the account of the terminated Issuing Bank pursuant to Section 2.10(b). Notwithstanding the effectiveness of any such termination, the terminated Issuing Bank shall continue to have all the rights of an Issuing Bank under this Agreement and the other Credit Documents with respect to Letters of Credit issued by it prior to such termination, but shall not issue any additional Letters of Credit.

(ii) The Borrower may, at any time and from time to time, with the consent of the Administrative Agent (which consent shall not be unreasonably withheld, conditioned or delayed), designate as additional Issuing Banks one or more Revolving Lenders (or an Affiliate thereof) that agree to serve in such capacity as provided below. The acceptance by a Revolving Lender (or such Affiliate) of an appointment as an Issuing Bank hereunder shall be evidenced by an agreement, which shall be in form and substance reasonably satisfactory to the Administrative Agent, executed by the Borrower, the Administrative Agent and such designated Revolving Lender (or such Affiliate) and, from and after the effective date of such agreement, (i) such Revolving Lender (or such Affiliate) shall have all the rights and obligations of an Issuing Bank under this Agreement and (ii) references herein to the term "Issuing Bank" shall be deemed to include such Revolving Lender (or such Affiliate) in its capacity as an issuer of Letters of Credit hereunder.

(i) Letter of Credit Amounts. Unless otherwise specified herein, the amount of any Letter of Credit at any time shall be deemed to be the stated amount of such Letter of Credit in effect at such time; provided that with respect to any Letter of Credit that, by its terms or the terms of any letter of credit application relating thereto (or of any other document, agreement or instrument entered into by the applicable Issuing Bank and the Borrower and relating to such Letter of Credit), provides for one or more automatic increases prior to the expiration thereof (without giving effect to any automatic extension provisions therein or the reinstatement of an amount previously drawn thereunder and reimbursed) in the face amount thereof, the amount of such Letter of Credit shall be deemed to be the maximum face amount of such Letter of Credit after giving effect to all such increases, whether or not such maximum stated amount is in effect at such time.

(j) Indemnity. Without limiting the provisions of Section 10.3 or any other provision of this Agreement, the Borrower agrees to indemnify, defend and hold harmless each Indemnitee, to the fullest extent permitted by applicable law, from and against any and all claims, demands, suits, actions, investigations, proceedings, liabilities, fines, costs, penalties and damages, and all reasonable fees and disbursements of attorneys, experts or consultants and all other costs and expenses actually incurred in connection therewith or in connection with the enforcement of this indemnification (as and when they are incurred and irrespective of whether suit is brought), which may be incurred by or awarded against any such Indemnitee (other than (x) Taxes, except Taxes that represent claims, liabilities fines, costs, penalties or damages relating to or arising from any non-Tax claim, demand, suit, action, investigation or proceeding and (y) any liabilities, fines, costs, penalties, damages, fees and expenses arising out of claims, demands, suits, actions, investigations or proceedings commenced or threatened by a Credit Party, which shall be the subject of Section 10.3 and shall not be the subject of this Section 2.3(k)) (the "**Letter of Credit Indemnified Costs**"), and which arise out of or in connection with, or as a result of:

(i) any Letter of Credit or any pre-advice of its issuance;

(ii) any transfer, sale, delivery, surrender or endorsement of any Drawing Document at any time(s) held by any Indemnitee in connection with any Letter of Credit;

(iii) any action or proceeding arising out of, or in connection with, any Letter of Credit (whether administrative, judicial or in connection with arbitration), including any action or proceeding to compel or restrain any presentation or payment under any Letter of Credit, or for the wrongful dishonor of, or honoring a presentation under, any Letter of Credit;

(iv) any independent undertakings issued by the beneficiary of any Letter of Credit;

(v) any unauthorized instruction or request made to an Issuing Bank in connection with any Letter of Credit or any requested Letter of Credit or error in computer or electronic transmission;

(vi) an adviser, confirmer or other nominated person seeking to be reimbursed, indemnified or compensated;

(vii) any third party seeking to enforce the rights of an applicant, beneficiary, nominated person, transferee, assignee of any Letter of Credit proceeds or holder of an instrument or document;

(viii) the fraud, forgery or illegal action of parties other than such Indemnitee;

(ix) an Issuing Bank's performance of the obligations of a confirming institution or entity that wrongfully dishonors a confirmation; or

(x) the acts or omissions, whether rightful or wrongful, of any present or future de jure or de facto Governmental Authority or cause or event beyond the control of such Indemnitee;

in each case, including that resulting from any Indemnitee's own negligence; provided that, notwithstanding the foregoing, such indemnity shall not be available to any Indemnitee claiming indemnification under this Section 2.3(k) to the extent that such Letter of Credit Indemnified Costs (i) have been found by a final, non-appealable judgment of a court of competent jurisdiction to have resulted directly from the gross negligence, bad faith or willful misconduct of such Indemnitee or its Related Parties or (ii) arise out of or in connection with any action, claim or proceeding not involving any Credit Party or the equityholders or Affiliates of any Credit Party (or the Related Parties of any Credit Party) that is brought by an Indemnitee against another Indemnitee (other than against any Agent or the Arranger (or any holder of any other title or role) in its capacity as such). The Borrower hereby agrees to pay any Indemnitee claiming indemnity on demand from time to time all amounts owing under this Section 2.3(k). If and to the extent that the obligations of Borrower under this Section 2.3(k) are unenforceable for any reason, the Borrower agrees to make the maximum contribution to the Letter of Credit Indemnified Costs permissible under applicable law. This indemnification provision shall survive termination of this Agreement and all Letters of Credit.

(k) Limitation of Liability. The liability of an Issuing Bank (or any other Indemnitee) under, in connection with or arising out of any Letter of Credit (or pre-advice), regardless of the form or legal grounds of the action or proceeding, shall be limited to direct or actual damages suffered by the Borrower and the Subsidiaries that are caused directly by such Issuing Bank's gross negligence, bad faith or willful misconduct in (i) honoring a presentation under a Letter of Credit that on its face does not at least substantially comply with the terms and conditions of such Letter of Credit, (ii) failing to honor a presentation under a Letter of Credit that strictly complies with the terms and conditions of such Letter of Credit or (iii) retaining Drawing Documents presented under a Letter of Credit. An Issuing Bank shall be deemed to have acted with due diligence and reasonable care if such Issuing Bank's conduct is in accordance with Standard Letter of Credit Practice or in accordance with this Agreement. The Borrower's aggregate remedies against any Issuing Bank and any other Indemnitee for wrongfully honoring a presentation under any Letter of Credit or wrongfully retaining honored Drawing Documents shall in no event exceed the aggregate amount paid by the Borrower to such Issuing Bank in respect of the honored presentation in connection with such Letter of Credit under Section

2.3(d), plus interest at the rate then applicable to Base Rate Loans hereunder. The Borrower shall take commercially reasonable action to avoid and mitigate the amount of any damages claimed against any Issuing Bank or any other Indemnitee, including by enforcing its rights against the beneficiaries of the Letters of Credit to the extent the Borrower deems such enforcement to be commercially reasonable. Any claim by the Borrower under or in connection with any Letter of Credit shall be reduced by an amount equal to the sum of (x) the amount (if any) saved by the Borrower as a result of the breach or alleged wrongful conduct complained of and (y) the amount (if any) of the loss that would have been avoided by the Borrower had it taken all commercially reasonable steps to mitigate any loss, and in case of a claim of wrongful dishonor by specifically and timely authorizing the applicable Issuing Bank to effect a cure.

(l) Concerning the Issuing Banks. Notwithstanding any other provision of this Agreement:

(i) No Issuing Bank shall be under any obligation to issue any Letter of Credit if:

(A) any order, judgment or decree of any Governmental Authority or arbitrator shall by its terms purport to enjoin or restrain such Issuing Bank from issuing such Letter of Credit, or any law applicable to such Issuing Bank or any request or directive (whether or not having the force of law) from any Governmental Authority with jurisdiction over such Issuing Bank shall prohibit, or request that such Issuing Bank refrain from, the issuance of letters of credit generally or such Letter of Credit in particular or shall impose upon such Issuing Bank with respect to such Letter of Credit any restriction, reserve or capital requirement (for which such Issuing Bank is not otherwise compensated hereunder) not in effect on the Closing Date, or shall impose upon such Issuing Bank any unreimbursed loss, cost or expense that was not applicable on the Closing Date and which such Issuing Bank in good faith deems material to it;

(B) the issuance of such Letter of Credit would violate one or more policies of such Issuing Bank applicable to letters of credit generally; or

(C) any Revolving Lender is at that time a Defaulting Lender, except in accordance with Section 2.21(c).

(ii) An Issuing Bank shall be under no obligation to amend any Letter of Credit if (A) such Issuing Bank would have no obligation at such time to issue such Letter of Credit in its amended form under the terms hereof or (B) the beneficiary of such Letter of Credit does not accept the proposed amendment to such Letter of Credit.

(iii) Each Issuing Bank shall act on behalf of the Revolving Lenders with respect to any Letters of Credit issued by it and the documents associated therewith, and such Issuing Bank shall have all of the benefits and immunities (A) provided to the Administrative Agent in Section 9 with respect to any acts taken or omissions suffered by such Issuing Bank in connection with Letters of Credit issued by it or proposed to be issued by it and documents pertaining to such Letters of Credit as fully as if the term "Administrative Agent" or "Agent" as used in Section 9 included such Issuing Bank with respect to such acts or omissions, provided that no Lender shall have any obligation to any Issuing Bank (except, in the case of any Issuing Bank that is also an Agent, in its capacity as such Agent) under Section 9.6, and (B) as additionally provided herein with respect to Issuing Banks.

(m) Applicability of ISP and UCP. Unless otherwise expressly agreed by the applicable Issuing Bank and the Borrower when a Letter of Credit is issued (including any such agreement applicable to an Existing Letter of Credit), (i) the rules of the ISP and the UCP shall apply to each standby Letter of Credit and (ii) the rules of the UCP shall apply to each commercial Letter of Credit.

**2.4. Pro Rata Shares; Obligations Several; Availability of Funds**. All Loans on the occasion of any Borrowing shall be made, and all participations in Letters of Credit purchased, by the Lenders in proportion to their applicable Pro Rata Shares. The failure of any Lender to make any Loan or fund any participation required hereunder shall not relieve any other Lender of its obligations hereunder; provided that the Commitments and other obligations of the Lenders hereunder are several, and no Lender shall be responsible for the failure of any other Lender to make any Loan or fund any participation required hereunder or to satisfy any of its other obligations hereunder.

(a) Unless the Administrative Agent shall have been notified by a Lender prior to the applicable Credit Date that such Lender does not intend to make available to the Administrative Agent the amount of such Lender's Loan requested to be made on such Credit Date, the Administrative Agent may assume that such Lender has made such amount available to the Administrative Agent on such Credit Date and may, in its sole discretion, but shall not be obligated to, make available to the Borrower a corresponding amount. In such event, if a Lender has not in fact made the amount of its Loan available to the Administrative Agent, then such Lender and the Borrower severally agree to pay to the Administrative Agent forthwith on demand, such corresponding amount, with interest thereon for each day from and including the date such amount is made available to the Borrower to but excluding the date of such payment to the Administrative Agent, at (i) in the case of a payment to be made by such Lender, (A) at any time prior to the third Business Day following the date such amount is made available to the Borrower, the

customary rate set by the Administrative Agent for the correction of errors among banks and (B) thereafter, the Base Rate or (ii) in the case of a payment to be made by the Borrower, the interest rate applicable hereunder to Base Rate Loans of the applicable Class. If the Borrower and such Lender shall both pay such interest to the Administrative Agent for the same or an overlapping period, the Administrative Agent shall promptly remit to the Borrower the amount of such interest paid by the Borrower for such period. If such Lender pays such amount to the Administrative Agent, then such amount shall constitute such Lender's Loan included in the applicable Borrowing.

**2.5. Use of Proceeds**. The Borrower will use the proceeds of the Tranche B Term Loans made on the Closing Date (a) to consummate the Closing Date Refinancing, (b) to pay fees and expenses in connection with the Transactions and (c) for general corporate purposes of the Borrower and the Restricted Subsidiaries not prohibited by this Agreement. The Borrower will use the proceeds of the Revolving Loans solely for working capital requirements and other general corporate purposes of the Borrower and the Restricted Subsidiaries not prohibited by this Agreement, including for Acquisitions and other Investments permitted hereunder. Letters of Credit will be used by the Borrower solely for general corporate purposes of the Borrower and the Restricted Subsidiaries not prohibited by this Agreement. The Borrower will use the proceeds of any Incremental Term Loan solely for the purposes specified in the applicable Incremental Facility Agreement. The Borrower will use the proceeds of any Refinancing Term Loans solely for the purposes specified in Section 2.25(c) and the payment of any related fees, premiums and expenses.

**2.6. Evidence of Debt; Register; Notes**. Lenders' Evidence of Debt. Each Lender shall maintain records evidencing the Obligations of the Borrower owing to such Lender, including the principal amount of the Loans made by such Lender and each repayment and prepayment in respect thereof. Subject to Section 2.6(b), such records maintained by any Lender shall be conclusive and binding on the Borrower, absent manifest error; provided that the failure to maintain any such records, or any error therein, shall not in any manner affect the obligation of the Borrower to pay any amounts due hereunder in accordance with the terms hereof; provided further that in the event of any inconsistency between the records maintained by any Lender and the records maintained by the Administrative Agent, the records maintained by the Administrative Agent shall govern and control.

(a) Register. The Administrative Agent shall maintain records of the name and address of, and the Commitments of and the principal amount of and stated interest on the Loans owing to, each Lender from time to time (the "**Register**"). The entries in the Register shall be conclusive and binding on the Borrower and each Lender, absent manifest error; provided that the failure to maintain the Register, or any error therein, shall not in any manner affect the obligation of any Lender to make a Loan or other payment hereunder or the obligation of the Borrower to pay any amounts due hereunder, in each case in accordance with the terms of this Agreement. The Register shall be available for inspection by the Borrower or any Lender (but, in the case of a Lender, only with respect to (i) any entry relating to such Lender's Commitments or Loans and (ii) the identity of the other Lenders (but not information as to such other Lenders' Commitments or Loans)) at any reasonable time and from time to time upon reasonable prior notice. The Borrower hereby designates the Person serving as the Administrative Agent to serve as the Borrower's non-fiduciary agent solely for purposes of maintaining the Register as provided in this Section 2.6(b) and agrees that, in consideration of such Person serving in such capacity, such Person and its Related Parties shall constitute "Indemnitees".

(b) Notes. Upon the request of any Lender by written notice to the Borrower (with a copy to the Administrative Agent), the Borrower shall promptly prepare, execute and deliver to such Lender a promissory note payable to such Lender (or, if requested by such Lender, to such Lender and its registered assigns) to evidence such Lender's Loans of any Class, which shall be in a form approved by the Administrative Agent.

**2.7. Interest on Loans and Letter of Credit Disbursements**. Subject to Section 2.9, each Loan of any Class shall bear interest on the outstanding principal amount thereof from the date made through repayment (whether by acceleration or otherwise) thereof as follows:

(i) if a Base Rate Loan, at the Base Rate plus the Applicable Rate with respect to Loans of such Class; or

(ii) if a Eurodollar Rate Loan, at the Adjusted Eurodollar Rate plus the Applicable Rate with respect to Loans of such Class.

The applicable Base Rate or Adjusted Eurodollar Rate shall be determined by the Administrative Agent, and such determination shall be conclusive and binding on the parties hereto, absent manifest error.

(b) The basis for determining the rate of interest with respect to any Loan, and the Interest Period with respect to any Eurodollar Rate Borrowing, shall be selected by the Borrower pursuant to the applicable Funding Notice or Conversion/Continuation Notice delivered in accordance herewith; provided that there shall be no more than 10 (or such greater number as may be agreed to by the Administrative Agent) Eurodollar Rate Borrowings outstanding at any time. In the event the Borrower fails to specify in any Funding Notice the Type of the requested Borrowing, then the requested Borrowing shall be made as a Base Rate Borrowing. In the event the Borrower fails to deliver in accordance with Section 2.8 a Conversion/Continuation Notice with respect to any Eurodollar Rate Borrowing prior to the end of the Interest Period applicable thereto, then, unless such

Borrowing is repaid as provided herein, at the end of such Interest Period such Borrowing shall be ~~converted to~~**continued as** a ~~Base~~**Eurodollar** Rate Borrowing **with an Interest Period of one month**. In the event the Borrower requests the making of, or the conversion to or continuation of, any Eurodollar Rate Borrowing but fails to specify in the applicable Funding Notice or Conversion/Continuation Notice the Interest Period to be applicable thereto, the Borrower shall be deemed to have specified an Interest Period of one month. No Borrowing of any Class may be converted into a Borrowing of another Class.

(c) Interest payable pursuant to Section 2.7(a) shall be computed (i) in the case of Base Rate Loans, on the basis of a 360-day year (or, in the case of Base Rate Loans determined by reference to the Prime Rate, a 365-day or 366-day year, as applicable), and (ii) in the case of Eurodollar Rate Loans, on the basis of a 360-day year, in each case for the actual number of days elapsed in the period during which such interest accrues. In computing interest on any Loan, the date of the making of such Loan or the first day of an Interest Period applicable to such Loan or, with respect to a Base Rate Loan being converted from a Eurodollar Rate Loan, the date of conversion of such Eurodollar Rate Loan to such Base Rate Loan, as the case may be, shall be included, and the date of payment of such Loan or the expiration date of an Interest Period applicable to such Loan or, with respect to a Base Rate Loan being converted to a Eurodollar Rate Loan, the date of conversion of such Base Rate Loan to such Eurodollar Rate Loan, as the case may be, shall be excluded; provided that if a Loan is repaid on the same day on which it is made, one day's interest shall accrue on such Loan.

(d) Except as otherwise set forth herein, accrued interest on each Loan shall be payable in arrears (i) on each Interest Payment Date applicable to such Loan, (ii) upon any voluntary or mandatory repayment or prepayment of such Loan (other than any voluntary prepayment of any Base Rate Revolving Loan), to the extent accrued on the amount being repaid or prepaid, (iii) if such Loan is a Revolving Loan, on the Revolving Commitment Termination Date, (iv) on the Maturity Date applicable to such Loan and (v) in the event of any conversion of a Eurodollar Rate Loan prior to the end of the Interest Period then applicable thereto, on the effective date of such conversion.

(e) The Borrower agrees to pay to each Issuing Bank, with respect to drawings honored under any Letter of Credit issued by such Issuing Bank, interest on the amount paid by such Issuing Bank in respect of each such drawing from the date such drawing is honored to but excluding the date such amount is reimbursed by or on behalf of the Borrower at a rate equal to (i) for the period from the date such drawing is honored to but excluding the applicable Reimbursement Date, the rate of interest otherwise payable hereunder with respect to Base Rate Revolving Loans and (ii) thereafter, the rate determined in accordance with Section 2.9. Interest payable pursuant to this Section 2.7(e) shall be computed on the basis of a 365-day or 366-day year, as applicable, for the actual number of days elapsed in the period during which it accrues, and shall be payable on demand or, if no demand is made, on the date on which the related drawing under a Letter of Credit is reimbursed in full. In the event the applicable Issuing Bank shall have been reimbursed by the Revolving Lenders for all or any portion of such drawing, such Issuing Bank shall distribute to each Revolving Lender that has paid all amounts payable by it under Section 2.3(e) with respect to such drawing such Revolving Lender's applicable Pro Rata Share of any interest received by such Issuing Bank in respect of the portion of such drawing so reimbursed by the Revolving Lenders for the period from the date on which such Issuing Bank was so reimbursed by the Revolving Lenders to but excluding the date on which such portion of such drawing is reimbursed by the Borrower.

**2.8. Conversion/Continuation**. Subject to Section 2.17, the Borrower shall have the option:

(i) to convert at any time all or any part of any Borrowing from one Type to the other Type; and

(ii) to continue, at the end of the Interest Period applicable to any Eurodollar Rate Borrowing, all or any part of such Borrowing as a Eurodollar Rate Borrowing and to elect an Interest Period therefor;

provided, in each case, that at the commencement of each Interest Period for any Eurodollar Rate Borrowing, such Borrowing shall be in an amount that complies with Section 2.1(b) or 2.2(b), as applicable.

In the event any Borrowing shall have been converted or continued in accordance with this Section 2.8 in part, such conversion or continuation shall be allocated ratably, in accordance with their applicable Pro Rata Shares, among the Lenders holding the Loans comprising such Borrowing, and the Loans comprising each part of such Borrowing resulting from such conversion or continuation shall be considered a separate Borrowing.

(b) To exercise its option pursuant to this Section 2.8, the Borrower shall deliver a fully completed and executed Conversion/Continuation Notice to the Administrative Agent not later than 1:00 p.m. (New York City time) (i) on the proposed Conversion/Continuation Date, in the case of a conversion to a Base Rate Borrowing, and (ii) at least three Business Days in advance of the proposed Conversion/Continuation Date, in the case of a conversion to, or a continuation of, a Eurodollar Rate Borrowing. In lieu of delivering a Conversion/Continuation Notice, the Borrower may give the Administrative Agent, not later than the applicable time set forth above, telephonic notice of any proposed conversion or continuation; provided that such telephonic notice shall be promptly confirmed in writing by delivery to the Administrative Agent of a fully completed and executed Conversion/Continuation Notice. Except as otherwise provided herein, a Conversion/Continuation Notice for a conversion to, or a continuation of, any Eurodollar Rate Borrowing shall be irrevocable on and after the related Interest Rate Determination Date, and

the Borrower shall be bound to effect a conversion or continuation in accordance therewith; any failure to effect such conversion or continuation in accordance therewith shall be subject to Section 2.17(c).

(c) Notwithstanding anything to the contrary herein, if an Event of Default under Section 8.1(a), 8.1(f) or 8.1(g) or, at the request of the Requisite Lenders (or a Majority in Interest of Lenders of any Class), any other Event of Default shall have occurred and be continuing, then no outstanding Borrowing (of the applicable Class, in the case of such a request by a Majority in Interest of Lenders of any Class) may be converted to or continued as a Eurodollar Rate Borrowing.

**2.9. Default Interest**. Notwithstanding anything to the contrary herein, upon the occurrence and during the continuance of any Event of Default under Section 8.1(a), 8.1(f) or 8.1(g), any principal of or interest on any Loan or any fee or other amount payable by the Borrower hereunder shall bear interest (in the case of an Event of Default under Section 8.1(a), only on overdue amounts), payable on demand, after as well as before judgment, at a rate per annum equal to (a) in the case of the principal of any Loan, 2.00% per annum in excess of the interest rate otherwise applicable hereunder to such Loan or (b) in the case of any other amount, a rate (computed on the basis of a year of 360 days for the actual number of days elapsed) that is 2.00% per annum in excess of the interest rate payable hereunder for Base Rate Revolving Loans. Payment or acceptance of the increased rates of interest provided for in this Section 2.9 is not a permitted alternative to timely payment and shall not constitute a waiver of any Event of Default or otherwise prejudice or limit any rights or remedies of the Administrative Agent, any Issuing Bank or any Lender.

**2.10. Fees**. The Borrower agrees to pay to the Administrative Agent, for the account of each Revolving Lender, for each day:

(i) a commitment fee equal to such Lender's applicable Pro Rata Share of (A) the excess, determined as of the close of business on such day, of (1) the Total Revolving Commitments over (2) the aggregate principal amount of all outstanding Revolving Loans and the Letter of Credit Usage, multiplied by (B) the Commitment Fee Rate on such day; and

(ii) a letter of credit fee equal to such Lender's applicable Pro Rata Share of (A) the Letter of Credit Usage (excluding any portion thereof attributable to unreimbursed drawings under the Letters of Credit), determined as of the close of business on such day, multiplied by (B) the Applicable Rate for Eurodollar Rate Revolving Loans on such day.

(b) The Borrower agrees to pay directly to each Issuing Bank, for its own account, the following fees:

(i) for each day, a fronting fee equal to 0.125% per annum multiplied by the Letter of Credit Usage attributable to Letters of Credit issued by such Issuing Bank (excluding any portion thereof attributable to unreimbursed drawings under such Letters of Credit), determined as of the close of business on any such day; and

(ii) any and all other customary commissions, fees and charges then in effect imposed by, and any and all expenses incurred by, such Issuing Bank, or by any adviser, confirming institution or entity or other nominated person, relating to Letters of Credit issued by such Issuing Bank, at the time of issuance by it of any Letter of Credit and upon the occurrence of any other activity with respect to any Letter of Credit issued by it (including transfers, assignments of proceeds, amendments, drawings or cancellations).

(c) All fees referred to in Sections 2.10(a) and 2.10(b)(i) shall be calculated on the basis of a year of 360 days and the actual number of days elapsed and shall be payable quarterly in arrears on the last Business Day of March, June, September and December of each year, (i) in the case of the fees referred to in Section 2.10(a)(i), during the Revolving Commitment Period and (ii) in the case of the fees referred to in Section 2.10(a)(ii) or 2.10(b)(i), during the period from and including the Closing Date to but excluding the later of the Revolving Commitment Termination Date and the date on which the Letter of Credit Usage shall have been reduced to zero; provided that all such fees shall be payable on the Revolving Commitment Termination Date and any such fees accruing after such date shall be payable on demand.

(d) The Borrower agrees to pay on the Closing Date to the Administrative Agent, for the account of each Lender, such upfront fees as shall have been separately agreed by the Borrower and the Arrangers with respect thereto.

(e) The Borrower agrees to pay to the Administrative Agent and the Collateral Agent such other fees in the amounts and at the times separately agreed upon in respect of the credit facilities provided herein.

(f) Fees paid hereunder shall not be refundable or creditable under any circumstances.

**2.11. Scheduled Installments; Repayment on Maturity Date**. Subject to Section 2.11(c), the Borrower shall repay Tranche B Term Borrowings on March 31, June 30, September 30 and December 31 of each year, commencing with March 31, 2019 and ending with the last such day to occur prior to the Tranche B Term Loan Maturity Date, in an aggregate principal amount for each such date equal to 0.25% of the aggregate principal amount of the Tranche B Term Loans made on the Closing

Date. To the extent not previously paid, all Tranche B Term Loans shall be due and payable on the Tranche B Term Loan Maturity Date.

(a) Subject to Section 2.11(c), the Borrower shall repay Term Loans of any Class established under Section 2.23, 2.24 or 2.25 in such amounts and on such date or dates as shall be specified therefor in the applicable Incremental Facility Agreement, Extension/Modification Agreement or Refinancing Facility Agreement establishing the Term Loans of such Class. To the extent not previously paid, all Term Loans of any such Class shall be due and payable on the Maturity Date applicable to the Term Loans of such Class.

(b) The Installments shall be reduced in connection with any voluntary or mandatory prepayments of, or any repurchases by the Borrower of, the Tranche B Term Loans or the Term Loans of any other Class, as the case may be, in accordance with Section 2.14.

(c) Prior to any repayment of any Term Borrowings of any Class under this Section 2.11, the Borrower shall select the Term Borrowing or Term Borrowings of the applicable Class to be repaid and shall notify the Administrative Agent of such selection. Each such notice may be given by telephone or in writing (and, if given by telephone, shall promptly be confirmed in writing). Each repayment of a Term Borrowing shall be allocated among the Lenders holding Loans comprising such Term Borrowing in accordance with their applicable Pro Rata Shares.

(d) The Borrower shall repay to the Administrative Agent, for the account of the Revolving Lenders, the then unpaid principal amount of each Revolving Loan on the Revolving Maturity Date.

**2.12. Voluntary Prepayments/Commitment Reductions; Call Protection**. Voluntary Prepayments. At any time and from time to time, the Borrower may, without premium or penalty (except as applicable under Section 2.12(c)) but subject to compliance with the conditions set forth in this Section 2.12(a) and with Section 2.17(c), prepay any Borrowing in whole or in part; provided that (A) each such partial voluntary prepayment of any Term Borrowing shall be in an aggregate principal amount of $5,000,000 or an integral multiple of $1,000,000 in excess of such amount and (B) each such partial voluntary prepayment of any Revolving Borrowing shall be in an aggregate principal amount of (x) in the case of a Eurodollar Revolving Borrowing, $1,000,000 or an integral multiple of $500,000 in excess of such amount and (y) in the case of a Base Rate Revolving Borrowing, $500,000 or an integral multiple of $100,000 in excess of such amount.

(i) To make a voluntary prepayment pursuant to Section 2.12(a)(i), the Borrower shall notify the Administrative Agent not later than 1:00 p.m. (New York City time) (A) on the date of prepayment, in the case of prepayment of Base Rate Borrowings, or (B) at least three Business Days prior to the date of prepayment, in the case of prepayment of Eurodollar Rate Borrowings. Each such notice shall specify the prepayment date (which shall be a Business Day) and the principal amount of each Borrowing or portion thereof to be prepaid, and may be given by telephone or in writing (and, if given by telephone, shall promptly be confirmed in writing). Each such notice shall be irrevocable, and the principal amount of each Borrowing specified therein shall become due and payable on the prepayment date specified therein; provided that a notice of prepayment of any Borrowing pursuant to Section 2.12(a)(i) may state that such notice is conditioned upon the occurrence of one or more events specified therein, in which case such notice may be rescinded by the Borrower (by notice to the Administrative Agent on or prior to the specified date of prepayment) if such condition is not satisfied. Promptly following receipt of any such notice, the Administrative Agent shall advise the Lenders of the applicable Class of the details thereof. Each voluntary prepayment of a Borrowing shall be allocated among the Lenders holding Loans comprising such Borrowing in accordance with their applicable Pro Rata Shares.

(ii) Notwithstanding any other provision of this Section 2.12 to the contrary, in connection with a refinancing in full of the credit facilities established hereunder, any Lender may, with the consent of the Borrower, elect to accept Rollover Indebtedness in lieu of all or any part of such Lender's applicable Pro Rata Share of any prepayment of any Borrowing made pursuant to Section 2.12(a)(i).

(b) Voluntary Commitment Reductions. At any time and from time to time, the Borrower may, without premium or penalty but subject to compliance with the conditions set forth in this Section 2.12(b), terminate in whole or permanently reduce in part (A) the Revolving Commitments in an amount up to the amount by which the Total Revolving Commitments exceed the Total Utilization of Revolving Commitments at the time of such proposed termination or reduction or (B) the Term Commitments of any Class; provided that each such partial reduction of the Commitments of any Class shall be in an aggregate amount of $5,000,000 or an integral multiple of $1,000,000 in excess of such amount.

(i) To make a voluntary termination or reduction of the Commitments of any Class pursuant to Section 2.12(b)(i), the Borrower shall notify the Administrative Agent not later than 1:00 p.m. (New York City time) at least three Business Days prior to the date of effectiveness of such termination or reduction. Each such notice shall specify the termination or reduction date (which shall be a Business Day) and the amount of any partial reduction, and may be given by telephone or in writing (and, if given by telephone, shall promptly be confirmed in writing). Each such notice shall be irrevocable, and

the termination or reduction of the Commitments specified therein shall become effective on the date specified therein; provided that a notice of termination or reduction of the Commitments of any Class under Section 2.12(b)(i) may state that such notice is conditioned upon the occurrence of one or more events specified therein, in which case such notice may be rescinded by the Borrower (by notice to the Administrative Agent on or prior to the specified effective date) if such condition is not satisfied. Promptly following receipt of any such notice, the Administrative Agent shall advise the Lenders of the applicable Class of the details thereof. Each voluntary reduction of the Commitments of any Class shall reduce the Commitments of the Lenders of such Class in accordance with their applicable Pro Rata Shares.

(c) Tranche B Term Loan Call Protection. In the event that prior to the six month anniversary of the Closing Date, (i) all or any portion of the Tranche B Term Borrowings are subject to any Repricing Event or (ii) a Lender is required to assign any of its Tranche B Term Loans pursuant to Section 2.22 in connection with such Repricing Event, then each Lender whose Tranche B Term Loans are subject to such Repricing Event or that is required to assign any of its Tranche B Term Loans pursuant to Section 2.22 in connection with such Repricing Event shall be paid a fee equal to 1.00% of the aggregate principal amount of such Lender's Tranche B Term Loans subject to such Repricing Event or such assignment; provided that such fee shall not apply if such Repricing Event (or such assignment) occurs in connection with (A) the consummation of an Acquisition not permitted by this Agreement or (B) the occurrence of a Change of Control.

**2.13. Mandatory Prepayments/Commitment Reductions**. Asset Sales. Not later than the fifth Business Day following the date of receipt by the Borrower or any Restricted Subsidiary of any Net Proceeds in respect of any Asset Sale, the Borrower shall prepay the Term Borrowings in an aggregate amount equal to 100% of such Net Proceeds; provided that the Borrower may, prior to the date of the required prepayment, deliver to the Administrative Agent a certificate of an Authorized Officer of the Borrower to the effect that the Borrower intends to cause such Net Proceeds (or a portion thereof specified in such certificate) to be reinvested in non-current assets useful in the business of the Borrower and the Restricted Subsidiaries or to be applied to consummate an Acquisition permitted hereunder, in each case, within 365 days after the receipt of such Net Proceeds, and certifying that, as of the date thereof, no Default or Event of Default has occurred and is continuing, in which case during such period the Borrower shall not be required to make such prepayment to the extent of the amount set forth in such certificate; provided further that any such Net Proceeds that are not so reinvested or applied by the end of such period (or within a period of 180 days thereafter, if by the end of such initial 365-day period the Borrower or any Restricted Subsidiary shall have entered into a binding agreement with a third party to acquire such assets or to consummate an Acquisition) shall be applied to prepay the Term Borrowings promptly upon the expiration of such period. Notwithstanding the foregoing, the Borrower may use a portion of any Net Proceeds in respect of any Asset Sale that would otherwise be required pursuant to this Section 2.13(a) to be applied to prepay the Term Borrowings to prepay, repurchase or redeem any Permitted Credit Agreement Refinancing Indebtedness or any Permitted Incremental Equivalent Indebtedness that, in each case, constitutes Permitted Pari Passu Secured Indebtedness but only to the extent such Permitted Pari Passu Secured Indebtedness pursuant to the terms thereof is required to be (or is required to be offered to the holders thereof to be) prepaid, repurchased or redeemed as a result of such Asset Sale (with the amount of the prepayment of the Term Borrowings that would otherwise have been required pursuant to this Section 2.13(a) being reduced accordingly), provided that (i) such portion shall not exceed the product of (A) the amount of such Net Proceeds multiplied by (B) a fraction of which the numerator is the outstanding aggregate principal amount of such Permitted Pari Passu Secured Indebtedness and the denominator is the sum of the aggregate principal amount of such Permitted Pari Passu Secured Indebtedness and all Term Borrowings, in each case at the time of occurrence of such Asset Sale, and (ii) in the event the holders of such Permitted Pari Passu Secured Indebtedness shall have declined such prepayment, repurchase or redemption, the declined amount shall promptly (and in any event within 10 Business Days after the date of rejection) be applied to prepay the Term Borrowings.

(a) Insurance/Condemnation Events. Not later than the fifth Business Day following the date of receipt by the Borrower or any Restricted Subsidiary, or by the Collateral Agent as loss payee, of any Net Proceeds in respect of any Insurance/Condemnation Event, the Borrower shall prepay the Term Borrowings in an aggregate amount equal to 100% of such Net Proceeds; provided that the Borrower may, prior to the date of the required prepayment, deliver to the Administrative Agent a certificate of an Authorized Officer of the Borrower to the effect that the Borrower intends to cause such Net Proceeds (or a portion thereof specified in such certificate) to be reinvested in replacement assets (including through the repair, restoration or replacement of the damaged, destroyed or condemned assets) or other non-current assets useful in the business of the Borrower and the Restricted Subsidiaries or to be applied to consummate an Acquisition permitted hereunder, in each case, within 365 days after the receipt of such Net Proceeds, and certifying that, as of the date thereof, no Default or Event of Default has occurred and is continuing, in which case during such period the Borrower shall not be required to make such prepayment to the extent of the amount set forth in such certificate; provided further that any such Net Proceeds that are not so reinvested or applied by the end of such period (or within a period of 180 days thereafter, if by the end of such initial 365-day period the Borrower or any Restricted Subsidiary shall have entered into a binding agreement with a third party to acquire such assets or to consummate an Acquisition) shall be applied to prepay the Term Borrowings promptly upon the expiration of such period. Notwithstanding the foregoing, the Borrower may use a portion of any Net Proceeds in respect of any Insurance/Condemnation Event that would otherwise be required pursuant to this Section 2.13(b) to be applied to prepay the Term Borrowings to prepay, repurchase or redeem any Permitted Credit Agreement Refinancing Indebtedness or any Permitted Incremental Equivalent Indebtedness that, in each case, constitutes Permitted Pari Passu Secured Indebtedness but only to the extent such Permitted Pari Passu Secured Indebtedness pursuant to the

terms thereof is required to be (or is required to be offered to the holders thereof to be) prepaid, repurchased or redeemed as a result of such Insurance/Condemnation Event (with the amount of the prepayment of the Term Borrowings that would otherwise have been required pursuant to this Section 2.13(b) being reduced accordingly), provided that (i) such portion shall not exceed the product of (A) the amount of such Net Proceeds multiplied by (B) a fraction of which the numerator is the outstanding aggregate principal amount of such Permitted Pari Passu Secured Indebtedness and the denominator is the sum of the aggregate principal amount of such Permitted Pari Passu Secured Indebtedness and all Term Borrowings, in each case at the time of occurrence of such Insurance/Condemnation Event, and (ii) in the event the holders of such Permitted Pari Passu Secured Indebtedness shall have declined such prepayment, repurchase or redemption, the declined amount shall promptly (and in any event within 10 Business Days after the date of rejection) be applied to prepay the Term Borrowings.

(b) Issuance of Debt. No later than the first Business Day following the date of receipt by the Borrower or any Restricted Subsidiary of any Net Proceeds from the incurrence of any Indebtedness (other than any Indebtedness permitted to be incurred pursuant to Section 6.1), the Borrower shall prepay the Term Borrowings in an aggregate amount equal to 100% of such Net Proceeds.

(c) Consolidated Excess Cash Flow. In the event that there shall be Consolidated Excess Cash Flow for any Fiscal Year (commencing with the Fiscal Year ending December 31, 2019), the Borrower shall, not later than 120 days after the end of such Fiscal Year (and, in the case of Consolidated Excess Cash Flow attributable to the operations of a CFC or CFC Holding Company, subject to the limitations of Section 2.13(g)), prepay the Term Borrowings in an aggregate principal amount equal to (i) the product of (A) the Applicable ECF Percentage for such Fiscal Year multiplied by (B) the Consolidated Excess Cash Flow for such Fiscal Year minus (ii) the sum of the aggregate principal amount of the Term Borrowings voluntarily prepaid by the Borrower pursuant to Section 2.12 or, to the extent of Cash spent, repurchased by the Borrower pursuant to Section 10.6(i), minus (iii) the aggregate principal amount of any optional prepayments, repurchases or redemptions (in each case, to the extent of Cash spent) of any Permitted Credit Agreement Refinancing Indebtedness or any Permitted Incremental Equivalent Indebtedness that, in each case, constitutes Permitted Pari Passu Secured Indebtedness, minus (iv) the aggregate principal amount of any optional prepayments of any Revolving Loans but solely to the extent the Revolving Commitments are permanently reduced in connection therewith (and solely to the extent of the amount of such permanent reduction and excluding any reduction in connection with a refinancing thereof), in each case under clauses (ii) through (iv) above, (1) during such Fiscal Year (to the extent not applied to reduce any mandatory prepayment required under this Section 2.13(d) in respect of any prior Fiscal Year pursuant to clause (2) below) or (2) at the option of the Borrower, after the end of such Fiscal Year and prior to the time that the mandatory prepayment required under this Section 2.13(d) in respect of such Fiscal Year is due as provided above and, in each case, only to the extent such prepayments, repurchases or redemptions have not been financed with the proceeds of incurrences of Long-Term Indebtedness (other than revolving credit Indebtedness); provided that no prepayment shall be required under this Section 2.13(d) unless the amount thereof would equal or exceed $10,000,000.

(d) Reductions of Revolving Exposure. In the event and on each occasion that the Total Utilization of Revolving Commitments exceeds the Total Revolving Commitments, the Borrower shall prepay Revolving Borrowings (or, if no such Loans or Borrowings are outstanding, deposit Cash Collateral in accordance with Section 2.3(h)) in an aggregate amount equal to such excess.

(e) Notice and Certificate. Prior to or concurrently with any mandatory prepayment or reduction pursuant to this Section 2.13, the Borrower (i) shall notify the Administrative Agent of such prepayment or reduction and (ii) shall deliver to the Administrative Agent a certificate of an Authorized Officer of the Borrower setting forth the calculation of the amount of the applicable prepayment or reduction. Each such notice shall be irrevocable and shall specify the prepayment date and the principal amount of each Borrowing or portion thereof to be prepaid (with such specification to be in accordance with Section 2.14(b)), or the effective date and the amount of any such reduction, as applicable, and may be given by telephone or in writing (and, if given by telephone, shall promptly be confirmed in writing). Promptly following receipt of any such notice, the Administrative Agent shall advise the Lenders of the applicable Class of the details thereof. Each mandatory prepayment of any Borrowing shall be allocated among the Lenders holding Loans comprising such Borrowing in accordance with their applicable Pro Rata Shares and shall be subject to Section 2.17(c).

(f) Foreign Restrictions and Taxes. Notwithstanding any other provisions of this Section 2.13 to the contrary, if the Borrower determines in good faith that (i) any Net Proceeds in respect of any Asset Sale by, or any Insurance/Condemnation Event affecting the assets of, a Restricted Subsidiary that is a Foreign Subsidiary, a CFC or a CFC Holding Company, or any portion of Consolidated Excess Cash Flow attributable to a Restricted Subsidiary that is a Foreign Subsidiary, a CFC or a CFC Holding Company, are prohibited, restricted or delayed by applicable foreign law (including currency controls) from being repatriated to the United States (and that, in view of the available liquidity and working capital requirements of the Borrower and the Restricted Subsidiaries that are not Foreign Subsidiaries, CFCs or CFC Holding Companies (as determined by the Borrower in good faith, with such determination being permitted to take into account the cyclicality applicable to the business of the Borrower and the Restricted Subsidiaries and to disregard availability under the Revolving Commitments (it being understood that the Borrower shall not be required to make a borrowing of Revolving Loans to make any such mandatory prepayment required under Section 2.13(a), 2.13(b) or 2.13(d))), such repatriation is reasonably required in order to provide the Borrower with the funds with which to make

such prepayment as would otherwise be required hereunder), then the amount thereof so affected will not be required to be applied to prepay Term Borrowings as otherwise required under Section 2.13(a), 2.13(b) or 2.13(d), as applicable, provided that (A) the Borrower shall, and shall cause such Foreign Subsidiary, CFC or CFC Holding Company to, use commercially reasonable efforts to take actions reasonably required by the applicable foreign law to permit such repatriation and (B) the Borrower shall prepay Term Borrowings in accordance with such applicable Section in a principal amount equal to such affected amount (or a portion thereof) at such time as (x) the repatriation of such amount (or such portion thereof) becomes permitted under applicable foreign law or (y) the Borrower determines in good faith that, in view of the available liquidity and working capital requirements of the Borrower and the Restricted Subsidiaries that are not Foreign Subsidiaries, CFCs or CFC Holding Companies (taking into account the foregoing considerations), funds are available in the United States to make such prepayment (or such portion thereof), provided further that any such prepayment shall no longer be required to be made with respect to any such amounts that, after the use of such commercially reasonable efforts, have not been repatriated prior to the date that is one year after the date the original prepayment was required to be made under Section 2.13(a), 2.13(b) or 2.13(d), as applicable, or (ii) that repatriation of any Net Proceeds in respect of any Asset Sale by, or any Insurance/Condemnation Event affecting the assets of, a Restricted Subsidiary that is a Foreign Subsidiary, a CFC or a CFC Holding Company, or any portion of Consolidated Excess Cash Flow attributable to a Restricted Subsidiary that is a Foreign Subsidiary, a CFC or a CFC Holding Company, would have a material adverse tax consequence (taking into account any withholding tax, any Subpart F inclusion and any foreign tax credit or benefit actually realized in connection with such repatriation) to the Borrower (and that, in view of the available liquidity and working capital requirements of the Borrower and the Restricted Subsidiaries that are not Foreign Subsidiaries, CFCs or CFC Holding Companies (as determined by the Borrower in good faith, with such determination being permitted to take into account the cyclicality applicable to the business of the Borrower and the Restricted Subsidiaries and to disregard availability under the Revolving Commitments (it being understood that the Borrower shall not be required to make a borrowing of Revolving Loans to make any such mandatory prepayment required under Section 2.13(a), 2.13(b) or 2.13(d))), such repatriation is reasonably required in order to provide the Borrower with the funds with which to make such prepayment as would otherwise be required hereunder), then the amount thereof so affected will not be required to be applied to prepay Term Borrowings as otherwise required under Section 2.13(a), 2.13(b) or 2.13(d), as applicable, provided that the Borrower shall prepay Term Borrowings in accordance with such applicable Section in a principal amount equal to such affected amount (or a portion thereof) at such time as (A) the repatriation of such amount (or such portion thereof) would no longer result in a material adverse tax consequence or (B) the Borrower determines in good faith that, in view of the available liquidity and working capital requirements of the Borrower and the Restricted Subsidiaries that are not Foreign Subsidiaries, CFCs or CFC Holding Companies (taking into account the foregoing considerations), funds are available in the United States to make such prepayment (or such portion thereof), provided further that any such prepayment shall no longer be required to be made after the date that is one year after the date the original prepayment was required to be made under Section 2.13(a), 2.13(b) or 2.13(d), as applicable.

**2.14. Application of Prepayments; Waivable Mandatory Prepayments**.

Application of Voluntary Prepayments and Repurchases. Any voluntary prepayment of Term Borrowings of any Class pursuant to Section 2.12(a) shall be applied to reduce the subsequent Installments to be paid pursuant to Section 2.11 with respect to Term Borrowings of such Class in the manner specified by the Borrower in the notice of prepayment relating thereto (or, if no such manner is specified in such notice, in direct order of maturity); provided that any prepayment of Term Borrowings of any Class as contemplated by Section 2.25(b) shall be applied to reduce the subsequent Installments to be paid pursuant to Section 2.11 with respect to Term Borrowings of such Class in the manner specified in Section 2.25(c). Any repurchase of Term Loans of any Class as contemplated by Section 10.6(i) shall be applied to reduce the subsequent Installments to be paid pursuant to Section 2.11 with respect to Term Borrowings of such Class in the manner specified in Section 10.6(i).

(a) Application of Mandatory Prepayments. Any mandatory prepayment of Term Borrowings pursuant to Section 2.13 shall (i) be allocated among the Classes of Term Borrowings on a pro rata basis (in accordance with the aggregate principal amount of outstanding Borrowings of each such Class), provided that the amounts so allocable to Incremental Term Loans, Extended/Modified Term Loans or Refinancing Term Loans of any Class may be applied to other Term Borrowings as provided in the applicable Incremental Facility Agreement, Extension/Modification Agreement or Refinancing Facility Agreement, and (ii) be applied to reduce the subsequent Installments to be made pursuant to Section 2.11 with respect to Term Borrowings of any Class, (x) in the case of Tranche B Term Borrowings, in the manner specified by the Borrower in the notice of prepayment relating thereto (or, if no such manner is specified in such notice, in direct order of maturity) and (y) in the case of Borrowings of any other Class, as provided in the applicable Incremental Facility Agreement, Extension/Modification Agreement or Refinancing Facility Agreement.

(b) Waivable Mandatory Prepayments. Notwithstanding anything herein to the contrary, any Term Lender may elect, by notice to the Administrative Agent (which may be given by telephone or in writing (and, if given by telephone, shall promptly be confirmed in writing)) at least one Business Day (or such shorter period as may be established by the Administrative Agent) prior to the required prepayment date, to decline all or any portion of any mandatory prepayment of its Term Loans pursuant to Section 2.13 (other than Section 2.13(c)), in which case the aggregate amount of the prepayment that would have been applied to prepay Term Loans but was so declined shall be, *first*, applied on the required prepayment date to prepay or offer to redeem any

Permitted Credit Agreement Refinancing Indebtedness or any Permitted Incremental Equivalent Indebtedness to the extent required thereby and, *second*, to the extent of the remainder thereof that is not so applied to prepay or redeem such Indebtedness, shall be retained by the Borrower.

**2.15. General Provisions Regarding Payments**. All payments by the Borrower or any other Credit Party of principal, interest, fees and other amounts required to be made hereunder or under any other Credit Document shall be made by wire transfer of same day funds in Dollars, without defense, recoupment, set-off or counterclaim, free of any restriction or condition, to the account of the Administrative Agent most recently designated by it for such purpose and received by the Administrative Agent not later than 1:00 p.m. (New York City time) on the date due for the account of the Persons entitled thereto; provided that payments required to be made directly to an Issuing Bank shall be so made and payments made pursuant to Sections 2.17(c), 2.18, 2.19, 10.2 and 10.3 shall be made directly to the Persons entitled thereto. The Administrative Agent shall distribute any payment received by it hereunder for the account of any other Person to the appropriate recipient promptly following receipt thereof.

(a) All payments in respect of the principal amount of any Loan (other than voluntary prepayments of Base Rate Revolving Loans) shall be accompanied by payment of accrued interest on the principal amount being repaid or prepaid, and all such payments (and, in any event, any payments in respect of any Loan on a date when interest is due and payable with respect to such Loan) shall be applied to the payment of interest then due and payable before application to principal.

(b) If any Conversion/Continuation Notice is withdrawn as to any Affected Lender or if any Affected Lender makes Base Rate Loans in lieu of its applicable Pro Rata Share of any Eurodollar Rate Borrowing, the Administrative Agent shall give effect thereto in apportioning payments received thereafter.

(c) Subject to the proviso set forth in the definition of "Interest Period", whenever any payment to be made hereunder with respect to any Loan shall be stated to be due on a day that is not a Business Day, such payment shall be made on the next succeeding Business Day, and such extension of time shall be included in the computation of the payment of interest hereunder.

(d) Any payment hereunder by or on behalf of the Borrower to the Administrative Agent that is not received by the Administrative Agent in same day funds prior to 1:00 p.m. (New York City time) on the date due shall, unless the Administrative Agent shall determine otherwise, be deemed to have been received, for purposes of computing interest and fees hereunder (including for purposes of determining the applicability of Section 2.9), on the Business Day immediately following the date of receipt (or, if later, the Business Day immediately following the date the funds received become available funds).

(e) If an Event of Default shall have occurred and the maturity of the Loans shall have been accelerated pursuant to Section 8.1, all payments or proceeds received by the Administrative Agent or the Collateral Agent in respect of any of the Obligations, or from any sale of, collection from or other realization upon all or any part of the Collateral, shall, subject to Sections 2.3(h) and 2.21(d)(iii) and the requirements of any applicable Permitted Intercreditor Agreement, be applied in accordance with the application arrangements set forth in the Pledge and Security Agreement.

(f) Unless the Administrative Agent shall have been notified by the Borrower prior to the date on which any payment is due to the Administrative Agent for the account of the Lenders or Issuing Banks hereunder that the Borrower will not make such payment, the Administrative Agent may assume that the Borrower has made such payment on such date in accordance herewith and may, in its sole discretion, but shall not be obligated to, distribute to the Lenders or Issuing Banks, as the case may be, the amount due. In such event, if the Borrower has not in fact made such payment, then each of the Lenders or Issuing Banks, as the case may be, severally agrees to pay to the Administrative Agent forthwith on demand the amount so distributed to such Lender or Issuing Bank with interest thereon, for each day from and including the date such amount is distributed to it to but excluding the date of payment to the Administrative Agent (i) at any time prior to the third Business Day following the date such amount is distributed to it, the customary rate set by the Administrative Agent for the correction of errors among banks and (ii) thereafter, the Base Rate.

**2.16. Ratable Sharing**. The Lenders hereby agree among themselves that if any Lender shall, whether through the exercise of any right of set-off or banker's lien, by counterclaim or cross action or by the enforcement of any right under the Credit Documents or otherwise, or as adequate protection of a deposit treated as cash collateral under the Bankruptcy Code, receive payment or reduction of a portion of the aggregate amount of any principal, interest, fees and amounts payable in respect of participations in Letters of Credit owing to such Lender hereunder or under the other Credit Documents (collectively, the "**Aggregate Amounts Due**" to such Lender) resulting in such Lender receiving payment of a greater proportion of the Aggregate Amounts Due to such Lender than the proportion received by any other Lender in respect of the Aggregate Amounts Due to such other Lender, then the Lender receiving such proportionately greater payment shall (a) notify the Administrative Agent and each other Lender of the receipt of such payment and (b) apply a portion of such payment to purchase (for cash at face value) participations in the Aggregate Amounts Due to the other Lenders so that all such payments of Aggregate Amounts Due shall be shared by all the Lenders ratably in accordance with the Aggregate Amounts Due to them; provided that, if all or part of such

proportionately greater payment received by any purchasing Lender is thereafter recovered from such Lender upon the bankruptcy or reorganization of any Credit Party or otherwise, such purchase shall be rescinded and the purchase price paid for such participation shall be returned to such purchasing Lender ratably to the extent of such recovery, but without interest. Each Credit Party expressly consents to the foregoing arrangements and agrees that any holder of a participation so purchased may exercise any and all rights of banker's lien, consolidation, set-off or counterclaim with respect to any and all monies owing by such Credit Party to such holder with respect thereto as fully as if such holder were owed the amount of the participation held by such holder. The provisions of this Section 2.16 shall not be construed to apply to (i) any payment made by the Borrower pursuant to and in accordance with the express terms of this Agreement (for the avoidance of doubt, as in effect from time to time), including the application of funds arising from the existence of a Defaulting Lender or any payment made by the Borrower pursuant to Section 2.22 or any Extension/Modification Agreement, Incremental Facility Agreement or Refinancing Facility Agreement, (ii) any acceptance by any Lender of any Rollover Indebtedness in accordance with Section 2.12(a)(iii) or (iii) any payment obtained by any Lender as consideration for the assignment of or sale of a participation in Loans or other Obligations owing to it pursuant to and in accordance with the express terms of this Agreement.

**2.17. Making or Maintaining Eurodollar Rate Loans**. Inability to Determine Applicable Interest Rate.

(i) If prior to the commencement of any Interest Period for a Eurodollar Rate Borrowing of any Class:

(A) the Administrative Agent determines (which determination shall be conclusive absent manifest error) that adequate and reasonable means do not exist for ascertaining the Adjusted Eurodollar Rate for such Interest Period; or

(B) the Administrative Agent is advised by a Majority in Interest of the Lenders of such Class that the Adjusted Eurodollar Rate for such Interest Period will not adequately and fairly reflect the cost to such Lenders of making or maintaining their Loans included in such Eurodollar Rate Borrowing for such Interest Period;

then the Administrative Agent shall give notice (which may be telephonic) thereof to the Borrower and the Lenders as promptly as practicable, whereupon, (x) no Loans of such Class may be made as, or converted to, Eurodollar Rate Loans until such time as the Administrative Agent notifies the Borrower and the Lenders that the circumstances giving rise to such notice no longer exist and (y) any Funding Notice or Conversion/Continuation Notice given by the Borrower with respect to the Loans in respect of which such determination was made shall be deemed rescinded by the Borrower. The Administrative Agent shall promptly notify the Borrower and the Lenders when such circumstances no longer exist.

(ii) If at any time the Administrative Agent determines (which determination shall be conclusive absent manifest error) that (x) the circumstances set forth in Section 2.17(a)(i)(A) have arisen (including because the rate described in clause (a) of the definition of "Adjusted Eurodollar Rate" is not available or published on a current basis) and such circumstances are unlikely to be temporary or (y) the circumstances set forth in Section 2.17(a)(i)(A) have not arisen but either (1) the supervisor for the administrator of the rate described in clause (a) of the definition of "Adjusted Eurodollar Rate" has made a public statement that the administrator of such rate is insolvent (and there is no successor administrator that will continue publication of such rate), (2) the administrator of the rate described in clause (a) of the definition of "Adjusted Eurodollar Rate" has made a public statement identifying a specific date after which such rate will permanently or indefinitely cease to be published by it (and there is no successor administrator that will continue publication of such rate), (3) the supervisor for the administrator of the rate described in clause (a) of the definition of "Adjusted Eurodollar Rate" has made a public statement identifying a specific date after which such rate will permanently or indefinitely cease to be published or (4) the supervisor for the administrator of the rate described in clause (a) of the definition of "Adjusted Eurodollar Rate" or a Governmental Authority having jurisdiction over the Administrative Agent has made a public statement identifying a specific date after which such rate may no longer be used for determining interest rates for loans, then the Administrative Agent and the Borrower shall endeavor to establish an alternate rate of interest to the Adjusted Eurodollar Rate that gives due consideration to the then prevailing market convention for determining a rate of interest for syndicated loans denominated in Dollars in the United States at such time, and the Administrative Agent and the Borrower shall enter into an amendment to this Agreement to reflect such alternate rate of interest and such other related changes to this Agreement as may be applicable (but for the avoidance of doubt, such related changes shall not include a reduction of the Applicable Rate); provided that if such alternate rate of interest shall be less than zero, such rate shall be deemed to be zero for all purposes of this Agreement. Such amendment shall become effective without any further action or consent of any other party to this Agreement so long as the Administrative Agent shall not have received, within five Business Days of the date a copy of such amendment is provided to the Lenders, a written notice from the Requisite Lenders stating that the Requisite Lenders object to such amendment. Until an alternate rate of interest shall be determined in accordance with this paragraph (but, in the case of the circumstances described in clause (y) above, only to the extent the rate described in clause (a) of the definition of "Adjusted Eurodollar Rate" for such Interest Period is not available or published at such time on a current basis), (1) no Loans of any Class may be made as, or converted to, Eurodollar Rate Loans and (2) any Funding Notice or

Conversion/Continuation Notice given by the Borrower requesting the making of, or conversion to or continuation of, any Eurodollar Rate Borrowing shall be deemed rescinded by the Borrower.

(b) Illegality or Impracticability of Eurodollar Rate Loans. In the event that on any date (i) any Lender shall have determined (which determination shall be final and conclusive and binding upon all parties hereto) that the making, maintaining, converting to or continuation of its Eurodollar Rate Loans has become unlawful as a result of compliance by such Lender in good faith with any law (or would conflict with any treaty, rule, regulation, guideline or order not having the force of law even though the failure to comply therewith would not be unlawful), or (ii) the Requisite Lenders shall have determined (which determination shall be final and conclusive and binding upon all parties hereto) that the making, maintaining, converting to or continuation of their Eurodollar Rate Loans has become impracticable as a result of contingencies occurring after the date hereof that materially and adversely affect the London interbank market or the position of the Lenders in that market, then, if such Lender or Lenders shall have provided notice thereof to the Administrative Agent and the Borrower, such Lender or each of such Lenders, as the case may be, shall be an "**Affected Lender**". If the Administrative Agent receives a notice from (A) any Lender pursuant to clause (i) of the preceding sentence or (B) a notice from Lenders constituting Requisite Lenders pursuant to clause (ii) of the preceding sentence, then (1) the obligation of the Lenders (or, in the case of any notice pursuant to clause (i) of the preceding sentence, of the applicable Lender) to make Loans as, or to convert Loans to, Eurodollar Rate Loans shall be suspended until such notice shall be withdrawn by each applicable Affected Lender, (2) to the extent such determination by any Affected Lender relates to a Eurodollar Rate Loan then being requested by the Borrower pursuant to a Funding Notice or a Conversion/Continuation Notice, the Lenders (or in the case of any notice pursuant to clause (i) of the preceding sentence, the applicable Lender) shall make such Loan as (or continue such Loan as or convert such Loan to, as the case may be) a Base Rate Loan, (3) the Lenders' (or in the case of any notice pursuant to clause (i) of the preceding sentence, the applicable Lender's) obligations to maintain Eurodollar Rate Loans (the "**Affected Loans**") shall be terminated at the earlier to occur of the expiration of the Interest Period then in effect with respect to the Affected Loans or when required by law and (4) the Affected Loans shall automatically convert into Base Rate Loans on the date of such termination. Notwithstanding the foregoing, to the extent any such determination by an Affected Lender relates to a Eurodollar Rate Loan then being requested by the Borrower pursuant to a Funding Notice or a Conversion/Continuation Notice, the Borrower shall have the option, subject to Section 2.17(c), to rescind such Funding Notice or Conversion/Continuation Notice as to all Lenders by giving written notice (or telephonic notice promptly confirmed by written notice) thereof to the Administrative Agent of such rescission on the date on which the Affected Lender gives notice of its determination as described above (which notice of rescission the Administrative Agent shall promptly transmit to each other Lender). Each Affected Lender shall promptly notify the Administrative Agent and the Borrower when the circumstances that led to its notice pursuant to this Section 2.17(b) no longer exist.

(c) Compensation for Breakage or Non-Commencement of Interest Periods. In the event that (i) a borrowing of any Eurodollar Rate Loan does not occur on a date specified therefor in any Funding Notice (or any telephonic request for a borrowing) given by the Borrower (other than as a result of a failure by such Lender to make such Loan in accordance with its obligations hereunder), whether or not such notice may be rescinded in accordance with the terms hereof, (ii) a conversion to or continuation of any Eurodollar Rate Loan does not occur on a date specified therefor in any Conversion/Continuation Notice (or a telephonic request given for any conversion or continuation) given by the Borrower, whether or not such notice may be rescinded in accordance with the terms hereof, (iii) any payment of any principal of any Eurodollar Rate Loan occurs on a day other than on the last day of an Interest Period applicable thereto (including as a result of an Event of Default), (iv) the conversion of any Eurodollar Rate Loan occurs on a day other than on the last day of an Interest Period applicable thereto, (v) any Eurodollar Rate Loan is assigned other than on the last day of an Interest Period applicable thereto as a result of a request by the Borrower pursuant to Section 2.22 or (vi) a prepayment of any Eurodollar Rate Loan does not occur on a date specified therefor in any notice of prepayment given by the Borrower, whether or not such notice may be rescinded in accordance with the terms hereof, the Borrower shall compensate each Lender for all losses, costs, expenses and liabilities that such Lender may sustain, including any loss incurred from obtaining, liquidating or employing losses from third parties, but excluding any loss of margin or any interest rate "floor" for the period following any such payment, assignment or conversion or any such failure to borrow, pay, prepay, convert or continue. To request compensation under this Section 2.17(c), a Lender shall deliver to the Borrower a certificate setting forth in reasonable detail the basis and calculation of any amount or amounts that such Lender is entitled to receive pursuant to this Section 2.17(c), which certificate shall be conclusive and binding absent manifest error. The Borrower shall pay such Lender the amount shown as due on any such certificate within 15 days after receipt thereof.

(d) Booking of Eurodollar Rate Loans. Any Lender may make, carry or transfer Eurodollar Rate Loans at, to or for the account of any of its branch offices or the office of any Affiliate of such Lender.

(e) Assumptions Concerning Funding of Eurodollar Rate Loans. Calculation of all amounts payable to a Lender under this Section 2.17 and under Section 2.18 shall be made as though such Lender had actually funded each of its relevant Eurodollar Rate Loans through the purchase of a Eurodollar deposit bearing interest at the rate obtained pursuant to clause (a) of the definition of the term "Adjusted Eurodollar Rate" in an amount equal to the amount of such Eurodollar Rate Loan and having a maturity comparable to the relevant Interest Period and through the transfer of such Eurodollar deposit from an offshore office of such Lender to a domestic office of such Lender in the United States of America; provided that each Lender may fund each of its

Eurodollar Rate Loans in any manner it sees fit and the foregoing assumptions shall be utilized only for the purposes of calculating amounts payable under this Section 2.17 and under Section 2.18.

**2.18. Increased Costs; Capital Adequacy and Liquidity**. Increased Costs Generally. If any Change in Law shall:

(i) impose, modify or deem applicable any reserve, special deposit, compulsory loan, insurance charge or similar requirement against assets of, deposits with or for the account of, or credit extended or participated in by, any Lender (except any such reserve requirement reflected in the Adjusted Eurodollar Rate) or any Issuing Bank;

(ii) subject any Recipient to any Taxes (other than (A) Indemnified Taxes, (B) Taxes described in clauses (b) through (d) of the definition of "Excluded Taxes" and (C) Connection Income Taxes) on its loans, loan principal, letters of credit, commitments or other obligations, or its deposits, reserves, other liabilities or capital attributable thereto; or

(iii) impose on any Lender or any Issuing Bank or the London interbank market any other condition, cost or expense (other than Taxes) affecting this Agreement or any Loan made by such Lender or any Letter of Credit or participation therein;

and the result of any of the foregoing shall be to increase the cost to such Lender or such other Recipient of making, converting to, continuing or maintaining any Loan or of maintaining its obligation to make any such Loan, or to increase the cost to such Lender, such Issuing Bank or such other Recipient of participating in, issuing or maintaining any Letter of Credit (or of maintaining its obligation to participate in or to issue any Letter of Credit), or to reduce the amount of any sum received or receivable by such Lender, Issuing Bank or other Recipient hereunder (whether of principal, interest or any other amount) then, from time to time upon request of such Lender, Issuing Bank or other Recipient, the Borrower will pay to such Lender, Issuing Bank or other Recipient, as the case may be, such additional amount or amounts as will compensate such Lender, Issuing Bank or other Recipient, as the case may be, for such additional costs incurred or reduction suffered.

(b) Capital and Liquidity Requirements. If any Lender or Issuing Bank determines that any Change in Law affecting such Lender or Issuing Bank or any lending office of such Lender or such Lender's or Issuing Bank's holding company, if any, regarding capital or liquidity requirements has had or would have the effect of reducing the rate of return on such Lender's or Issuing Bank's capital or on the capital of such Lender's or Issuing Bank's holding company, if any, as a consequence of this Agreement, the Commitments of such Lender or the Loans made by, or participations in Letters of Credit held by, such Lender, or the Letters of Credit issued by such Issuing Bank, to a level below that which such Lender or Issuing Bank or such Lender's or Issuing Bank's holding company could have achieved but for such Change in Law (taking into consideration such Lender's or Issuing Bank's policies and the policies of such Lender's or Issuing Bank's holding company with respect to capital adequacy or liquidity), then from time to time upon request of such Lender or Issuing Bank the Borrower will pay to such Lender or Issuing Bank, as the case may be, such additional amount or amounts as will compensate such Lender or Issuing Bank or such Lender's or Issuing Bank's holding company for any such reduction suffered.

(c) Certificates for Reimbursement. A certificate of a Lender or Issuing Bank setting forth in reasonable detail the basis and calculation of the amount or amounts necessary to compensate such Lender or Issuing Bank or its holding company, as the case may be, as specified in Section 2.18(a) or 2.18(b) and delivered to the Borrower, shall be conclusive absent manifest error. The Borrower shall pay such Lender or Issuing Bank, as the case may be, the amount shown as due on any such certificate within 15 days after receipt thereof.

(d) Delay in Requests. Failure or delay on the part of any Lender or Issuing Bank to demand compensation pursuant to this Section 2.18 shall not constitute a waiver of such Lender's or Issuing Bank's right to demand such compensation; provided that the Borrower shall not be required to compensate a Lender or Issuing Bank pursuant to this Section 2.18 for any increased costs incurred or reductions suffered more than 180 days prior to the date that such Lender or Issuing Bank, as the case may be, notifies the Borrower of the Change in Law giving rise to such increased costs or reductions, and of such Lender's or Issuing Bank's intention to claim compensation therefor (except that, if the Change in Law giving rise to such increased costs or reductions is retroactive, then the 180-day period referred to above shall be extended to include the period of retroactive effect thereof).

(e) Certain Limitations. Notwithstanding any other provision of this Section 2.18 to the contrary, no Lender or Issuing Bank shall request, or be entitled to receive, any compensation pursuant to this Section 2.18 unless it shall be the general policy or practice of such Lender or Issuing Bank to seek compensation in similar circumstances under comparable provisions of other credit agreements, if any.

**2.19. Taxes; Withholding, Etc.** Issuing Bank. For purposes of this Section 2.19, the term "Lender" includes any Issuing Bank.

(a) Payments Free of Taxes. Any and all payments by or on account of any obligation of any Credit Party under any Credit Document shall be made without deduction or withholding for any Taxes, except as required by applicable law. If any applicable law (as determined in the good faith discretion of an applicable withholding agent) requires the deduction or withholding of any Tax from any such payment by a withholding agent, then the applicable withholding agent shall be entitled to make such deduction or withholding and shall timely pay the full amount deducted or withheld to the relevant Governmental Authority in accordance with applicable law and, if such Tax is an Indemnified Tax, then the sum payable by the applicable Credit Party shall be increased as necessary so that after such deduction or withholding has been made (including such deductions and withholdings applicable to additional sums payable under this Section 2.19) the applicable Recipient receives an amount equal to the sum it would have received had no such deduction or withholding been made.

(b) Payment of Other Taxes by the Credit Parties. Each Credit Party shall timely pay to the relevant Governmental Authority in accordance with applicable law, or at the option of the Administrative Agent timely reimburse it for the payment of, any Other Taxes.

(c) Indemnification by the Credit Parties. The Credit Parties shall jointly and severally indemnify each Recipient, within 15 days after demand therefor, for the full amount of any Indemnified Taxes (including Indemnified Taxes imposed or asserted on or attributable to amounts payable under this Section 2.19) payable or paid by such Recipient or required to be withheld or deducted from a payment to such Recipient and any reasonable expenses arising therefrom or with respect thereto, whether or not such Indemnified Taxes were correctly or legally imposed or asserted by the relevant Governmental Authority. A certificate as to the amount of such payment or liability delivered to the Borrower by a Lender (with a copy to the Administrative Agent), or by the Administrative Agent on its own behalf (including in its capacity as the Collateral Agent) or on behalf of a Lender, shall be conclusive absent manifest error.

(d) Indemnification by the Lenders. Each Lender shall severally indemnify the Administrative Agent, within 15 days after demand therefor, for (i) any Indemnified Taxes attributable to such Lender (but only to the extent that no Credit Party has already indemnified the Administrative Agent for such Indemnified Taxes and without limiting the obligation of the Credit Parties to do so), (ii) any Taxes attributable to such Lender's failure to comply with the provisions of Section 10.6(g)(i) relating to the maintenance of a Participant Register and (iii) any Excluded Taxes attributable to such Lender, in each case, that are payable or paid by the Administrative Agent in connection with any Credit Document, and any reasonable expenses arising therefrom or with respect thereto, whether or not such Taxes were correctly or legally imposed or asserted by the relevant Governmental Authority. A certificate as to the amount of such payment or liability delivered to any Lender by the Administrative Agent shall be conclusive absent manifest error. Each Lender hereby authorizes the Administrative Agent to set off and apply any and all amounts at any time owing to such Lender under any Credit Document or otherwise payable by the Administrative Agent to the Lender from any other source against any amount due to the Administrative Agent under this Section 2.19(e).

(e) Evidence of Payments. As soon as practicable after any payment of Taxes by any Credit Party to a Governmental Authority pursuant to this Section 2.19, such Credit Party shall deliver to the Administrative Agent the original or a certified copy of a receipt issued by such Governmental Authority evidencing such payment, a copy of the return reporting such payment or other evidence of such payment reasonably satisfactory to the Administrative Agent.

(f) Status of Lenders. Any Lender that is entitled to an exemption from or reduction of withholding Tax with respect to payments made under any Credit Document shall deliver to the Borrower and the Administrative Agent, at the time or times reasonably requested by the Borrower or the Administrative Agent, such properly completed and executed documentation reasonably requested by the Borrower or the Administrative Agent as will permit such payments to be made without withholding or at a reduced rate of withholding. In addition, any Lender, if reasonably requested by the Borrower or the Administrative Agent, shall deliver such other documentation prescribed by applicable law or reasonably requested by the Borrower or the Administrative Agent as will enable the Borrower or the Administrative Agent to determine whether or not such Lender is subject to backup withholding or information reporting requirements. Notwithstanding anything to the contrary in the preceding two sentences, the completion, execution and submission of such documentation (other than such documentation set forth in Sections 2.19(g)(ii)(A), 2.19(g)(ii)(B) and 2.19(g)(ii)(D)) shall not be required if in the Lender's reasonable judgment such completion, execution or submission would subject such Lender to any material unreimbursed cost or expense or would materially prejudice the legal or commercial position of such Lender (it being understood that information required by current United States federal income Tax withholding forms shall not be considered to be information the provision of which would materially prejudice the position of a Lender).

(i) Without limiting the generality of the foregoing:

(A) Any Lender that is a US Person shall deliver to the Borrower and the Administrative Agent prior to the date on which such Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Administrative Agent), executed originals of IRS Form W-9 certifying that such Lender is exempt from United States federal backup withholding Tax, provided that, if such Lender is a

disregarded entity for United States federal income Tax purposes and its owner is a US Person, such Lender will provide the appropriate withholding form of its owner (with required supporting documentation).

(B) Any Foreign Lender shall, to the extent it is legally entitled to do so, deliver to the Borrower and the Administrative Agent (in such number of copies as shall be requested by the recipient) on or prior to the date on which such Foreign Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Administrative Agent), whichever of the following is applicable:

(1) in the case of a Foreign Lender claiming the benefits of an income tax treaty to which the United States is a party (x) with respect to payments of interest under any Credit Document, executed originals of IRS Form W-8BEN or IRS Form W-8BEN-E, as applicable (or successor form), establishing an exemption from, or reduction of, US federal withholding Tax pursuant to the "interest" article of such tax treaty and (y) with respect to any other applicable payments under any Credit Document, IRS Form W-8BEN or IRS Form W-8BEN-E, as applicable (or successor form), establishing an exemption from, or reduction of, US federal withholding Tax pursuant to the "business profits" or "other income" article of such tax treaty;

(2) executed originals of IRS Form W-8ECI (or successor form);

(3) in the case of a Foreign Lender claiming the benefits of the exemption for portfolio interest under Section 881(c) of the Internal Revenue Code, (x) a certificate substantially in the form of Exhibit K-1 to the effect that such Foreign Lender is not a "bank" within the meaning of Section 881(c)(3)(A) of the Internal Revenue Code, a "10 percent shareholder" of the Borrower within the meaning of Section 881(c)(3)(B) of the Internal Revenue Code or a "controlled foreign corporation" described in Section 881(c)(3)(C) of the Internal Revenue Code (a "**US Tax Compliance Certificate**") and (y) executed originals of IRS Form W-8BEN or IRS Form W-8BEN-E, as applicable (or successor form); or

(4) to the extent a Foreign Lender is not the beneficial owner, executed originals of IRS Form W-8IMY (or successor form), accompanied by IRS Form W-8ECI, IRS Form W-8BEN or IRS Form W-8BEN-E, as applicable (or successor form), a US Tax Compliance Certificate substantially in the form of Exhibit K-2 or Exhibit K-3, IRS Form W-9 (or successor form), and/or other certification documents from each beneficial owner, as applicable; provided that if the Foreign Lender is a partnership and one or more direct or indirect partners of such Foreign Lender are claiming the portfolio interest exemption, such Foreign Lender may provide a US Tax Compliance Certificate substantially in the form of Exhibit K-4 on behalf of each such direct and indirect partner.

(C) Any Foreign Lender shall, to the extent it is legally entitled to do so, deliver to the Borrower and the Administrative Agent (in such number of copies as shall be requested by the recipient) on or prior to the date on which such Foreign Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Administrative Agent), executed originals of any other form prescribed by applicable law as a basis for claiming exemption from or a reduction in US federal withholding Tax, duly completed, together with such supplementary documentation as may be prescribed by applicable law to permit the Borrower or the Administrative Agent to determine the withholding or deduction required to be made.

(D) If a payment made to a Lender under any Credit Document would be subject to US federal withholding Tax imposed by FATCA if such Lender were to fail to comply with the applicable reporting requirements of FATCA (including those contained in Section 1471(b) or 1472(b) of the Internal Revenue Code, as applicable), such Lender shall deliver to the Borrower and the Administrative Agent at the time or times prescribed by law and at such time or times reasonably requested by the Borrower or the Administrative Agent such documentation prescribed by applicable law (including as prescribed by Section 1471(b)(3)(C)(i) of the Internal Revenue Code) and such additional documentation reasonably requested by the Borrower or the Administrative Agent as may be necessary for the Borrower and the Administrative Agent to comply with their obligations under FATCA and to determine that such Lender has complied with such Lender's obligations under FATCA or to determine the amount to deduct and withhold from such payment. Solely for purposes of this clause (D), "FATCA" shall include any amendments made to FATCA after the date of this Agreement.

(ii) Each Lender agrees that if any form or certification it previously delivered expires or becomes obsolete or inaccurate in any respect, it shall update such form or certification or promptly notify the Borrower and the Administrative Agent in writing of its legal inability to do so.

(g) Treatment of Certain Refunds. If any party determines, in its sole discretion exercised in good faith, that it has received a refund of any Taxes as to which it has been indemnified pursuant to this Section 2.19 (including by the payment of additional amounts pursuant to this Section 2.19), it shall pay to the indemnifying party an amount equal to such refund (but only to

the extent of indemnity payments made under this Section 2.19 with respect to the Taxes giving rise to such refund), net of all out-of-pocket expenses (including Taxes) of such indemnified party and without interest (other than any interest paid by the relevant Governmental Authority with respect to such refund). Such indemnifying party, upon the request of such indemnified party, shall repay to such indemnified party the amount paid over pursuant to this Section 2.19(h) (plus any penalties, interest or other charges imposed by the relevant Governmental Authority) in the event that such indemnified party is required to repay such refund to such Governmental Authority. Notwithstanding anything to the contrary in this Section 2.19(h), in no event will the indemnified party be required to pay any amount to an indemnifying party pursuant to this Section 2.19(h) the payment of which would place the indemnified party in a less favorable net after-Tax position than the indemnified party would have been in if the indemnification payments or additional amounts giving rise to such refund had never been paid. This Section 2.19(h) shall not be construed to require any indemnified party to make available its Tax returns (or any other information relating to its Taxes that it deems confidential) to the indemnifying party or any other Person.

(h) Survival. Each party's obligations under this Section 2.19 shall survive the resignation or replacement of the Administrative Agent or the Collateral Agent or any assignment of rights by, or the replacement of, a Lender, the termination of the Commitments and the repayment, satisfaction or discharge of all obligations under any Credit Document.

**2.20. Obligation to Mitigate**. If any Lender becomes an Affected Lender or any Lender or Issuing Bank requests compensation under Section 2.18, or if the Borrower is required to pay any additional amount to any Lender or Issuing Bank or to any Governmental Authority for the account of any Lender or Issuing Bank pursuant to Section 2.19, then such Lender or Issuing Bank shall use reasonable efforts to designate a different lending office for funding or booking its Loans or issuing its Letters of Credit hereunder or to assign and delegate its rights and obligations hereunder to another of its offices, branches or Affiliates if, in the judgment of such Lender or Issuing Bank, such designation or assignment and delegation (a) would cause such Lender to cease to be an Affected Lender or would eliminate or reduce amounts payable pursuant to Section 2.18 or 2.19, as the case may be, in the future and (b) would not subject such Lender or Issuing Bank to any unreimbursed cost or expense and would not otherwise be materially disadvantageous to such Lender or Issuing Bank. The Borrower hereby agrees to pay all reasonable costs and expenses incurred by any Lender or Issuing Bank in connection with any such designation or assignment and delegation.

**2.21. Defaulting Lenders.** Defaulting Lender Adjustments. Notwithstanding anything to the contrary contained in this Agreement, if any Lender becomes a Defaulting Lender, then, until such time as such Lender is no longer a Defaulting Lender, to the extent permitted by applicable law:

(i) Defaulting Lender Waterfall. Any payment of principal, interest, fees or other amounts received by the Administrative Agent for the account of such Defaulting Lender (whether voluntary or mandatory, at maturity, pursuant to Section 8 or otherwise) or received by the Administrative Agent from a Defaulting Lender pursuant to Section 10.4 shall be applied at such time or times as may be determined by the Administrative Agent as follows: *first*, to the payment of any amounts owing by such Defaulting Lender to the Administrative Agent or the Collateral Agent under the Credit Documents; *second*, to the payment on a pro rata basis of any amounts owing by such Defaulting Lender to any Issuing Bank hereunder; *third*, to Cash Collateralize each Issuing Bank's Fronting Exposure with respect to such Defaulting Lender in accordance with Section 2.21(d); *fourth*, as the Borrower may request (so long as no Default or Event of Default shall have occurred and be continuing), to the funding of any Loan in respect of which such Defaulting Lender has failed to fund its portion thereof as required by this Agreement, as determined by the Administrative Agent; *fifth*, if so determined by the Administrative Agent and the Borrower, to be held in a deposit account and released pro rata in order to (x) satisfy such Defaulting Lender's potential future funding obligations with respect to Loans under this Agreement and (y) Cash Collateralize each Issuing Bank's future Fronting Exposure with respect to such Defaulting Lender with respect to future Letters of Credit issued under this Agreement, in accordance with Section 2.21(d); *sixth*, to the payment of any amounts owing to the Lenders or any Issuing Bank as a result of any judgment of a court of competent jurisdiction obtained by any Lender or Issuing Bank against such Defaulting Lender as a result of such Defaulting Lender's breach of its obligations under this Agreement; *seventh*, so long as no Default or Event of Default shall have occurred and be continuing, to the payment of any amounts owing to the Borrower as a result of any judgment of a court of competent jurisdiction obtained by the Borrower against such Defaulting Lender as a result of such Defaulting Lender's breach of its obligations under this Agreement; and *eighth*, to such Defaulting Lender or as otherwise directed by a court of competent jurisdiction; provided that if (x) such payment is a payment of the principal amount of any Loans or reimbursement obligations with respect to Letters of Credit in respect of which such Defaulting Lender has not fully funded its applicable Pro Rata Share, and (y) such Loans were made or the related Letters of Credit were issued at a time when the conditions set forth in Section 3.2 were satisfied or waived, such payment shall be applied solely to pay the Loans of, and reimbursement or participation obligations with respect to Letters of Credit owed to, all Non-Defaulting Lenders on a pro rata basis prior to being applied to the payment of any Loans of, or reimbursement or participation obligations with respect to Letters of Credit owed to, such Defaulting Lender until such time as all Loans and funded and unfunded participations in Letters of Credit are held by the Lenders pro rata in accordance with the applicable Commitments without giving effect to Section 2.21(a)(iii). Any payments, prepayments or other amounts paid or payable to a Defaulting Lender that are applied (or held) to pay amounts

owed by a Defaulting Lender or to post Cash Collateral pursuant to this Section 2.21(a)(i) shall be deemed paid to and redirected by such Defaulting Lender, and each Lender irrevocably consents hereto.

(ii) Certain Fees. No Defaulting Lender shall be entitled to receive any fee pursuant to Section 2.10(a) for any period during which that Lender is a Defaulting Lender (and the Borrower shall not be required to pay any such fee that otherwise would have been required to have been paid to that Defaulting Lender); provided that such Defaulting Lender shall be entitled to receive fees pursuant to Section 2.10(a)(ii) for any period during which that Lender is a Defaulting Lender only to extent allocable to its Pro Rata Share of the stated amount of Letters of Credit for which it has provided Cash Collateral pursuant to Section 2.21(d).

(A) With respect to any fees not required to be paid to any Defaulting Lender pursuant to clause (A) above, the Borrower shall (x) pay to each Non-Defaulting Lender that portion of any such fee otherwise payable to such Defaulting Lender with respect to such Defaulting Lender's participation in Letters of Credit that has been reallocated to such Non-Defaulting Lender pursuant to clause (iii) below, (y) pay to each Issuing Bank the amount of any such fee otherwise payable to such Defaulting Lender to the extent allocable to such Issuing Bank's Fronting Exposure to such Defaulting Lender and (z) not be required to pay the remaining amount of any such fee.

(iii) Reallocation of Participations to Reduce Fronting Exposure. All or any part of such Defaulting Lender's participation in Letters of Credit (other than any portion thereof that shall have been funded by such Defaulting Lender pursuant to Section 2.3(e) or with respect to which such Defaulting Lender shall have provided Cash Collateral pursuant to Section 2.21(d)) shall be reallocated among the Non-Defaulting Lenders in accordance with their respective applicable Pro Rata Shares (calculated without regard to such Defaulting Lender's Revolving Commitment) but only to the extent that (x) the conditions set forth in Section 3.2 are satisfied at the time of such reallocation (and, unless the Borrower shall have otherwise notified the Administrative Agent at such time, the Borrower shall be deemed to have represented and warranted that such conditions are satisfied at such time) and (y) such reallocation does not cause the aggregate Revolving Exposure of any Non-Defaulting Lender to exceed such Non-Defaulting Lender's Revolving Commitment. No reallocation hereunder shall constitute a waiver or release of any claim of any party hereunder against a Defaulting Lender arising from such Lender having become a Defaulting Lender, including any claim of a Non-Defaulting Lender as a result of such Non-Defaulting Lender's increased exposure following such reallocation.

(iv) Cash Collateral. If the reallocation described in Section 2.21(a)(iii) cannot, or can only partially, be effected, the Borrower shall, without prejudice to any right or remedy available to it hereunder or under law, Cash Collateralize the Issuing Banks' Fronting Exposures in accordance with Section 2.21(d).

(v) Participation as Requisite Lender. The Commitments and Loans of such Defaulting Lender shall not be included in determining whether the Requisite Lenders or any other requisite Lenders have taken or may take any action hereunder or under any other Credit Document (including any consent to any amendment, waiver or other modification pursuant to Section 10.5); provided that any amendment, waiver or other modification that under clauses (i), (ii), (iv), (v) or (vi) of Section 10.5(b) requires the consent of all Lenders affected thereby shall require the consent of such Defaulting Lender in accordance with the terms thereof.

(b) Defaulting Lender Cure. If the Borrower, the Administrative Agent and each Issuing Bank agree in writing in their sole discretion that a Defaulting Lender should no longer be deemed to be a Defaulting Lender, the Administrative Agent will so notify the parties hereto, whereupon as of the effective date specified in such notice and subject to any conditions set forth therein (which may include arrangements with respect to any Cash Collateral), such Defaulting Lender will cease to be a Defaulting Lender and, if a Revolving Lender will, to the extent applicable, purchase at par that portion of outstanding Revolving Loans and unfunded participations in Letters of Credit of the other Revolving Lenders or take such other actions as the Administrative Agent may determine to be necessary to cause the Revolving Loans and funded and unfunded participations in Letters of Credit to be held by the Revolving Lenders in accordance with their respective applicable Pro Rata Shares (without giving effect to Section 2.21(a)(iii)); provided that (i) no adjustments will be made retroactively with respect to fees accrued or payments made by or on behalf of the Borrower while such Lender was a Defaulting Lender, (ii) all amendments, waivers and other modifications effected without its consent in accordance with the provisions of this Section 2.21 and Section 10.5 during the period it was a Defaulting Lender shall be binding on it and (iii) except to the extent otherwise expressly agreed by the affected parties, no change hereunder from Defaulting Lender to Non-Defaulting Lender will constitute a waiver or release of any claim of any party hereunder arising from such Lender having been a Defaulting Lender.

(c) New Letters of Credit. So long as any Lender is a Defaulting Lender, no Issuing Bank shall be required to issue, extend or increase any Letter of Credit unless it is satisfied that the participations in any existing Letters of Credit as well as the new, extended or increased Letter of Credit has been or will be fully allocated among the Non-Defaulting Lenders in a manner consistent with Section 2.21(a)(iii) and such Defaulting Lender shall not participate therein except to the extent such Defaulting Lender's participation has been or will be fully Cash Collateralized in accordance with Section 2.21(d).

(d) Cash Collateral for Letters of Credit. Any Cash Collateral provided by any Defaulting Lender pursuant to Section 2.21(a)(i) shall be held by the Administrative Agent as Cash Collateral securing such Defaulting Lender's obligation to fund participations in respect of Letters of Credit, and each Defaulting Lender hereby grants to the Administrative Agent, for the benefit of the Issuing Banks, and agrees to maintain, a first priority security interest in all such Cash Collateral as security for such obligations. The Administrative Agent shall have exclusive dominion and control, including the exclusive right of withdrawal, over any deposit account containing any such Cash Collateral.

(i) At any time that there shall exist a Defaulting Lender, within one Business Day following the written request of the Administrative Agent or any Issuing Bank (with a copy to the Administrative Agent), the Borrower shall Cash Collateralize in accordance with Section 2.3(h) each Issuing Bank's Fronting Exposure with respect to such Defaulting Lender (determined after giving effect to Section 2.21(a)(iii) and any Cash Collateral provided by such Defaulting Lender) in an amount not less than the amount of Fronting Exposure with respect to such Defaulting Lender.

(ii) Notwithstanding anything to the contrary contained in this Agreement or any other Credit Document, Cash Collateral provided under this Section 2.21 in respect of Letters of Credit shall be applied to the satisfaction of the Defaulting Lender's obligation to fund participations in respect of Letters of Credit (including, as to Cash Collateral provided by a Defaulting Lender, any interest accrued on such obligation) for which the Cash Collateral was so provided, prior to any other application of such property as may otherwise be provided for herein.

**2.22. Replacement and Termination of Lenders**. If (a) any Lender has become an Affected Lender, (b) any Lender requests compensation under Section 2.18, (c) the Borrower is required to pay any additional amount to any Lender or any Governmental Authority for the account of any Lender pursuant to Section 2.19, (d) any Lender becomes and continues to be a Defaulting Lender or a Disqualified Institution or (e) any Lender fails to consent to a proposed waiver, amendment or other modification of any Credit Document, or to any departure of any Credit Party therefrom, that under Section 10.5 requires the consent of all the Lenders (or all the affected Lenders or all Lenders or all the affected Lenders of the affected Class) and with respect to which the Requisite Lenders (or, in circumstances where Section 10.5(d) does not require the consent of the Requisite Lenders, a Majority in Interest of the Lenders of the affected Class) shall have granted their consent, then the Borrower may, at its sole expense and effort, upon notice to such Lender and the Administrative Agent, (i) so long as no Event of Default shall have occurred and be continuing, terminate the Commitments of such Lender and prepay outstanding Loans of such Lender in full (or terminate the Commitment and prepay Loans of the relevant Class), in each case without any obligation to terminate any Commitment, or prepay any Loan, of any other Lender, provided, that if, after giving effect to such termination and repayment, the Total Utilization of Revolving Commitments exceeds the Total Revolving Commitments, then the Borrower shall, not later than the next Business Day, prepay one or more Revolving Borrowings (and, if no Revolving Borrowings are outstanding, deposit Cash Collateral in accordance with Section 2.3(h)) in an amount necessary to eliminate such excess or (ii) require such Lender to assign and delegate, without recourse (in accordance with and subject to the restrictions contained in Section 10.6, including the consent requirements set forth therein), all its interests, rights and obligations under this Agreement and the other Credit Documents (other than existing rights to payment under Sections 2.17(c), 2.18 and 2.19) (or, in the case of any such assignment and delegation resulting from a failure to provide a consent, all such interests, rights and obligations under this Agreement and the other Credit Documents as a Lender of an applicable Class) to an Eligible Assignee that shall assume such obligations (which may be another Lender, if a Lender accepts such assignment and delegation); provided that, in the case of any such assignment and delegation under clause (ii) above, (A) the Borrower shall have caused to be paid to the Administrative Agent the registration and processing fee referred to in Section 10.6(d), (B) such Lender shall have received payment of an amount equal to the outstanding principal of its Loans and, if applicable, participations in drawings under Letters of Credit, accrued interest thereon, accrued fees and all other amounts payable to it hereunder (including any amounts under Section 2.17(c) and any prepayment fee under Section 2.12(c)) (if applicable, in each case only to the extent such amounts relate to its interest as a Lender of an applicable Class) from the assignee (in the case of such principal and accrued interest and fees) or the Borrower (in the case of all other amounts), (C) such assignment and delegation does not conflict with applicable law, (D) in the case of any such assignment and delegation resulting from a claim for compensation under Section 2.18 or payments required to be made pursuant to Section 2.19, such assignment will result in a reduction in such compensation or payments thereafter and (E) in the case of any such assignment and delegation resulting from the failure to provide a consent, the assignee shall have given such consent and, as a result of such assignment and delegation and any contemporaneous assignments and delegations and consents, the applicable waiver, amendment or other modification, or consent to a departure, can be effected. A Lender shall not be required to make any such assignment and delegation, or to have its Commitments or Loans so terminated or repaid, if, prior thereto, as a result of a waiver or consent by such Lender or otherwise, the circumstances entitling the Borrower to require such assignment and delegation, or to cause such termination or repayment, have ceased to apply. Each party hereto agrees that an assignment and delegation required pursuant to this Section 2.22 may be effected pursuant to an Assignment Agreement executed by the Borrower, the Administrative Agent and the assignee and that the Lender required to make such assignment and delegation need not be a party thereto.

**2.23. Incremental Facilities**. The Borrower may on one or more occasions, by written notice to the Administrative Agent, request (i) during the Revolving Commitment Period, the establishment of Incremental Revolving Commitments and/or (ii) the establishment of Incremental Term Loan Commitments, provided that the aggregate amount of all the

Incremental Commitments established hereunder on any date shall not exceed the Incremental Amount as of such date. Each such notice shall specify (A) the date on which the Borrower proposes that the Incremental Revolving Commitments or the Incremental Term Loan Commitments, as applicable, shall be effective and (B) the amount of the Incremental Revolving Commitments or Incremental Term Loan Commitments, as applicable, being requested (it being agreed that (x) any Lender approached to provide any Incremental Commitment may elect or decline, in its sole discretion, to provide such Incremental Commitment and (y) any Person that the Borrower proposes to become an Incremental Lender must be an Eligible Assignee and, solely if such approval would be required under Section 10.6 for an assignment of Loans or Commitments of the applicable Class to such Incremental Lender, must be approved by the Administrative Agent and, in the case of any proposed Incremental Revolving Lender, each Issuing Bank (each such approval not to be unreasonably withheld, conditioned or delayed)).

(a) The terms and conditions of any Incremental Revolving Commitment and Incremental Revolving Loans and other extensions of credit to be made thereunder shall be identical to those of the Revolving Commitments and Revolving Loans and other extensions of credit made thereunder, and shall be treated as a single Class with such Revolving Commitments and Revolving Loans; provided that, if the Borrower determines to increase the interest rate or fees payable in respect of Incremental Revolving Commitments or Incremental Revolving Loans and other extensions of credit made thereunder, such increase shall be permitted if the interest rate or fees payable in respect of the other Revolving Commitments or Revolving Loans and other extensions of credit made thereunder, as applicable, shall be increased to equal such interest rate or fees payable in respect of such Incremental Revolving Commitments or Incremental Revolving Loans and other extensions of credit made thereunder, as the case may be; provided further that the Borrower at its election may pay upfront or closing fees with respect to Incremental Revolving Commitments without paying such fees with respect to the other Revolving Commitments. The terms and conditions of any Incremental Term Loan Commitments and the Incremental Term Loans to be made thereunder shall be as set forth in the applicable Incremental Facility Agreement; provided that (i) no Incremental Term Loan Maturity Date shall be earlier than the latest Maturity Date in effect on the date of incurrence of such Incremental Term Loans, (ii) the weighted average life to maturity of any Incremental Term Loans shall be no shorter than the longest remaining weighted average life to maturity of any other Class of Term Loans outstanding on the date of incurrence of such Incremental Term Loans (and, for purposes of determining the weighted average life to maturity of any such other Class of Term Loans, the effects of any prepayments made prior to the date of the determination shall be disregarded), it being understood that, subject to this clause (ii), the amortization schedule applicable to (and the effect thereon of any prepayments of) any Incremental Term Loans shall be determined by the Borrower and the applicable Incremental Lenders, (iii) Incremental Term Loans may participate in any mandatory prepayments hereunder on a pro rata basis (or on a basis that is less than pro rata) with the other Term Loans, but may not provide for mandatory prepayment requirements that are more favorable than those applicable to the other Term Loans, (iv) any Incremental Commitments and any Loans thereunder shall rank *pari passu* in right of payment, and shall be secured by the Collateral on an equal and ratable basis, with the other Commitments and Loans, and shall be extensions of credit to the Borrower that are Guaranteed only by the Credit Parties, (v) the Effective Yield with respect to any Incremental Term Loans that are incurred on or prior to the date that is 12 months after the Closing Date, determined as of the date of incurrence of such Incremental Term Loans (but giving effect to any scheduled increases), shall not be greater than the Effective Yield with respect to the Tranche B Term Loans, determined as of such date (giving effect to any amendments to the Effective Yield on the Tranche B Term Loans that became effective subsequent to the Closing Date but prior to such date, but excluding the effect of any increase in the Effective Yield thereon pursuant to this clause (v)), plus 75 basis points per annum unless the Applicable Rate (together with, as provided in the proviso below, the Adjusted Eurodollar Rate and Base Rate floors) with respect to the Tranche B Term Loans is increased, or fees to Lenders then holding the Tranche B Term Loans are paid, so as to cause the Effective Yield with respect to the Tranche B Term Loans to equal the Effective Yield with respect to such Incremental Term Loans minus 75 basis points, provided that any increase in the Effective Yield with respect to the Tranche B Term Loans due to the application of an Adjusted Eurodollar Rate or Base Rate floor to any Incremental Term Loans shall be effected solely through an increase in the Adjusted Eurodollar Rate or Base Rate floor applicable to the Tranche B Term Loans, and (vi) except for the terms referred to above and subject to Section 2.23(c), to the extent the terms of any Incremental Term Loans (for the avoidance of doubt, other than with respect to Effective Yield and components thereof, fees, prepayment terms (including "no call" terms and other restrictions thereon) and premiums) are not consistent with those of the Tranche B Term Loans as in effect on the date of incurrence of such Incremental Term Loans, such differences shall be reasonably acceptable to the Administrative Agent (except for terms benefitting the Incremental Term Lenders (A) where this Agreement is amended to include such beneficial terms for the benefit of all Lenders or (B) applicable only to periods after the latest Maturity Date in effect as of the date of incurrence of such Incremental Term Loans). In the event any Incremental Term Loans have the same terms as any existing Class of Term Loans then outstanding or any Extended/Modified Term Loans or Refinancing Term Loans then substantially concurrently established (in each case, disregarding any differences in original issue discount or upfront fees if not affecting the fungibility thereof for US federal income tax purposes), such Incremental Term Loans may, at the election of the Borrower, be treated as a single Class with such outstanding Term Loans or such Extended/Modified Term Loans or Refinancing Term Loans, and the scheduled Installments set forth in Section 2.11 with respect to any such Class of Term Loans may be increased to reflect scheduled amortization of such Incremental Term Loans.

(b) The Incremental Commitments shall be effected pursuant to one or more Incremental Facility Agreements executed and delivered by the Borrower, each Incremental Lender providing such Incremental Commitments and the Administrative Agent; provided that no Incremental Commitments shall become effective unless (i) on the date of effectiveness

thereof, both immediately prior to and immediately after giving Pro Forma Effect to such Incremental Commitments, the making of Loans thereunder and the use of proceeds thereof, (x) no Default or Event of Default shall have occurred and be continuing or would result therefrom and (y) the representations and warranties of each Credit Party set forth in the Credit Documents shall be true and correct (A) in the case of the representations and warranties qualified as to materiality, in all respects, and (B) otherwise, in all material respects, in each case on and as of such date, except in the case of any such representation and warranty that expressly relates to an earlier date, in which case such representation and warranty shall be so true and correct on and as of such earlier date, provided that (1) in the case of Incremental Term Loan Commitments established to finance, in whole or in part, a Limited Conditionality Transaction, the conditions set forth in this clause (i) may be tested in accordance with Section 1.2(e) and (2) in the case of any Incremental Term Loan Commitments established to finance, in whole or in part, an Acquisition, the condition in subclause (y) of this clause (i) may be modified to require solely the accuracy of certain representations and warranties in accordance with customary "SunGuard" provisions, in each case as agreed by the Borrower and the Incremental Lenders providing such Incremental Term Loan Commitment and set forth in the applicable Incremental Facility Agreement, (ii) the Administrative Agent shall have received a certificate, dated the date of effectiveness thereof and signed by an Authorized Officer of the Borrower, confirming compliance with the conditions set forth in clause (i) above and, if such Incremental Term Loan Commitments or any portion thereof are being established in reliance on clause (b) of the definition of the term "Incremental Amount", setting forth a reasonably detailed calculation of the Incremental Amount under such clause, (iii) the Borrower shall make any payments required to be made pursuant to Section 2.17(c) in connection with such Incremental Commitments and the related transactions under this Section 2.23 and (iv) the Borrower shall have delivered to the Administrative Agent such legal opinions, board resolutions, secretary's certificates, officer's certificates, reaffirmation agreements and other documents as shall reasonably be requested (consistent in all material respects with the documents delivered under Section 3.1 on the Closing Date) by the Administrative Agent in connection with any such transaction. Each Incremental Facility Agreement may, without the consent of any Lender, effect such amendments to this Agreement and the other Credit Documents as may be necessary or appropriate, in the opinion of the Administrative Agent and the Borrower, to give effect to the provisions of this Section 2.23, including any amendments necessary to treat the applicable Incremental Term Loan Commitments and Incremental Term Loans as a new Class of Commitments and Loans hereunder (including for purposes of prepayments and voting (it being agreed that such new Class of Commitments and Loans may be included in the definitions of "Majority in Interest", "Pro Rata Share" and "Requisite Lenders" and may be afforded class voting rights requiring the consent of Lenders under such Class in addition to any other consent of Lenders that might otherwise be required under Section 10.5) and to enable such new Class of Commitments and Loans to be extended under Section 2.24 or refinanced under Section 2.25).

(c) Upon the effectiveness of an Incremental Commitment of any Incremental Lender, (i) in the case of an Incremental Term Loan Commitment, such Incremental Lender shall be deemed to be a "Lender" (and a Lender in respect of Commitments and Loans of the applicable Class) hereunder, and henceforth shall be entitled to all the rights of, and benefits accruing to, Lenders (or Lenders in respect of Commitments and Loans of the applicable Class) hereunder and shall be bound by all agreements, acknowledgements and other obligations of Lenders (or Lenders in respect of Commitments and Loans of the applicable Class) hereunder and under the other Credit Documents, and (ii) in the case of any Incremental Revolving Commitment, (A) such Incremental Revolving Commitment shall constitute (or, in the event such Incremental Lender already has a Revolving Commitment, shall increase) the Revolving Commitment of such Incremental Lender and (B) the Total Revolving Commitments shall be increased by the amount of such Incremental Revolving Commitment, in each case, subject to further increase or reduction from time to time as set forth in the definition of the term "Revolving Commitment". For the avoidance of doubt, upon the effectiveness of any Incremental Revolving Commitment, the Revolving Exposure of the Incremental Revolving Lender holding such Commitment, and the Pro Rata Shares of all the Revolving Lenders, shall automatically be adjusted to give effect thereto.

(d) On the date of effectiveness of any Incremental Revolving Commitments:

(i) the aggregate principal amount of the Revolving Loans (the "**Existing Revolving Borrowings**") outstanding immediately prior to the effectiveness of such Incremental Revolving Commitments shall be deemed to be repaid,

(ii) each Incremental Revolving Lender shall pay to the Administrative Agent in same day funds an amount equal to the difference, if positive, between:

(A) the product of (1) such Lender's Pro Rata Share of the applicable Class (calculated after giving effect to such effectiveness) multiplied by (2) the aggregate amount of the Resulting Revolving Borrowings (as hereinafter defined), and

(B) the product of (x) such Lender's Pro Rata Share of the applicable Class (calculated without giving effect to such effectiveness, with such Pro Rata Share for any Incremental Revolving Lender that did not have a Revolving Commitment prior to such effectiveness being deemed to be zero) multiplied by (y) the aggregate principal amount of the Existing Revolving Borrowings,

(iii) after the Administrative Agent receives the funds specified in clause (ii) above, the Administrative Agent shall pay to each Revolving Lender the portion of such funds that is equal to the difference, if positive, between:

(A) the product of (1) such Lender's Pro Rata Share of the applicable Class (calculated without giving effect to such effectiveness, with such Pro Rata Share for any Incremental Revolving Lender that did not have a Revolving Commitment prior to such effectiveness being deemed to be zero) multiplied by (2) the aggregate amount of the Existing Revolving Borrowings, and

(B) the product of (1) such Lender's Pro Rata Share of the applicable Class (calculated after giving effect to such effectiveness) multiplied by (2) the aggregate amount of the Resulting Revolving Borrowings,

(iv) after the effectiveness of such Incremental Revolving Commitments, the Borrower shall be deemed to have made new Revolving Borrowings (the "**Resulting Revolving Borrowings**") in an aggregate amount equal to the aggregate amount of the Existing Revolving Borrowings and of the Types and for the Interest Periods specified in a Funding Notice delivered to the Administrative Agent in accordance with Section 2.2 (and the Borrower shall deliver such Funding Notice),

(v) each Revolving Lender shall be deemed to hold its applicable Pro Rata Share of each Resulting Revolving Borrowing (calculated after giving effect to such effectiveness), and

(vi) the Borrower shall pay each Revolving Lender any and all accrued but unpaid interest on its Loans comprising the Existing Revolving Borrowings.

The deemed payments of the Existing Revolving Borrowings made pursuant to clause (i) above shall be subject to compensation by the Borrower pursuant to the provisions of Section 2.17(c) if the date of the effectiveness of such Incremental Revolving Commitments occurs other than on the last day of the Interest Period relating thereto.

(e) Subject to the terms and conditions set forth herein and in the applicable Incremental Facility Agreement, each Incremental Term Lender holding an Incremental Term Loan Commitment of any Class shall make a Loan to the Borrower in an amount equal to such Incremental Term Loan Commitment on the date specified in such Incremental Facility Agreement.

(f) The Administrative Agent shall notify the Lenders promptly upon receipt by the Administrative Agent of any notice from the Borrower referred to in Section 2.23(a) and of the effectiveness of any Incremental Commitments, in each case advising the Lenders of the details thereof and, in the case of effectiveness of any Incremental Revolving Commitments, of the Pro Rata Shares of the Revolving Lenders after giving effect thereto and of the assignments required to be made pursuant to Section 2.23(e).

**2.24. Extension/Modification Offers**. The Borrower may on one or more occasions, by written notice to the Administrative Agent, make one or more offers (each, an "**Extension/Modification Offer**") to all the Lenders of any Class (each Class subject to such an Extension/Modification Offer being referred to as an "**Extension/Modification Request Class**"), on the same terms and conditions, and on a pro rata basis, to each Lender within any Extension/Modification Request Class, to make one or more Extension/Modification Permitted Amendments pursuant to procedures reasonably specified by the Administrative Agent and acceptable to the Borrower. Such notice shall set forth (i) the terms and conditions of the requested Extension/Modification Permitted Amendment and (ii) the date on which such Extension/Modification Permitted Amendment is requested to become effective. Extension/Modification Permitted Amendments shall become effective only with respect to the Loans and Commitments of the Lenders of the Extension/Modification Request Class that accept the applicable Extension/Modification Offer (such Lenders, the "**Extending/Modifying Lenders**") and, in the case of any Extending/Modifying Lender, only with respect to such Lender's Loans and Commitments of such Extension/Modification Request Class as to which such Lender's acceptance has been made. Any Extended/Modified Loans or Extended/Modified Commitments shall constitute a separate Class of Loans or Commitments from the Extension/Modification Request Class from which they were converted and, in the event any Extended/Modified Term Loans have the same terms as any existing Class of Term Loans then outstanding or any Incremental Term Loans or Refinancing Term Loans then substantially concurrently established (in each case, disregarding any differences in original issue discount or upfront fees if not affecting the fungibility thereof for US federal income tax purposes), such Extended/Modified Term Loans may, at the election of the Borrower, be treated as a single Class with such outstanding Term Loans or such Incremental Term Loans or Refinancing Term Loans, and the scheduled Installments set forth in Section 2.11 with respect to any such Class of Term Loans may be increased to reflect scheduled amortization of such Extended/Modified Term Loans. The Extension/Modification Offer shall not be required to be in any minimum amount or any minimum increment, provided that the Borrower may, at its option and subject to its right to waive any such condition in its sole discretion, specify as a condition to the effectiveness of any Extension/Modification Permitted Amendment that a minimum amount, as specified in the Extension/Modification Offer, of Loans and Commitments of the Extension/Modification Request Class be extended. The Borrower may amend, revoke or replace any Extension/Modification Offer at any time prior to the effectiveness of the applicable Extension/Modification Agreement. In connection with any Extension/Modification Offer, the Borrower shall agree to such procedures, if any, as may be reasonably established by, or acceptable to, the Administrative Agent to accomplish the purposes of this Section 2.24.

(a) An Extension/Modification Permitted Amendment shall be effected pursuant to an Extension/Modification Agreement executed and delivered by the Borrower, each applicable Extending/Modifying Lender and the Administrative Agent;

provided that no Extension/Modification Permitted Amendment shall become effective unless the Borrower shall have delivered to the Administrative Agent such legal opinions, board resolutions, secretary's certificates, officer's certificates, reaffirmation agreements and other documents as shall reasonably be requested (consistent in all material respects with the documents delivered under Section 3.1 on the Closing Date) by the Administrative Agent in connection therewith. The Administrative Agent shall promptly notify each Lender as to the effectiveness of each Extension/Modification Agreement. Each Extension/Modification Agreement may, without the consent of any Lender other than the applicable Extending/Modifying Lenders, effect such amendments to this Agreement and the other Credit Documents as may be necessary or appropriate, in the opinion of the Administrative Agent and the Borrower, to give effect to the provisions of this Section 2.24, including (i) a reduction to the scheduled Installments set forth in Section 2.11 with respect to Loans of the Extension/Modification Request Class to reflect the treatment of the Extended/Modified Loans as a new Class of Loans (it being understood that the amount of any scheduled amortization payable to any non-Extending/Modifying Lender with respect to its Loans of the Extension/Modification Request Class shall not be reduced as a result thereof) and (ii) any amendments necessary to treat the applicable Loans and/or Commitments of the Extending/Modifying Lenders as a new "Class" of Loans and/or Commitments hereunder (including for purposes of prepayments and voting (it being agreed that such new Class of Loans may be included in the definitions of "Majority in Interest", "Pro Rata Share" and "Requisite Lenders" and may be afforded class voting rights requiring the consent of Lenders under such Class in addition to any other consent of Lenders that might otherwise be required under Section 10.5) and to enable such new Class of Loans to be extended under this Section 2.24 or refinanced under Section 2.25; provided that, in the case of any Extension/Modification Offer relating to Revolving Commitments or Revolving Loans, (A) the borrowing and repayment (except for repayments required upon the maturity, repayments made in connection with any Refinancing Facility Agreement and repayments made in connection with a permanent repayment and termination of the applicable Commitments) of Loans under the Commitments of such new Class and the remaining Revolving Commitments shall be made on a ratable basis as between the Commitments of such new Class and the remaining Revolving Commitments, (B) the allocation of the participation exposure with respect to any then-existing or subsequently issued Letter of Credit as between the Commitments of such new Class and the remaining Revolving Commitments shall be made on a ratable basis as between the Commitments of such new Class and the remaining Revolving Commitments (and the applicable Extension/Modification Agreement shall contain reallocation and cash collateralization provisions, in form and substance reasonably satisfactory to the Administrative Agent and the Borrower, with respect to Letters of Credit outstanding on the Revolving Maturity Date) and (C) the Revolving Commitment Period and the Revolving Maturity Date, as such terms are used in reference to Letters of Credit of any Issuing Bank, may not be extended without the prior written consent of such Issuing Bank.

**2.25. Refinancing Facilities.** The Borrower may, on one or more occasions, by written notice to the Administrative Agent, request the establishment hereunder of (i) one or more additional Classes of revolving commitments (the "**Refinancing Revolving Commitments**") pursuant to which each Person providing such a commitment (a "**Refinancing Revolving Lender**") will make revolving loans to the Borrower ("**Refinancing Revolving Loans**") and, if applicable under such Class, acquire participations in the Letters of Credit and all the then existing Revolving Commitments will be refinanced in full or (ii) one or more additional Classes of term loan commitments (the "**Refinancing Term Loan Commitments**") pursuant to which each Person providing such a commitment (a "**Refinancing Term Lender**") will make term loans to the Borrower (the "**Refinancing Term Loans**"). Each such notice shall specify (A) the date on which the Borrower proposes that the Refinancing Commitments shall be effective and (B) the amount of the Refinancing Commitments requested to be established (it being agreed that (x) any Lender approached to provide any Refinancing Commitment may elect or decline, in its sole discretion, to provide such Refinancing Commitment and (y) any Person that the Borrower proposes to be a Refinancing Lender must be an Eligible Assignee and, solely if such approval would be required under Section 10.6 for an assignment of Loans or Commitments of the applicable Class to such Refinancing Lender, must be approved by the Administrative Agent and, in the case of any proposed Refinancing Revolving Lender if such Lender is to acquire participations in the Letters of Credit, each Issuing Bank (each such approval not to be unreasonably withheld, conditioned or delayed)).

(a) The terms and conditions of any Refinancing Commitments and the Refinancing Loans to be made thereunder shall be as determined by the Borrower and the applicable Refinancing Lenders and set forth in the applicable Refinancing Facility Agreement; provided that an Issuing Bank shall not be required to issue, amend or extend any Letter of Credit under any Refinancing Revolving Commitments unless such Issuing Bank shall have consented to act in such capacity under the Refinancing Revolving Commitments; provided further that (i) the stated termination date applicable to the Refinancing Revolving Commitments of any Class and the Refinancing Term Loan Maturity Date of any Class shall not be earlier than the Maturity Date of the Class of Commitments or Loans being refinanced, (ii) in the case of any Refinancing Term Loans, the weighted average life to maturity of any Refinancing Term Loans shall be no shorter than the remaining weighted average life to maturity of the Class of Term Loans being refinanced (and, for purposes of determining the weighted average life to maturity of such Class of Term Loans being refinanced, the effects of any prepayments made prior to the date of the determination shall be disregarded), it being understood that, subject to this clause (ii), the amortization schedule applicable to (and the effect thereon of any prepayments of) any Refinancing Term Loans shall be determined by the Borrower and the applicable Refinancing Lenders, (iii) any Refinancing Term Loans may participate in any mandatory prepayments hereunder on a pro rata basis (or on a basis that is less than pro rata) with the other Term Loans, but may not provide for mandatory prepayment requirements that are more favorable than those applicable to the other Term Loans, (iv) any Refinancing Commitments and Refinancing Loans made thereunder shall rank *pari*

*passu* in right of payment, and shall be secured by the Collateral on an equal and ratable basis, with the other Loans and Commitments hereunder, and shall be extensions of credit to the Borrower that are Guaranteed only by the Credit Parties, and (v) except for the terms referred to above, to the extent the terms of any Refinancing Commitments or Refinancing Loans (except with respect to Effective Yield and components thereof, fees, prepayment terms (including "no call" terms and other restrictions thereon) and premiums) are not consistent with those of the Class of Commitments or Loans being refinanced, such differences shall be reasonably acceptable to the Administrative Agent (except for terms benefitting the Refinancing Lenders (A) where this Agreement is amended to include such beneficial terms for the benefit of all Lenders or (B) applicable only to periods after the latest Maturity Date in effect as of the date of establishment or incurrence of such Refinancing Commitments or Refinancing Loans); provided further that clauses (i), (ii) and (iii) above shall not apply if, at the time of the incurrence of such Refinancing Revolving Commitments or Refinancing Term Loans, as the case may be, and after giving effect to the application of the proceeds thereof, such Refinancing Revolving Commitments or Refinancing Term Loans shall be the sole Class of Commitments or Term Loans, as the case may be, outstanding under this Agreement. In the event any Refinancing Term Loans have the same terms as any existing Class of Term Loans then outstanding or any Incremental Term Loans or Extended/Modified Term Loans then substantially concurrently established (in each case, disregarding any differences in original issue discount or upfront fees if not affecting the fungibility thereof for US federal income tax purposes), such Refinancing Term Loans may, at the election of the Borrower, be treated as a single Class with such outstanding Term Loans or such Incremental Term Loans or Extended/Modified Term Loans, and the scheduled Installments set forth in Section 2.11 with respect to any such Class of Term Loans may be increased to reflect scheduled amortization of such Refinancing Term Loans.

(b) The Refinancing Commitments shall be effected pursuant to one or more Refinancing Facility Agreements executed and delivered by the Borrower, each Refinancing Lender providing such Refinancing Commitments, the Administrative Agent and, in the case of Refinancing Revolving Commitments, as applicable, each Issuing Bank; provided that no Refinancing Commitments shall become effective unless (i) the Borrower shall have delivered to the Administrative Agent such legal opinions, board resolutions, secretary's certificates, officer's certificates, reaffirmation agreements and other documents as shall reasonably be requested (consistent in all material respects with the documents delivered under Section 3.1 on the Closing Date) by the Administrative Agent in connection therewith, (ii) in the case of any Refinancing Revolving Commitments, substantially concurrently with the effectiveness thereof, all the Revolving Commitments then in effect shall be terminated and the Borrower shall make any prepayment or deposit required to be made under Section 2.13(e) as a result thereof and shall pay all interest on the amounts prepaid and all fees accrued on the Revolving Commitments (it being understood, however, that any Letters of Credit may continue to be outstanding under the Refinancing Revolving Commitments, in each case on terms agreed by each applicable Issuing Bank and specified in the applicable Refinancing Facility Agreement) and (iii) in the case of any Refinancing Term Loan Commitments, (A) substantially concurrently with the effectiveness thereof, the Borrower shall obtain Refinancing Term Loans thereunder and shall repay or prepay then outstanding Term Borrowings of any Class in an aggregate principal amount equal to the aggregate amount of such Refinancing Term Loan Commitments (less the aggregate amount of accrued and unpaid interest with respect to such outstanding Term Borrowings, any original issue discount or upfront fees applicable to such Refinancing Term Loans and any reasonable fees, premium and expenses relating to such refinancing) and (B) any such prepayment of Term Borrowings of any Class shall be applied to reduce the subsequent Installments to be made pursuant to Section 2.11 with respect to Term Borrowings of such Class on a pro rata basis (in accordance with the principal amounts of such Installments) and, in the case of a prepayment of Eurodollar Rate Term Borrowings, shall be subject to Section 2.17(c). Each Refinancing Facility Agreement may, without the consent of any Lender other than the applicable Refinancing Lenders, effect such amendments to this Agreement and the other Credit Documents as may be necessary or appropriate, in the opinion of the Administrative Agent and the Borrower, to give effect to the provisions of this Section 2.25, including any amendments necessary to treat the applicable Refinancing Commitments and Refinancing Loans as a new Class of Commitments and Loans hereunder (including for purposes of prepayments and voting (it being agreed that such new Class of Commitments and Loans may be included in the definitions of "Majority in Interest", "Pro Rata Share" and "Requisite Lenders" and may be afforded class voting rights requiring the consent of Lenders under such Class in addition to any other consent of Lenders that might otherwise be required under Section 10.5) and to enable such new Class of Commitments and Loans to be extended under Section 2.24 or refinanced under this Section 2.25).

(c) Upon the effectiveness of a Refinancing Commitment of any Refinancing Lender, such Refinancing Lender shall be deemed to be a "Lender" (and a Lender in respect of Commitments and Loans of the applicable Class) hereunder, and henceforth shall be entitled to all the rights of, and benefits accruing to, Lenders (or Lenders in respect of Commitments and Loans of the applicable Class) hereunder and shall be bound by all agreements, acknowledgements and other obligations of Lenders (or Lenders in respect of Commitments and Loans of the applicable Class) hereunder and under the other Credit Documents.

(d) The Administrative Agent shall notify the Lenders promptly upon receipt by the Administrative Agent of any notice from the Borrower referred to in Section 2.25(a) and of the effectiveness of any Refinancing Commitments, in each case advising the Lenders of the details thereof.

## SECTION 3. CONDITIONS PRECEDENT

**3.1.** Closing Date. The obligation of each Lender and each Issuing Bank to make any Credit Extension on the Closing Date shall not become effective until the date on which each of the following conditions shall be satisfied (or waived in

accordance with Section 10.5):

(a) Credit Agreement. The Administrative Agent shall have received from the Borrower and each Designated Subsidiary and each other party hereto either (i) a counterpart of this Agreement signed on behalf of such party or (ii) evidence satisfactory to the Administrative Agent (which may include a facsimile or electronic image scan transmission) that such party has signed a counterpart of this Agreement.

(b) Organizational Documents; Incumbency. The Administrative Agent shall have received, in respect of the Borrower and each Designated Subsidiary, a certificate of such Person, executed by the secretary or an assistant secretary of such Person, attaching (i) a copy of each Organizational Document of such Person, which shall, to the extent applicable, be certified as of the Closing Date or a recent date prior thereto by the appropriate Governmental Authority, (ii) signature and incumbency certificates of the officers of such Person executing each Credit Document, (iii) resolutions of the Board of Directors or similar governing body of such Person approving and authorizing the execution, delivery and performance of this Agreement and the other Credit Documents to which it is a party, certified as of the Closing Date by such secretary or assistant secretary as being in full force and effect without modification or amendment, and (iv) a good standing certificate from the applicable Governmental Authority of such Person's jurisdiction of organization, dated the Closing Date or a recent date prior thereto, all in form and substance reasonably satisfactory to the Administrative Agent.

(c) Closing Date Certificate. The Administrative Agent shall have received the Closing Date Certificate, dated the Closing Date and signed by the chief financial officer of the Borrower, together with all attachments thereto.

(d) Solvency Certificate. The Administrative Agent shall have received the Solvency Certificate, dated the Closing Date and signed by the chief financial officer of the Borrower.

(e) Opinions of Counsel. The Administrative Agent shall have received a customary written opinion (addressed to the Administrative Agent, the Collateral Agent, the Lenders and the Issuing Banks and dated the Closing Date) of each of (i) Foley Hoag LLP, counsel for the Credit Parties, and (ii) local counsel for the Credit Parties in each jurisdiction in which any Credit Party is organized and the laws of which are not covered by the opinion referred to in clause (i) above (and each Credit Party hereby instructs such counsel to deliver such opinion to the Administrative Agent).

(f) Closing Date Refinancing. The Closing Date Refinancing shall have been consummated or shall be consummated substantially concurrently with the funding of the Loans on the Closing Date, and the Administrative Agent shall have received customary evidence thereof.

(g) Collateral and Guarantee Requirement. Subject to the final paragraph of this Section 3.1, the Collateral and Guarantee Requirement shall have been satisfied. The Collateral Agent shall have received a completed Collateral Questionnaire in form and substance reasonably satisfactory to the Collateral Agent, dated the Closing Date and executed by an Authorized Officer of the Borrower, together with the results of a search of the UCC (or equivalent) filings made with respect to the Credit Parties in the jurisdictions contemplated by the Collateral Questionnaire and copies of the financing statements (or similar documents) disclosed by such search.

(h) Evidence of Insurance. Subject to the final paragraph of this Section 3.1, the Collateral Agent shall have received a certificate from the Borrower's insurance broker or other evidence reasonably satisfactory to it that the insurance required to be maintained pursuant to Section 5.5 is in full force and effect, together with customary endorsements naming the Collateral Agent, for the benefit of Secured Parties, as additional insured and lender's loss payee thereunder to the extent required under Section 5.5.

(i) Fees and Expenses. The Borrower shall have paid to the Arrangers, the Administrative Agent and the Lenders all fees and expenses (including legal fees and expenses) and other amounts due and payable on or prior to the Closing Date pursuant to the Credit Documents or separate agreements entered into by the Borrower and the Arrangers or the Administrative Agent, in each case to the extent invoiced at least three days prior to the Closing Date.

(j) Letter of Direction. The Administrative Agent shall have received a duly executed letter of direction from the Borrower addressed to the Administrative Agent, on behalf of itself and the Lenders, directing the disbursement on the Closing Date of the proceeds of the Loans to be made on such date.

(k) PATRIOT Act and Related Matters. At least five days prior to the Closing Date, the Lenders shall have received all documentation and other information in respect of the Borrower and each Subsidiary required by bank regulatory authorities under applicable "know-your-customer" and anti-money laundering rules and regulations, including the PATRIOT Act, that shall have been requested in writing (which may be by e-mail) at least 10 days prior to the Closing Date, and a Beneficial Ownership Certification from the Borrower and each other Credit Party, if any, that is a "legal entity customer" under the Beneficial Ownership Regulation.

Notwithstanding the foregoing, solely with respect to the matters expressly identified in the Post-Closing Letter Agreement, the satisfaction by the Credit Parties of the foregoing conditions shall not be required on the Closing Date, and shall not be a condition to the making of the Credit Extensions on the Closing Date, but instead shall be required to be completed pursuant to the terms of the Post-Closing Letter Agreement.

**3.2.** Each Credit Extension. The obligation of each Lender and each Issuing Bank to make any Credit Extension on the Closing Date and of each Revolving Lender and each Issuing Bank to make any Credit Extension after the Closing Date is subject to the satisfaction (or waiver in accordance with Section 10.5) of the following conditions precedent:

(a) the Administrative Agent and, in the case of any issuance, amendment or extension (other than an automatic extension permitted under Section 2.3(a)) of any Letter of Credit, the applicable Issuing Bank shall have received a fully completed and executed Funding Notice or Issuance Notice, as the case may be;

(b) the representations and warranties of each Credit Party set forth in the Credit Documents shall be true and correct (i) in the case of the representations and warranties qualified as to materiality, in all respects and (ii) otherwise, in all material respects, in each case on and as of such date, except in the case of any such representation and warranty that expressly relates to an earlier date, in which case such representation and warranty shall be so true and correct on and as of such earlier date; and

(c) at the time of and immediately after giving effect to such Credit Extension, no Default or Event of Default shall have occurred and be continuing or would result therefrom.

On the date of any such Credit Extension, the Borrower shall be deemed to have represented and warranted that the conditions specified in Sections 3.2(b) and 3.2(c) have been satisfied and that, after giving effect to such Credit Extension, the Total Utilization of Revolving Commitments (or any component thereof) shall not exceed the maximum amount thereof (or the maximum amount of any such component) specified in Section 2.2(a) or 2.3(a).

## SECTION 4. REPRESENTATIONS AND WARRANTIES

In order to induce the Agents, the Lenders and the Issuing Banks to enter into this Agreement and to make each Credit Extension to be made by it hereunder, each Credit Party represents and warrants to each Agent, each Lender and each Issuing Bank on the Closing Date and on each other Credit Date as follows:

**4.1. Organization; Requisite Power and Authority; Qualification**. The Borrower and each Restricted Subsidiary (a) is duly organized, validly existing and in good standing under the laws of its jurisdiction of organization, (b) has all requisite power and authority (i) to own and operate its properties and to carry on its business and operations as now conducted, (ii) in the case of any Credit Party, to execute and deliver the Credit Documents to which it is a party and (iii) to perform the other Transactions to be performed by it and (c) is qualified to do business and in good standing under the laws of every jurisdiction where its assets are located or where such qualification is necessary to carry out its business and operations, except, in each case referred to in clauses (a) (other than with respect to the Borrower), (b)(i) and (c), where the failure so to be or so to have, individually or in the aggregate, has not had and could not reasonably be expected to have a Material Adverse Effect.

**4.2. Equity Interests and Ownership**. Schedule 4.2 sets forth, as of the Closing Date, the name and jurisdiction of organization of, and the percentage of each class of Equity Interests owned by the Borrower or any Subsidiary in, (a) each Subsidiary and (b) each joint venture and other Person in which the Borrower or any Subsidiary owns any Equity Interests, and identifies each Designated Subsidiary and each Material Subsidiary. The Equity Interests owned by any Credit Party in any Restricted Subsidiary have been duly authorized and validly issued and, to the extent such concept is applicable, are fully paid and non-assessable.

**4.3. Due Authorization**. The Transactions to be entered into by each Credit Party have been duly authorized by all necessary corporate or other organizational and, if required, stockholder or other equityholder action on the part of such Credit Party.

**4.4. No Conflict**. The Transactions do not and will not (a) violate any applicable law, including any order of any Governmental Authority, except to the extent any such violation, individually or in the aggregate, could not reasonably be expected to have a Material Adverse Effect, (b) violate the Organizational Documents of the Borrower or any Restricted Subsidiary, (c) violate or result (alone or with notice or lapse of time, or both) in a default under any Contractual Obligation of the Borrower or any Restricted Subsidiary, or give rise to a right thereunder to require any payment, repurchase or redemption to be made by the Borrower or any Restricted Subsidiary, or give rise to a right of, or result in, any termination, cancelation or acceleration or right of renegotiation of any obligation thereunder, except to the extent any such violation, default, right or result, individually or in the aggregate, could not reasonably be expected to have a Material Adverse Effect, or (d) except for Liens created under the Credit Documents and other Permitted Liens, result in or require the creation or imposition of any Lien on any asset of the Borrower or any Restricted Subsidiary.

**4.5. Governmental Approvals**. The Transactions do not and will not require any registration with, consent or approval of, notice to, or other action by any Governmental Authority, except (a) such as have been obtained or made and are in full force and effect, (b) filings and recordings with respect to the Collateral necessary to perfect Liens created under the Credit Documents and (c) those registrations, consents, approvals, notices or other actions the failure of which to obtain or make, individually or in the aggregate, could not reasonably be expected to have a Material Adverse Effect.

**4.6. Binding Obligation**. Each Credit Document has been duly executed and delivered by each Credit Party that is a party thereto and is the legally valid and binding obligation of such Credit Party, enforceable against such Credit Party in accordance with its terms, except as enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium or similar laws relating to or limiting creditors' rights generally or by equitable principles relating to enforceability.

**4.7. Historical Financial Statements; Projections**. The Historical Financial Statements were prepared in conformity with GAAP and present fairly, in all material respects, the consolidated financial position of the Borrower and its Subsidiaries as of the respective dates thereof and the consolidated results of operations and cash flows of the Borrower and its Subsidiaries for each of the periods then ended, subject, in the case of any such unaudited financial statements, to changes resulting from audit and normal year-end adjustments and the absence of certain footnotes. As of the Closing Date, neither the Borrower nor any Restricted Subsidiary has any contingent liability or liability for Taxes, long-term lease or unusual forward or long-term commitment that is not reflected in the Historical Financial Statements or the notes thereto except as could not, individually or in the aggregate, reasonably be expected to result in a Material Adverse Effect.

(a) The Projections have been prepared by the Borrower in good faith based upon assumptions that were believed by the Borrower to be reasonable at the time made, it being understood and agreed that the Projections are subject to significant uncertainties and contingencies, many of which are beyond the Borrower's control, and are not a guarantee of financial performance and actual results may differ therefrom and such differences may be material.

**4.8. No Material Adverse Change**. Since December 31, 2017, there has been no event or condition that has had, or could reasonably be expected to have, individually or in the aggregate, a Material Adverse Effect.

**4.9. Adverse Proceedings**. There are no Adverse Proceedings that (a) individually or in the aggregate could reasonably be expected to have a Material Adverse Effect or (b) in any manner question the validity or enforceability of any of the Credit Documents.

**4.10. Payment of Taxes**. Except as otherwise permitted under Section 5.3, all Tax returns and reports of the Borrower and the Restricted Subsidiaries required to be filed by any of them have been timely filed, and all Taxes shown on such Tax returns to be due and payable, and all assessments, fees and other governmental charges upon the Borrower and the Restricted Subsidiaries and upon their properties, income, businesses and franchises that are due and payable, have been paid when due and payable, except (a) Taxes that are being contested in good faith by appropriate proceedings and for which the Borrower or such Restricted Subsidiary, as applicable, has set aside on its books reserves with respect thereto to the extent required by GAAP or (b) to the extent that the failure to do so could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

**4.11. Properties**. Title. The Borrower and each Restricted Subsidiary has (i) good, sufficient and marketable title to (in the case of fee interests in real property), (ii) valid leasehold interests in (in the case of leasehold interests in real or personal property), (iii) valid licensed rights in (in the case of licensed interests in Intellectual Property) and (iv) good title to (in the case of all other personal property) all of their assets reflected in the Historical Financial Statements or, after the first delivery thereof, in the consolidated financial statements of the Borrower most recently delivered pursuant to Section 5.1, in each case except (A) for assets disposed of since the date of such financial statements in the ordinary course of business or as otherwise permitted by this Agreement, (B) for Permitted Liens and (C) where the failure to have such title, leasehold or other interest, individually or in the aggregate, has not had and could not reasonably be expected to have a Material Adverse Effect.

(a) Intellectual Property. The Borrower and each Restricted Subsidiary owns, or is licensed to use, all Intellectual Property that is necessary for the conduct of its business as currently conducted, and without conflict with the rights of any other Person, except to the extent any such conflict, individually or in the aggregate, could not reasonably be expected to have a Material Adverse Effect. No Intellectual Property used by the Borrower or any Restricted Subsidiary in the operation of its business infringes upon the rights of any other Person, except for any such infringements that, individually or in the aggregate, could not reasonably be expected to have a Material Adverse Effect. No claim or litigation regarding any Intellectual Property owned or used by the Borrower or any Restricted Subsidiary is pending or, to the knowledge of the Borrower or any Restricted Subsidiary, threatened against the Borrower or any Restricted Subsidiary that, individually or in the aggregate, could reasonably be expected to have a Material Adverse Effect.

**4.12. Environmental Matters**. Except as has not had and could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect, (a) each of the Borrower and the Restricted Subsidiaries are, and have been, in compliance with all Environmental Laws, (b) none of the Borrower, any Restricted Subsidiary or any of their respective Facilities or operations is subject to any outstanding written order, consent decree or settlement agreement with any Person relating to or arising out of any Environmental Law or any Hazardous Materials Activity and neither the Borrower nor any Restricted Subsidiary has received any written notice, letter or request for information alleging any liability or obligation under Environmental Law, including under Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (42 USC. § 9604) or any comparable state law, (c) there has been no Release of any Hazardous Materials on, at, under or from any property owned, leased or operated (and, to the knowledge of the Borrower and each Restricted Subsidiary, formerly owned, leased or operated) by the Borrower or any Restricted Subsidiary and (d) to the knowledge of the Borrower and each Restricted Subsidiary there are and have been no conditions, occurrences or Hazardous Materials Activities that could reasonably be expected to form the basis of an Environmental Claim against the Borrower or any Restricted Subsidiary.

**4.13. No Defaults**. No Default or Event of Default has occurred and is continuing.

**4.14. Governmental Regulation**. Neither the Borrower nor any Guarantor Subsidiary is or is required to be registered as an "investment company" as such term is defined in the Investment Company Act of 1940.

**4.15. Federal Reserve Regulations**. Neither the Borrower nor any Restricted Subsidiary is engaged principally, or as one of its primary activities, in the business of extending credit for the purpose of buying or carrying Margin Stock.

(a) No portion of the proceeds of any Credit Extension will be used in any manner, whether directly or indirectly, that causes or could reasonably be expected to cause such Credit Extension or the application of such proceeds to violate Regulation T, Regulation U or Regulation X or any other regulation of the Board of Governors.

**4.16. Employee Matters**. Neither the Borrower nor any Restricted Subsidiary is engaged in any unfair labor practice that, individually or in the aggregate, could reasonably be expected to have a Material Adverse Effect. Except as could not reasonably be expected to have a Material Adverse Effect, there is (a) no unfair labor practice complaint pending or, to the knowledge of the Borrower or any Restricted Subsidiary, threatened against the Borrower or any Restricted Subsidiary before the National Labor Relations Board, (b) no grievance or arbitration proceeding arising out of or under any collective bargaining agreement that is pending or, to the knowledge of the Borrower or any Restricted Subsidiary, threatened against the Borrower or any Restricted Subsidiary, (c) no strike, lockout or work stoppage in existence or, to the knowledge of the Borrower or any Restricted Subsidiary, threatened involving the Borrower or any Restricted Subsidiary and (d) to the knowledge of the Borrower or any Restricted Subsidiary, no union organizing activity exists or is taking place with respect to the employees of the Borrower or any Restricted Subsidiary.

**4.17. Employee Benefit Plans**. The Borrower and each Restricted Subsidiary is in compliance with all applicable provisions and requirements of ERISA and the Internal Revenue Code and the regulations with respect to each Employee Benefit Plan, and has performed all its obligations under each Employee Benefit Plan, except where such failure to comply or perform, individually or in the aggregate, could not reasonably be expected to have a Material Adverse Effect. No liability to the PBGC (other than required premium payments) with respect to any Pension Plan has been or is expected to be incurred by the Borrower, any Restricted Subsidiary or any of their respective ERISA Affiliates, except as could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect. No ERISA Event has occurred or is reasonably expected to occur that, alone or together with any other ERISA Events that have occurred or are reasonably expected to occur, could reasonably be expected to have a Material Adverse Effect. The present value of the aggregate benefit liabilities under each Pension Plan (determined as of the end of the most recent plan year on the basis of the actuarial assumptions specified for funding purposes in the most recent actuarial valuation for such Pension Plan), did not exceed the aggregate current value of the assets of such Pension Plan by an amount that could, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect. As of the most recent valuation date for each Multiemployer Plan for which the actuarial report is available, the potential liability of the Borrower, the Restricted Subsidiaries and their respective ERISA Affiliates for a complete withdrawal from such Multiemployer Plan (within the meaning of Section 4203 of ERISA), when aggregated with such potential liability for a complete withdrawal from all Multiemployer Plans, could not reasonably be expected to have a Material Adverse Effect. The Borrower, each Restricted Subsidiary and each of their respective ERISA Affiliates has complied with the requirements of Section 515 of ERISA with respect to each Multiemployer Plan and is not in material "default" (as defined in Section 4219(c)(5) of ERISA) with respect to payments to a Multiemployer Plan, except where such failure to comply or such default, individually or in the aggregate, could not reasonably be expected to have a Material Adverse Effect.

**4.18. Solvency**. On the Closing Date (after giving effect to the borrowing of Tranche B Term Loans hereunder and the other Transactions to occur on such date), the Borrower and its Restricted Subsidiaries, on a consolidated basis, are Solvent.

**4.19. Compliance with Laws**. The Borrower and each Restricted Subsidiary is in compliance with all applicable laws, including all orders and other restrictions imposed by any Governmental Authority, in respect of the conduct of its business

and the ownership and operation of its properties (including compliance with all Environmental Laws), except where such failure to comply, individually or in the aggregate, could not reasonably be expected to have a Material Adverse Effect.

**4.20. Disclosure**. None of the Lender Presentation, any other documents or certificates or any other written information (other than financial projections (including the Projections), estimates, forecasts and information of a general economic or industry-specific nature) provided by or on behalf of the Borrower or its Subsidiaries to any Arranger, Agent, Lender or Issuing Bank in connection with the negotiation of or pursuant to this Agreement or any other Credit Document or otherwise in connection with the transactions contemplated hereby or thereby, taken as a whole, contains or will contain, when furnished, any untrue statement of a material fact or omits or will omit, when furnished, to state a material fact necessary in order to make the statements contained therein not materially misleading in light of the circumstances under which such statements were made (after giving effect to all supplements and updates thereto delivered to the Arrangers prior to the Closing Date). The financial projections (including the Projections), forecasts, budgets and other forward-looking information provided by or on behalf of the Borrower or its Subsidiaries to any Arranger, Agent, Lender or Issuing Bank in connection with the negotiation of or pursuant to this Agreement or any other Credit Document or otherwise in connection with the transactions contemplated hereby or thereby were prepared in good faith based upon estimates and assumptions believed by the Borrower to be reasonable at the time such information was furnished to such Arranger, Agent, Lender or Issuing Bank (it being understood and agreed that financial projections, estimates and forecasts are subject to significant uncertainties and contingencies, many of which are beyond the Borrower's control, are not a guarantee of financial performance, actual results may differ therefrom and such differences may be material).

**4.21. Collateral Matters**. The Pledge and Security Agreement, upon execution and delivery thereof by the parties thereto, will create in favor of the Collateral Agent, for the benefit of the Secured Parties, a valid and enforceable security interest in the Collateral (as defined therein) and (i) when the Collateral (as defined therein) constituting certificated securities (as defined in the UCC) is delivered to the Collateral Agent, together with instruments of transfer duly endorsed in blank, the security interest created under the Pledge and Security Agreement will constitute a fully perfected security interest in all right, title and interest of the pledgors thereunder in such Collateral, prior and superior in right to any other Person (subject to any Pari Passu Intercreditor Agreement), and (ii) when financing statements in appropriate form are filed in the applicable filing offices, the security interest created under the Pledge and Security Agreement will constitute a fully perfected security interest in all right, title and interest of the Credit Parties in the remaining Collateral (as defined therein) to the extent perfection can be obtained by filing UCC financing statements, prior and superior in right to any other Person, but subject to Permitted Liens.

(a) Each Mortgage, upon execution and delivery thereof by the parties thereto, will create in favor of the Collateral Agent, for the benefit of the Secured Parties, a legal, valid and enforceable security interest in all the applicable mortgagor's right, title and interest in and to the Real Estate Asset subject thereto and the proceeds thereof (except as such enforceability may be limited by Debtor Relief Laws and general principles of equity), and when the Mortgages have been filed in the jurisdictions specified therein, the Mortgages will constitute fully perfected security interests in all right, title and interest of the mortgagors in the Real Estate Assets subject thereto and the proceeds thereof, prior and superior in right to any other Person, but subject to the Permitted Liens.

(b) Upon the recordation of the Intellectual Property Security Agreements with the United States Patent and Trademark Office or the United States Copyright Office, as applicable, and the filing of the financing statements referred to in Section 4.21(a), the security interest created under the Pledge and Security Agreement will constitute a fully perfected security interest in all right, title and interest of the Credit Parties in the Intellectual Property in which a security interest may be perfected by filing in the United States Patent and Trademark Office or United States Copyright Office, in each case prior and superior in right to any other Person, but subject to Permitted Liens (it being understood that subsequent recordings in the United States Patent and Trademark Office or the United States Copyright Office may be necessary to perfect a security interest in such Intellectual Property acquired by the Credit Parties after the Closing Date).

(c) Each Collateral Document, other than any Collateral Document referred to in the preceding paragraphs of this Section 4.21, upon execution and delivery thereof by the parties thereto and the making of the filings and taking of the other actions provided for therein, will be effective under applicable law to create in favor of the Collateral Agent, for the benefit of the Secured Parties, a valid and enforceable security interest in the Collateral subject thereto (except as such enforceability may be limited by Debtor Relief Laws and general principles of equity), and will constitute a fully perfected security interest in all right, title and interest of the Credit Parties in the Collateral subject thereto, prior and superior to the rights of any other Person, but subject to Permitted Liens.

(d) Notwithstanding anything in this Agreement (including this Section 4.21) or in any other Credit Document to the contrary, neither the Borrower nor any Restricted Subsidiary makes, or shall be deemed to have made, any representation or warranty as to (i) the perfection or non-perfection, the priority or the enforceability of any security interest in any Collateral consisting of Equity Interests in any Foreign Subsidiary, or as to the rights and remedies of the Collateral Agent or any Secured Party with respect thereto under any foreign law, (ii) the creation of any security interest, or the perfection or non-perfection, the priority or the enforceability of any security interest, in each case, to the extent such security interest or perfection is expressly not required pursuant to the Collateral and Guarantee Requirement or (iii) on the Closing Date and until required pursuant to the final

paragraph of Section 3.1, the creation of any security interest, or the perfection or non-perfection, priority or enforceability of any security interest that is expressly not required to be created or in effect on the Closing Date pursuant to such paragraph.

**4.22. Insurance**. Schedule 4.22 sets forth, as of the Closing Date, a true and complete description of all property damage, machinery breakdown, business interruption and liability insurance maintained by or on behalf of the Borrower and the Restricted Subsidiaries.

**4.23. Sanctioned Persons; Anti-Corruption Laws; PATRIOT Act.** None of the Borrower or any of its Subsidiaries or, to the knowledge of the Borrower, any of their respective directors, officers, employees, agents, advisors or Affiliates is subject to any sanctions or economic embargoes administered or enforced by the United States Department of State or the United States Department of Treasury (including OFAC), the United Nations Security Council, the European Union, Her Majesty's Treasury of the United Kingdom or any other applicable sanctions authority (collectively, "**Sanctions**", and the associated laws, rules, regulations and orders, collectively, "**Sanctions Laws**"). Each of the Borrower and its Subsidiaries and, to the knowledge of the Borrower, their respective directors, officers, employees, agents, advisors and Affiliates is in compliance, in all material respects, with (i) all Sanctions Laws and (ii) the PATRIOT Act and any other applicable anti-terrorism and money laundering laws, rules, regulations and orders.

(a) Each of the Borrower and its Subsidiaries and, to the knowledge of the Borrower, their respective directors, officers, employees, agents, advisors and Affiliates is in compliance, in all material respects, with the United States Foreign Corrupt Practices Act of 1977, the Bribery Act 2010 of the United Kingdom and any other applicable anti-bribery or anti-corruption laws, rules, regulations and orders (collectively, "**Anti-Corruption Laws**").

(b) No part of the proceeds of the Loans or Letters of Credit will be used, directly or indirectly, (i) for the purpose of financing any activities or business of or with any Person or in any country or territory that at such time is the subject of any Sanctions, (ii) for any payments to any governmental official or employee, political party, official of a political party, candidate for political office or anyone else acting in an official capacity, in order to obtain, retain or direct business or obtain any improper advantage, in violation of any Anti-Corruption Law or (iii) in any manner that would result in the violation of any Sanctions Laws applicable to any party hereto.

## SECTION 5. AFFIRMATIVE COVENANTS

Until the Commitments shall have expired or been terminated and the principal of and interest on each Loan and all fees payable hereunder shall have been paid in full and all Letters of Credit shall have expired, been terminated and the Letter of Credit Usage shall have been reduced to zero, each Credit Party covenants and agrees with the Agents, the Lenders and the Issuing Banks that:

**5.1. Financial Statements and Other Reports**. The Borrower will deliver to the Administrative Agent and, where applicable, to the Lenders:

(a) Annual Financial Statements. As soon as available, and in any event within 90 days after the end of each Fiscal Year (or, so long as the Borrower is subject to the periodic reporting obligations under the Exchange Act, by the date that the Annual Report on Form 10-K of the Borrower for such Fiscal Year would be required to be filed under the rules and regulations of the SEC, giving effect to any automatic extension available thereunder for the filing of such form), the consolidated balance sheet of the Borrower and the Subsidiaries as of the end of such Fiscal Year and the related consolidated statements of operations, comprehensive income, equity and cash flows of the Borrower and the Subsidiaries for such Fiscal Year, setting forth in each case in comparative form the corresponding figures for the previous Fiscal Year, together with a report thereon of KPMG LLP or another independent registered public accounting firm of recognized national standing (which report shall not contain a "going concern" or like qualification, exception or emphasis (other than a "going concern" or like qualification, exception or emphasis resulting solely from an upcoming maturity date of any Indebtedness or a prospective or actual non-compliance with Section 6.7 or any other financial ratio or financial test with respect to any other Indebtedness) or any qualification, exception or emphasis as to the scope of audit), and shall state that such consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Borrower and the Subsidiaries as of the dates indicated and the consolidated results of operations and cash flows of the Borrower and the Subsidiaries for the periods indicated in conformity with GAAP applied on a basis consistent with prior years (except as otherwise disclosed in such financial statements) and that the examination by such accounting firm in connection with such consolidated financial statements has been made in accordance with generally accepted auditing standards);

(b) Quarterly Financial Statements. As soon as available, and in any event within 45 days after the end of each of the first three Fiscal Quarters of each Fiscal Year (or, so long as the Borrower is subject to the periodic reporting obligations under the Exchange Act, by the date that the Quarterly Report on Form 10-Q of the Borrower for such Fiscal Quarter would be required to be filed under the rules and regulations of the SEC, giving effect to any automatic extension available thereunder for the filing of such form), the consolidated balance sheet of the Borrower and its Subsidiaries as of the end of such Fiscal Quarter and the related

consolidated statements of operations, comprehensive income, equity and cash flows of the Borrower and its Subsidiaries for such Fiscal Quarter (in the case of such statements of operations and comprehensive income) and for the period from the beginning of the then current Fiscal Year to the end of such Fiscal Quarter, setting forth in each case in comparative form the corresponding figures for the corresponding periods of (or, in the case of the balance sheet, as of the end of) the previous Fiscal Year, together with a Financial Officer Certification with respect thereto;

(c) Forecasts. As soon as practicable, and in any event within 90 days after the beginning of each Fiscal Year, the forecasted consolidated balance sheets of the Borrower and its Subsidiaries and the related consolidated statements of income and cash flows of the Borrower and its Subsidiaries for each Fiscal Quarter of such Fiscal Year, each in reasonable detail (including an explanation of the assumptions on which such forecasts are based), representing the good faith forecasts of the Borrower for each such Fiscal Quarter, and certified by the chief financial officer of the Borrower as being the most accurate forecasts available, together with such supporting schedules and information as the Administrative Agent from time to time may reasonably request;

(d) Compliance Certificate and Unrestricted Subsidiary Reconciliation Statements. Together with each delivery of the consolidated financial statements of the Borrower and its Subsidiaries pursuant to Section 5.1(a) or 5.1(b), a completed Compliance Certificate executed by the chief financial officer of the Borrower and, if any Subsidiary shall be an Unrestricted Subsidiary, with respect to each such financial statement an Unrestricted Subsidiary Reconciliation Statement (which may be in a footnote form), which shall be accompanied by a Financial Officer Certification;

(e) Statements of Reconciliation after Change in Accounting Principles. If, as a result of any change in GAAP or in the application thereof since the date of the most recent balance sheet delivered pursuant to Section 5.1(a) or 5.1(b) (or, prior to the first such delivery, since the date of the most recent balance sheet included in the Historical Financial Statements), the consolidated financial statements of the Borrower delivered pursuant to Section 5.1(a) or 5.1(b) will differ in any material respect from the consolidated financial statements that would have been delivered pursuant to such Section had no such change occurred, then, together with the first delivery of such financial statements after such change, one or more statements of reconciliation specifying in reasonable detail the effect of such change on such financial statements, including those for the prior period;

(f) Notice of Default and Material Adverse Effect. Promptly upon any Authorized Officer of the Borrower or any Guarantor Subsidiary obtaining knowledge of any event or condition set forth below, a certificate of an Authorized Officer of the Borrower setting forth the details of such event or condition and any action the Borrower or any Restricted Subsidiary has taken, is taking or proposes to take with respect thereto:

(i) the occurrence of any Default or Event of Default; or

(ii) any event or condition that has had, or could reasonably be expected to have, individually or in the aggregate, a Material Adverse Effect;

(g) Notice of Adverse Proceedings. Promptly upon any Authorized Officer of the Borrower or any Guarantor Subsidiary obtaining knowledge of (i) any Adverse Proceeding that could reasonably be expected to have a Material Adverse Effect or that in any manner questions the validity or enforceability of any of the Credit Documents or (ii) any material and adverse development in any Adverse Proceeding referred to in clause (i) above, in each case where such development has not previously been disclosed in writing by the Borrower to the Administrative Agent and the Lenders, a certificate of an Authorized Officer of the Borrower setting forth the details of such Adverse Proceeding or development;

(h) ERISA. (i) Promptly upon any officer of the Borrower obtaining knowledge of the occurrence of or of forthcoming occurrence of any ERISA Event that could reasonably be expected to result in liability of the Borrower in an amount exceeding $100,000,000, a written notice specifying the nature thereof, what action the Borrower, any Restricted Subsidiary or any of their respective ERISA Affiliates has taken, is taking or proposes to take with respect thereto and, when known, any action taken or threatened by the IRS, the Department of Labor or the PBGC with respect thereto; and (ii) with reasonable promptness after request by the Administrative Agent or any Lender, copies of all notices received by the Borrower, any Restricted Subsidiary or any of their respective ERISA Affiliates from a Multiemployer Plan sponsor concerning an ERISA Event;

(i) Information Regarding Credit Parties. Prompt (and in any event within 45 days (or such longer period as the Administrative Agent may agree to in writing) of the occurrence of the relevant change) written notice of any change in (i) any Credit Party's legal name, as set forth in its Organizational Documents, (ii) any Credit Party's form of organization, (iii) any Credit Party's jurisdiction of organization, (iv) the location of the chief executive office of any Credit Party or (v) any Credit Party's Federal Taxpayer Identification Number or state organizational identification number;

(j) Collateral Verification. Together with each delivery of the consolidated financial statements of the Borrower and its Subsidiaries pursuant to Section 5.1(a), a completed Supplemental Collateral Questionnaire executed by an Authorized Officer of the Borrower, together with all attachments contemplated thereby;

(k) Filed or Distributed Information. Promptly upon their becoming available, copies of (i) all financial statements, reports, notices and proxy statements sent or made available generally by the Borrower to its security holders acting in such capacity or by any Restricted Subsidiary to its security holders other than the Borrower or another Restricted Subsidiary, (ii) all regular and periodic reports and all registration statements and prospectuses, if any, filed by the Borrower or any Restricted Subsidiary with any securities exchange or with the SEC or any Governmental Authority performing similar functions and (iii) all press releases and other statements made available generally by the Borrower or any Restricted Subsidiary to the public concerning material developments in the business of the Borrower or any Restricted Subsidiary;

(l) USA PATRIOT Act. Promptly (and in any event within five Business Days) following any request therefor, such information and documentation as the Administrative Agent or any Lender may reasonably request, which information or documentation is required by regulatory authorities under applicable "know-your-customer" and anti-money laundering rules and regulations, including the USA PATRIOT Act; and

(m) Other Information. Promptly after any request therefor, such other information regarding the business, operations, assets, liabilities (including contingent liabilities) and financial condition of the Borrower or any Subsidiary, or compliance with the terms of any Credit Document, as the Administrative Agent, the Collateral Agent or any Lender (through the Administrative Agent) may reasonably request, provided that neither the Borrower nor any Restricted Subsidiary will be required to deliver any information in respect of which disclosure to the Administrative Agent, the Collateral Agent or any Lender (i) is prohibited by applicable law or any obligations of confidentiality binding upon the Borrower or any Subsidiary or (ii) would result in a waiver of any attorney-client privilege or attorney work product protection inuring to the Borrower or a Subsidiary, provided that the Borrower shall notify the Administrative Agent promptly upon obtaining knowledge that such information is being withheld and, in the case of clause (i) above, the Borrower and the Subsidiaries shall use commercially reasonable efforts to communicate or permit the delivery, to the extent permitted, of the applicable information in a way that would not violate the applicable law or any such obligation of confidentiality and, in the case of any such obligation of confidentiality, to obtain a waiver with respect thereto.

The Borrower and each Lender acknowledge that certain of the Lenders may be Public Lenders and, if documents or notices required to be delivered pursuant to this Section 5.1 or otherwise are being distributed through the Platform, any document or notice that the Borrower has indicated contains Private-Side Information will not be posted on the portion of the Platform that is designated for Public Lenders, provided that the Borrower shall make any disclosure required so that each Unrestricted Subsidiary Reconciliation Statement shall be suitable for distribution to Public Lenders. The Borrower agrees to clearly designate all information provided to any Agent by or on behalf of any Credit Party that contains only Public-Side Information, and by doing so shall be deemed to have represented that such information contains only Public-Side Information. If the Borrower has not indicated whether a document or notice delivered pursuant to this Section 5.1 contains Private-Side Information, the Administrative Agent reserves the right to post such document or notice solely on the portion of the Platform that is designated for Private Lenders.

Information required to be delivered pursuant to Section 5.1(a), 5.1(b) or 5.1(k) shall be deemed to have been delivered if such information, or one or more annual or quarterly reports containing such information, shall have been posted by the Administrative Agent on the Platform or shall be available on the website of the SEC at http://www.sec.gov or on the website of the Borrower (provided, in each case, that the Borrower has notified the Administrative Agent (including by e-mail) that such information is available on such website and, if requested by the Administrative Agent, shall have provided hard copies to the Administrative Agent). Information required to be delivered pursuant to this Section 5.1 may also be delivered by electronic communications pursuant to procedures approved by the Administrative Agent. Each Lender shall be solely responsible for timely accessing posted documents and maintaining its copies of such documents.

**5.2. Existence**. The Borrower and each Restricted Subsidiary will at all times preserve and keep in full force and effect (a) its existence and (b) all rights, franchises, licenses and permits necessary for the ordinary conduct of the business of the Borrower and the Restricted Subsidiaries; provided that (i) other than in the case of clause (a) above with respect to the Borrower, the foregoing shall not apply to the extent the failure to do so could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect and (ii) the foregoing shall not prohibit any transaction permitted under Section 6.8.

**5.3. Payment of Taxes**. The Borrower and each Restricted Subsidiary will pay all Taxes imposed upon it or any of its properties prior to the time when any penalty or fine shall be incurred with respect thereto; provided that no such Tax need be paid if (a) it is being contested in good faith by appropriate proceedings promptly instituted and diligently conducted so long as (i) an adequate reserve or other appropriate provision, as shall be required in conformity with GAAP, shall have been made therefor and (ii) such contest proceedings conclusively operate to stay the sale of any portion of the Collateral to satisfy such Tax or (b) the failure to make such payment could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

**5.4. Maintenance of Properties**. The Borrower and each Restricted Subsidiary will maintain or cause to be maintained in good repair, working order and condition, ordinary wear and tear and fire, casualty or condemnation excepted, all properties used or useful in the business of the Borrower and the Restricted Subsidiaries and from time to time will make or cause

to be made all appropriate repairs, renewals and replacements thereof, in each case except where the failure to do so could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(a) The Borrower and each Restricted Subsidiary will take all actions reasonably necessary to protect all Intellectual Property used or useful in the business of the Borrower and the Restricted Subsidiaries, including (i) protecting the secrecy and confidentiality of the confidential information and trade secrets of the Borrower and each Restricted Subsidiary by having and enforcing a policy requiring all employees, consultants, licensees, vendors and contractors to execute confidentiality and invention assignment agreements, (ii) taking all actions reasonably necessary to ensure that none of the trade secrets of the Borrower or any Restricted Subsidiary shall fall or has fallen into the public domain and (iii) protecting the secrecy and confidentiality of the source code of all computer software programs and applications owned or licensed by the Borrower or any Restricted Subsidiary by having and enforcing a policy requiring any licensees of such source code (including any licensees under any source code escrow agreement) to enter into license agreements with appropriate use and nondisclosure restrictions, except in each case where the failure to take any such action, individually or in the aggregate, could not reasonably be expected to have a Material Adverse Effect.

**5.5. Insurance**. The Borrower and the Restricted Subsidiaries will maintain or cause to be maintained, with financially sound and reputable insurance companies, such public liability insurance, third-party property damage insurance, business interruption insurance and casualty insurance with respect to liabilities, losses or damage in respect of the assets and businesses of the Borrower and the Restricted Subsidiaries as may customarily be carried or maintained under similar circumstances by Persons of established reputation engaged in the same or similar businesses operating in the same or similar locations, in each case in such amounts (with no greater risk retention), covering such risks and otherwise on such terms and conditions as shall be customary for such Persons (in each case, in the reasonable judgment of the Borrower). Without limiting the generality of the foregoing, the Borrower and the Restricted Subsidiaries will maintain or cause to be maintained, with financially sound and reputable insurance companies, flood insurance with respect to each Flood Hazard Property that is located in a community that participates in the Flood Program, in each case in compliance with any applicable regulations of the Board of Governors or other applicable law. Each such policy of insurance maintained by or on behalf of the Credit Parties shall (beginning on the date that is 90 days after the Closing Date or, in the case of any such policy of insurance maintained by any Credit Party that becomes a Subsidiary as a result of ~~the Versum Merger~~**an Acquisition**, the date that is 45 days after the date of the consummation of ~~the Versum Merger~~**such Acquisition**) (or, in each case, on such later date as the Administrative Agent may agree to in writing)) (a) in the case of liability insurance policies (other than workers' compensation and other policies for which such endorsements are not customary), name the Collateral Agent, for the benefit of the Secured Parties, as an additional insured thereunder and (b) in the case of business interruption and casualty insurance policies, contain a mortgagee and a lender's loss payable endorsement, reasonably satisfactory in form and substance to the Collateral Agent, that names the Collateral Agent, for the benefit of the Secured Parties, as a mortgagee and lender loss payee thereunder, contain "not coinsurer" and "non-vitiation" provisions reasonably satisfactory in form and substance to the Collateral Agent and provide that it shall not be cancelled or not renewed (i) by reason of nonpayment of premium upon not less than 10 days' prior written notice thereof by the insurer to the Collateral Agent (giving the Collateral Agent the right to cure defaults in the payment of premiums) or (ii) for any other reason upon not less than 30 days' (or such shorter number of days as may be agreed to by the Collateral Agent or as may be the maximum number of days permitted by applicable law) prior written notice thereof by the insurer to the Collateral Agent.

**5.6. Books and Records; Inspections**. The Borrower and each Restricted Subsidiary will keep proper books of record and accounts in which entries in conformity in all material respects with GAAP and applicable law are made of all dealings and transactions in relation to its business and activities. The Borrower and each Restricted Subsidiary will permit the Administrative Agent or any Lender (pursuant to a request made through the Administrative Agent) (or their authorized representatives) to visit and inspect any of its properties, to examine, copy and make extracts from its financial and accounting records and to discuss its business, operations, assets, liabilities (including contingent liabilities) and financial condition with its officers and independent registered public accounting firm, all upon reasonable notice and at such reasonable times during normal business hours and as often as may reasonably be requested; provided that unless an Event of Default has occurred and is continuing, such visits and inspections shall be limited to not more than one visit and inspection (coordinated through the Administrative Agent) in any Fiscal Year and such visit and inspection shall be at the expense of the Borrower (it being agreed that during the continuance of an Event of Default, such visits and inspections are not limited in number or otherwise by this proviso and all such visits and inspections shall be at the expense of the Borrower). The Administrative Agent and the Lenders conducting any such visit or inspection shall give the Borrower a reasonable opportunity to participate in any discussions with the Borrower's independent registered public accounting firm. Notwithstanding anything to the contrary in this Section 5.6, neither the Borrower nor any Restricted Subsidiary will be required to disclose or permit the inspection, examination, copying or discussion of any document, information or other matter in respect of which disclosure to the Administrative Agent or any Lender (or their respective designees) (i) is prohibited by applicable law or any obligations of confidentiality binding upon the Borrower or any Restricted Subsidiary or (ii) would result in a waiver of any attorney-client privilege or attorney work product protection inuring to the Borrower or a Restricted Subsidiary, provided that the Borrower shall notify the Administrative Agent promptly upon obtaining knowledge that such information is being withheld and, in the case of clause (i) above, the Borrower and the Restricted Subsidiaries shall use commercially reasonable efforts to communicate or permit the inspection, examination, copying or

discussion, to the extent permitted, of the applicable document, information or other matter in a way that would not violate the applicable law or any such obligation of confidentiality and, in the case of any such obligation of confidentiality, to obtain a waiver with respect thereto.

**5.7. Lenders Meetings**. The Borrower will, upon the request of the Administrative Agent or the Requisite Lenders, participate in a meeting or telephonic conference with the Administrative Agent and Lenders once during each Fiscal Year to be held at the Borrower's corporate offices (or at such other location as may be agreed to by the Borrower and the Administrative Agent) at such time as may be agreed to by the Borrower and the Administrative Agent.

**5.8. Compliance with Laws**. The Borrower and each Restricted Subsidiary will comply with all applicable laws (including all Environmental Laws and all orders of any Governmental Authorities), except (a) in the case of Sanctions Laws, the PATRIOT Act and other applicable anti-terrorism and money laundering laws and Anti-Corruption Laws, where failure to comply, individually or in the aggregate, is not material and (b) otherwise, where failure to comply, individually or in the aggregate, has not had and could not reasonably be expected to have a Material Adverse Effect.

**5.9. Environmental Matters**. Environmental Disclosure. The Borrower will deliver to the Administrative Agent:

(i) as soon as practicable following receipt thereof, copies of all environmental audits, investigations, analyses and reports of any kind or character (whether prepared by personnel of the Borrower or any Restricted Subsidiary or by independent consultants, Governmental Authorities or any other Persons) with respect to significant environmental, health or safety conditions or compliance matters at any Facility or with respect to any Environmental Claims that, individually or in the aggregate, could reasonably be expected to have a Material Adverse Effect;

(ii) promptly upon the Borrower or any Restricted Subsidiary obtaining knowledge thereof, written notice describing in reasonable detail (A) any Release required to be reported to any Governmental Authority under any Environmental Laws, (B) any remedial action taken by the Borrower or any other Person in response to (1) any Hazardous Materials present or Released at any real property which presence, Release or remedial action could reasonably be expected to result in one or more Environmental Claims having, individually or in the aggregate, a Material Adverse Effect, or (2) any Environmental Claims that, individually or in the aggregate, could reasonably be expected to have a Material Adverse Effect, and (C) the Borrower's discovery of any occurrence or condition on any real property adjoining or in the vicinity of any Facility that could cause such Facility or any part thereof to be subject to any material restrictions on the ownership, occupancy, transferability or use thereof under any Environmental Laws; and

(iii) as soon as practicable following the sending or receipt thereof by the Borrower or any Restricted Subsidiary, a copy of any and all material written communications with respect to (A) any Environmental Claims that, individually or in the aggregate, could reasonably be expected to have a Material Adverse Effect, (B) any Release required to be reported to any Governmental Authority, and (C) any request for information from any Governmental Authority that suggests such Governmental Authority is investigating whether the Borrower or any Restricted Subsidiary may be potentially responsible for any Hazardous Materials Activity and which could reasonably be expected to have a Material Adverse Effect.

(b) Hazardous Materials Activities. The Borrower will, and will cause each Restricted Subsidiary to, take promptly any and all actions necessary to (i) cure any violation of Environmental Laws by the Borrower or any Restricted Subsidiary that could reasonably be expected to have, individually or in the aggregate, a Material Adverse Effect and (ii) make an appropriate response to any Environmental Claim against the Borrower or any Restricted Subsidiary and discharge any obligations it may have to any Person thereunder where failure to do so could reasonably be expected to have, individually or in the aggregate, a Material Adverse Effect.

**5.10. Subsidiaries**. If any Person becomes a Restricted Subsidiary of the Borrower (or any Subsidiary of the Borrower not theretofore a Designated Subsidiary becomes a Designated Subsidiary, including as a result of a designation of any Unrestricted Subsidiary as a Restricted Subsidiary or any Subsidiary becoming a Material Subsidiary), the Borrower will, as promptly as practicable, and in any event within 60 days (or such longer period as the Administrative Agent may agree to in writing), notify the Administrative Agent thereof and cause the Collateral and Guarantee Requirement to be satisfied with respect to such Restricted Subsidiary (if such Restricted Subsidiary is a Designated Subsidiary) and with respect to any Equity Interests in or Indebtedness of such Restricted Subsidiary owned by any Credit Party.

**5.11. Additional Collateral**. The Borrower will, as promptly as practicable, and in any event within 60 days (or, in the case of clause (a), 90 days) (or such longer period as the Administrative Agent may agree to in writing) furnish to the Administrative Agent written notice of (a) the acquisition by any Credit Party of a Material Real Estate Asset after the Closing Date and (b) the acquisition by any Credit Party of any other material assets (other than any assets constituting Excluded Property) after

the Closing Date, other than any such assets constituting Collateral under the Collateral Documents in which the Collateral Agent shall have a valid, legal and perfected security interest (with the priority contemplated by the applicable Collateral Document) upon the acquisition thereof.

**5.12. Further Assurances**. Each Credit Party will execute any and all further documents, financing statements, agreements and instruments, and take any and all further actions (including the filing and recording of financing statements, fixture filings, mortgages, deeds of trust and other documents), that may be required under any applicable law, or that the Administrative Agent or the Collateral Agent may reasonably request, to cause the Collateral and Guarantee Requirement to be and remain satisfied at all times (to the extent applicable, subject to the grace periods set forth in Sections 5.10 and 5.11) or otherwise to effectuate the provisions of the Credit Documents, all at the expense of the Credit Parties. The Borrower will provide to the Administrative Agent and the Collateral Agent, from time to time upon request, evidence reasonably satisfactory to the Administrative Agent or the Collateral Agent, as applicable, as to the perfection and priority of the Liens created or intended to be created by the Collateral Documents.

**5.13. Maintenance of Ratings**. The Borrower will use commercially reasonable efforts to maintain continuously a public corporate family rating from Moody's and a public corporate credit rating from S&P, in each case in respect of the Borrower, and a public credit rating from each of Moody's and S&P in respect of the Term Loans (it being understood, in each case, that no minimum ratings shall be required to be obtained or maintained).

**5.14. Post-Closing Matters**. The Credit Parties shall satisfy each of the requirements set forth in the Post-Closing Letter Agreement on or before the date specified in the Post-Closing Letter Agreement for each such requirement, or such later date as may be permitted with respect thereto pursuant to the terms of the Post-Closing Letter Agreement.

## SECTION 6. NEGATIVE COVENANTS

Until the Commitments shall have expired or been terminated and the principal of and interest on each Loan and all fees payable hereunder shall have been paid in full and all Letters of Credit shall have expired or been terminated and the Letter of Credit Usage shall have been reduced to zero, each Credit Party covenants and agrees with the Agents, the Lenders and the Issuing Banks that:

**6.1. Indebtedness**. Neither the Borrower nor any Restricted Subsidiary will, directly or indirectly, incur or remain liable with respect to any Indebtedness, except:

(a) the Indebtedness created under the Credit Documents (including pursuant to Section 2.23, 2.24 or 2.25);

(b) Indebtedness of the Borrower or any Restricted Subsidiary owing to the Borrower or any Restricted Subsidiary; provided that (i) such Indebtedness shall not have been transferred to any Person other than the Borrower or any Restricted Subsidiary and (ii) such Indebtedness owing by any Credit Party to a Restricted Subsidiary that is not a Credit Party shall be unsecured and subordinated in right of payment to the payment in full of the Obligations pursuant to the terms of the Intercompany Indebtedness Subordination Agreement;

(c) Guarantees incurred in compliance with Section 6.6(d);

(d) Indebtedness existing on the Closing Date and set forth on Schedule 6.1, or incurred pursuant to credit facilities existing on the Closing Date and set forth on Schedule 6.1 (in an aggregate principal amount not to exceed the amount set forth on Schedule 6.1 in respect of such credit facilities), and Refinancing Indebtedness in respect thereof;

(e) (i) Indebtedness of the Borrower or any Restricted Subsidiary (A) incurred to finance the acquisition, construction, repair, replacement or improvement of any fixed or capital assets of the Borrower or any Restricted Subsidiary, including Capital Lease Obligations, provided that such Indebtedness is incurred prior to or within 270 days after such acquisition or the completion of such construction or improvement and the principal amount of such Indebtedness does not exceed the cost of acquiring, constructing or improving such fixed or capital assets, or (B) assumed in connection with the acquisition of any fixed or capital assets of the Borrower or any Restricted Subsidiary, provided, in the case of this clause (i), that at the time of incurrence or assumption of such Indebtedness and after giving Pro Forma Effect thereto and the use of the proceeds thereof, the aggregate principal amount of Indebtedness then outstanding under this clause (i), together with the aggregate principal amount of Refinancing Indebtedness then outstanding under clause (ii) below, shall not exceed the greater of (x) $180,000,000 and (y) 10% of Consolidated Total Assets as of the last day of the then most recently ended Test Period; and (ii) any Refinancing Indebtedness in respect of any Indebtedness permitted under clause (i) above or under this clause (ii);

(f) (i) Indebtedness of any Person that becomes (other than as a result of a redesignation of an Unrestricted Subsidiary) a Restricted Subsidiary (or of any Person not previously a Subsidiary that is merged or consolidated with or into a Restricted Subsidiary in a transaction permitted hereunder) after the Closing Date, or Indebtedness of any Person that is assumed after the Closing Date by any Restricted Subsidiary in connection with an acquisition of assets by such Restricted Subsidiary in an

Acquisition permitted hereunder, provided that (A) such Indebtedness exists at the time such Person becomes a Restricted Subsidiary (or is so merged or consolidated) or such assets are acquired and is not created in contemplation of or in connection with such Person becoming a Restricted Subsidiary (or such merger or consolidation) or such assets being acquired and (B) immediately after giving effect to the Borrower or any Restricted Subsidiary becoming liable with respect to such Indebtedness (whether as a result of such Person becoming a Restricted Subsidiary (or such merger or consolidation) or such assumption), and after giving Pro Forma Effect thereto, either (x) the Total Net Leverage Ratio, determined as of the last day of the then most recently ended Test Period, shall not exceed 4.50:1.00 or (y) the Total Net Leverage Ratio determined as of the last day of the then most recently ended Test Period shall be no greater than the Total Net Leverage Ratio determined as of such date but without giving Pro Forma Effect thereto, and (ii) any Refinancing Indebtedness in respect of any Indebtedness permitted under clause (i) above or under this clause (ii);

(g) Indebtedness of the Borrower or any Restricted Subsidiary in the form of deferred purchase price of property, purchase price adjustments, earn-outs or other arrangements representing Acquisition Consideration incurred in connection with a Permitted Acquisition permitted hereunder;

(h) (i) Indebtedness of Restricted Subsidiaries that are not Credit Parties, provided that at the time of incurrence of such Indebtedness and after giving Pro Forma Effect thereto and the use of the proceeds thereof, the aggregate principal amount of Indebtedness then outstanding under this clause (i), together with the aggregate principal amount of Refinancing Indebtedness then outstanding under clause (ii) below, shall not exceed the greater of (x) $100,000,000 and (y) 5.5% of Consolidated Total Assets as of the last day of the then most recently ended Test Period; and (ii) any Refinancing Indebtedness in respect of any Indebtedness permitted under clause (i) above or under this clause (ii);

(i) (i) Indebtedness of the Borrower and the Restricted Subsidiaries that are not CFCs or CFC Holding Companies, provided that at the time of incurrence of such Indebtedness and after giving Pro Forma Effect thereto and the use of the proceeds thereof, the aggregate principal amount of Indebtedness then outstanding under this clause (i), together with the aggregate principal amount of Refinancing Indebtedness then outstanding under clause (ii) below, shall not exceed the greater of (x) $100,000,000 and (y) 5.5% of Consolidated Total Assets as of the last day of the then most recently ended Test Period; and (ii) any Refinancing Indebtedness in respect of any Indebtedness permitted under clause (i) above or under this clause (ii);

(j) (i) Permitted Pari Passu Secured Indebtedness ~~(including Permitted Versum Existing Credit Agreement Indebtedness)~~, Permitted Junior Lien Secured Indebtedness and Permitted Unsecured Indebtedness ~~(including Permitted Versum Existing Notes)~~; provided that (A) the aggregate amount of Indebtedness incurred under this clause (i) on any date shall not exceed the Incremental Amount as of such date, (B) the stated final maturity of any such Indebtedness shall not be earlier than the latest Maturity Date in effect as of the date of the incurrence thereof, (C) the weighted average life to maturity of any such Indebtedness shall be no shorter than the longest remaining weighted average life to maturity of any Class of Term Loans outstanding as of the date of the incurrence thereof (and, for purposes of determining the weighted average life to maturity of such Class of Term Loans, the effects of any prepayments made prior to the date of the determination shall be disregarded), (D) any such Permitted Pari Passu Secured Indebtedness in the form of loans (other than loans under any bridge or other interim credit facility referred to below) incurred on or prior to the date that is 12 months after the Closing Date shall be subject to the requirements set forth in clause (v) of Section 2.23(b), mutatis mutandis, and (E) such Indebtedness satisfies the Specified Permitted Indebtedness Documentation Requirements; ~~provided, however, that clauses (A), (B) and (C) above shall not apply to the Permitted Versum Existing Credit Agreement Indebtedness and the Permited Versum Existing Notes;~~ provided further that such Indebtedness may be incurred in the form of a bridge or other interim credit facility intended to be extended, renewed or refinanced with Long-Term Indebtedness (and such bridge or other interim credit facility shall be deemed to satisfy clauses (B) and (C) above so long as (x) such credit facility includes customary "rollover" provisions that are subject to no conditions precedent other than (I) the occurrence of the date specified for the "rollover" and (II) that no payment or bankruptcy event of default shall have occurred and be continuing and (y) assuming such credit facility were to be extended pursuant to such "rollover" provisions, such extended credit facility would comply with clauses (B) and (C) above); and (ii) any Refinancing Indebtedness in respect of any Indebtedness permitted under clause (i) above or under this clause (ii);

(k) (i) Permitted Pari Passu Secured Indebtedness, Permitted Junior Lien Secured Indebtedness and Permitted Unsecured Indebtedness that, in each case, refinances or replaces, in whole or in part, any Term Loans; provided that (A) the original aggregate principal amount of such Indebtedness shall not exceed the aggregate principal amount of such Term Loans being refinanced (except by an amount no greater than accrued and unpaid interest on such Term Loans, any original issue discount or upfront fees applicable to such Indebtedness and any reasonable fees, premiums and expenses relating to such refinancing), (B) the stated final maturity of such Indebtedness shall not be earlier than the Maturity Date of the Class of Term Loans being refinanced, (C) the weighted average life to maturity of such Indebtedness (if other than in the form of revolving loans) shall be no shorter than the remaining weighted average life to maturity of the Class of Term Loans being refinanced (and, for purposes of determining the weighted average life to maturity of such Class of Term Loans being refinanced or replaced, the effects of any prepayments made prior to the date of the determination shall be disregarded), (D) such Term Loans being refinanced or replaced shall be repaid or prepaid substantially concurrently on the date such Indebtedness is incurred and (E) such Indebtedness satisfies the Specified Permitted Indebtedness Documentation Requirements; provided further that such Indebtedness may be incurred in the

form of a bridge or other interim credit facility intended to be extended, renewed or refinanced with Long-Term Indebtedness (and such bridge or other interim credit facility shall be deemed to satisfy clauses (B) and (C) above so long as (x) such credit facility includes customary "rollover" provisions that are subject to no conditions precedent other than (I) the occurrence of the date specified for the "rollover" and (II) that no payment or bankruptcy event of default shall have occurred and be continuing and (y) assuming such credit facility were to be extended pursuant to such "rollover" provisions, such extended credit facility would comply with clauses (B) and (C) above); and (ii) any Refinancing Indebtedness in respect of any Indebtedness permitted under clause (i) above or under this clause (ii);

(l) (i) the Senior Notes in an aggregate principal amount at any time outstanding not exceeding $550,000,000 and (ii) any Refinancing Indebtedness in respect of any Indebtedness permitted under clause (i) above or under this clause (ii);

(m) Indebtedness in respect of netting services, overdraft protections and otherwise arising from treasury, depository, credit card, debit cards and cash management services or in connection with any automated clearing-house transfers of funds, overdraft or any similar services, in each case in the ordinary course of business;

(n) Indebtedness incurred in respect of letters of credit, bank guarantees, bankers' acceptances or similar instruments issued or created by the Borrower or any Restricted Subsidiary in the ordinary course of business and not in connection with the borrowing of money or any Hedge Agreements, including in respect of workers' compensation claims, health, disability or other employee benefits or property, casualty or liability insurance or self-insurance, or other Indebtedness with respect to reimbursement-type obligations regarding workers' compensation claims;

(o) Indebtedness in respect of, or in respect of letters of credit, bank guarantees or similar instruments relating to, performance, bid, appeal and surety bonds, performance and completion guarantees and similar obligations of the Borrower or any Restricted Subsidiary incurred in the ordinary course of business and not in connection with the borrowing of money or any Hedge Agreements;

(p) Indebtedness owed to current or former officers, directors or employees of the Borrower or any Restricted Subsidiary (or their respective estates, heirs, family members, spouses and former spouses, domestic partners and former domestic partners or beneficiaries under their respective estates) to finance the purchase or redemption of Equity Interests in the Borrower permitted by Section 6.4;

(q) Indebtedness consisting of the financing of insurance premiums or take or pay obligations contained in supply arrangements that do not constitute Guarantees, in each case, incurred in the ordinary course of business;

(r) Indebtedness in the form of indemnification obligations incurred in connection with any Acquisition or other Investment permitted by Section 6.6 (other than in reliance on Section 6.6(q)) or any Disposition permitted by Section 6.8;

(s) Capital Lease Obligations arising under any Sale/Leaseback Transaction permitted under Section 6.9; provided that at the time of incurrence of such Indebtedness and after giving effect to such Sale/Leaseback Transaction on a Pro Forma Basis, the aggregate principal amount of Indebtedness then outstanding under this clause (s) shall not exceed the greater of (x) $20,000,000 and (y) 1.0% of Consolidated Total Assets as of the last day of the then most recently ended Test Period;

(t) Indebtedness consisting of obligations of the Borrower or any Restricted Subsidiary under deferred compensation or other similar arrangements incurred by such Person in connection with the Transactions, Acquisitions or any other Investment expressly permitted hereunder;

(u) Permitted Securitizations in an aggregate principal amount at any time outstanding not exceeding $50,000,000; and

(v) to the extent constituting Indebtedness, all premiums (if any), interest (including post-petition interest), fees, expenses, charges and additional or contingent interest on obligations described in this Section 6.1.

**6.2. Liens**. Neither the Borrower nor any Restricted Subsidiary will, directly or indirectly, incur or permit to exist any Lien on or with respect to any asset of the Borrower or any Restricted Subsidiary, whether now owned or hereafter acquired or licensed, or assign or sell any income, profits or revenues (including accounts receivable and royalties) or rights in respect of any thereof, except:

(a) Liens created under the Credit Documents (including Liens securing any Backstopped Letter of Credit);

(b) Permitted Encumbrances;

(c) any Lien on any asset of the Borrower or any Restricted Subsidiary existing on the Closing Date and set forth on Schedule 6.2, and any extensions, renewals and replacements thereof; provided that (i) such Lien shall not apply to any other

asset of the Borrower or any Restricted Subsidiary, other than to proceeds and products of, and after-acquired property that is affixed or incorporated into, the assets covered by such Lien, and (ii) such Lien shall secure only those obligations that it secures on the Closing Date and any extensions, renewals and refinancings thereof that do not increase the outstanding principal amount thereof (except by an amount not greater than accrued and unpaid interest on such obligations, any original issue discount or upfront fees and any reasonable fees, premiums and expenses relating to such extension, renewal or refinancing) and, in the case of any such obligations constituting Indebtedness, that are permitted under Section 6.1(d) as Refinancing Indebtedness in respect thereof;

(d) Liens on fixed or capital assets acquired, constructed, repaired, replaced or improved by the Borrower or any Restricted Subsidiary; provided that (i) such Liens secure only Indebtedness outstanding under Section 6.1(e) and obligations relating thereto not constituting Indebtedness and (ii) such Liens shall not apply to any other asset of the Borrower or any Restricted Subsidiary, other than to proceeds and products of, and after-acquired property that is affixed or incorporated into, the assets covered by such Liens; provided further that individual financings of equipment or other fixed or capital assets otherwise permitted to be secured hereunder provided by any Person (or its Affiliates) may be cross-collateralized to other such financings provided by such Person (or its Affiliates);

(e) any Lien existing on any asset prior to the acquisition thereof by the Borrower or any Subsidiary or existing on any asset of any Person that becomes (other than as a result of a redesignation of an Unrestricted Subsidiary) a Restricted Subsidiary (or of any Person not previously a Subsidiary that is merged or consolidated with or into a Restricted Subsidiary in a transaction permitted hereunder) after the Closing Date prior to the time such Person becomes a Restricted Subsidiary (or is so merged or consolidated), and any extensions, renewals and replacements thereof; provided that (i) such Lien is not created in contemplation of or in connection with such acquisition or such Person becoming a Restricted Subsidiary (or such merger or consolidation), (ii) such Lien shall not apply to any other asset of the Borrower or any Restricted Subsidiary (other than, in the case of any such merger or consolidation, the assets of any special purpose merger Restricted Subsidiary that is a party thereto), other than to proceeds and products of, and after-acquired property that is affixed or incorporated into, the assets covered by such Lien or becomes subject to such Lien pursuant to an after-acquired property clause as in effect on the date of such acquisition or the date such Person becomes a Restricted Subsidiary (or is so merged or consolidated), (iii) immediately after giving Pro Forma Effect to such acquisition or such Person becoming a Restricted Subsidiary (or such merger or consolidation), together with all Indebtedness and Liens incurred or assumed in connection therewith, either (x) the Secured Net Leverage Ratio, determined as of the last day of the then most recently ended Test Period, shall not exceed 2.75:1.00 or (y) the Secured Net Leverage Ratio determined as of the last day of the then most recently ended Test Period shall be no greater than the Secured Net Leverage Ratio determined as of such date but without giving Pro Forma Effect thereto, and (iv) such Lien shall secure only those obligations that it secures on the date of such acquisition or the date such Person becomes a Restricted Subsidiary (or is so merged or consolidated), and any extensions, renewals and refinancings thereof that do not increase the outstanding principal amount thereof (except by an amount not greater than accrued and unpaid interest on such obligations, any original issue discount and any reasonable fees, premiums and expenses relating to such extension, renewal or refinancing);

(f) Liens on the Collateral securing Permitted Incremental Equivalent Indebtedness and obligations relating thereto not constituting Indebtedness;

(g) Liens on the Collateral securing Permitted Credit Agreement Refinancing Indebtedness and obligations relating thereto not constituting Indebtedness;

(h) in connection with any Disposition permitted under Section 6.8, customary rights and restrictions contained in agreements relating to such Disposition pending the completion thereof;

(i) in the case of (i) any Restricted Subsidiary that is not a wholly owned Subsidiary or (ii) the Equity Interests in any Person that is not a Restricted Subsidiary (including any Unrestricted Subsidiary), any encumbrance, restriction or other Lien, including any put and call arrangements, related to the Equity Interests in such Restricted Subsidiary or such other Person set forth (A) in its Organizational Documents or any related joint venture, shareholders' or similar agreement, in each case so long as such encumbrance or restriction is applicable to all holders of the same class of Equity Interests or is otherwise of the type that is customary for agreements of such type, or (B) in the case of clause (ii) above, in any agreement or document governing Indebtedness of such Person;

(j) any Lien on assets of any CFC or CFC Holding Company; provided that (i) such Lien shall not apply to any Collateral (including any Equity Interests in any Subsidiary that constitute Collateral) or any other assets of the Borrower or any Restricted Subsidiary that is not a CFC or a CFC Holding Company and (ii) such Lien shall secure only Indebtedness or other obligations of any CFC or CFC Holding Company permitted hereunder;

(k) Liens solely on any cash earnest money deposits, escrow arrangements or similar arrangements made by the Borrower or any Restricted Subsidiary in connection with any letter of intent or purchase agreement for any Acquisition or Investment permitted hereunder;

(l) nonexclusive outbound licenses of Intellectual Property granted by the Borrower or any Restricted Subsidiary in the ordinary course of business that do not materially detract from the value of the affected asset or interfere with the ordinary conduct of business of the Borrower or any Restricted Subsidiary;

(m) any Lien in favor of the Borrower or any Restricted Subsidiary (other than Liens on assets of any Credit Party in favor of a Restricted Subsidiary that is not a Credit Party);

(n) (i) deposits made in the ordinary course of business to secure obligations to insurance carriers providing casualty, liability or other insurance to the Borrower and its Subsidiaries and (ii) Liens on insurance policies and the proceeds thereof securing the financing of the premiums with respect thereto;

(o) receipt of progress payments and advances from customers in the ordinary course of business to the extent the same creates a Lien;

(p) Liens on fixed or capital assets subject to any Sale/Leaseback Transaction permitted under Section 6.9; provided that (i) such Liens secure only Indebtedness permitted by Section 6.1(s) and obligations relating thereto not constituting Indebtedness and (ii) such Liens shall not apply to any other asset of the Borrower or any Restricted Subsidiary, other than to proceeds and products of, and after-acquired property that is affixed or incorporated into, the assets covered by such Liens;

(q) Liens on Cash and Cash Equivalents securing obligations in respect of any Hedge Agreements or letters of credit permitted hereunder and entered into in the ordinary course of business; provided that at the time of incurrence of such Liens, the aggregate amount of Cash and Cash Equivalents subject to Liens permitted by this clause (q) shall not exceed the greater of (x) $40,000,000 and (y) 2.0% of Consolidated Total Assets as of the last day of the then most recently ended Test Period;

(r) Liens on assets of, or Equity Interests in, any Receivables Subsidiary in connection with any Permitted Securitization permitted under Section 6.1(u); and

(s) other Liens securing Indebtedness or other obligations, provided that at the time of the incurrence of such Liens and the related Indebtedness and other obligations and after giving Pro Forma Effect thereto and the use of proceeds thereof, the aggregate outstanding amount of Indebtedness and other obligations secured by Liens permitted by this clause does not exceed the greater of (i) $50,000,000 and (ii) 3.0% of Consolidated Total Assets as of the last day of the then most recently ended Test Period.

**6.3. No Further Negative Pledges**. Neither the Borrower nor any Restricted Subsidiary will, directly or indirectly, enter into, incur or permit to exist any agreement or other arrangement that prohibits, restricts or imposes any condition upon the ability of the Borrower or any Restricted Subsidiary to create, incur or permit to exist any Lien upon any of its assets, whether now owned or hereafter acquired, to secure any Obligations; provided that the foregoing shall not apply to (a) restrictions and conditions imposed by law or by any Credit Document, (b) restrictions and conditions existing on the Closing Date identified on Schedule 6.3, and amendments, modifications, extensions and renewals thereof (including any such extension or renewal arising as a result of an extension, renewal or refinancing of any Indebtedness containing such restriction or condition), provided, in each case, that the scope of any such restriction or condition shall not have been expanded as a result thereof, (c) in the case of (i) any Restricted Subsidiary that is not a wholly-owned Restricted Subsidiary or (ii) the Equity Interests in any Person that is not a Restricted Subsidiary (including any Unrestricted Subsidiary), restrictions and conditions imposed by the Organizational Documents of such Restricted Subsidiary or such other Person or contained in any related joint venture, shareholders' or similar agreement or, in the case of clause (ii), in any agreement or instrument relating to Indebtedness of such Person, provided, in each case, that such restrictions and conditions apply only to such Restricted Subsidiary and to any Equity Interests in such Restricted Subsidiary or to the Equity Interests in such other Person (including any Unrestricted Subsidiary), as applicable, (d) restrictions and conditions imposed by any agreement or document governing secured Indebtedness permitted by Section 6.1(e) or 6.1(s) or governing Liens permitted by Section 6.2(k) or 6.2(n) or by clause (c), (d), (j), (q) or (r) of the definition of "Permitted Encumbrances", provided that such restrictions and conditions apply only to the assets securing such Indebtedness or subject to such Liens, (e) restrictions and conditions imposed by agreements relating to Indebtedness permitted by Section 6.1(f), provided that such restrictions and conditions apply only to Persons that are permitted under such Section to be obligors in respect of such Indebtedness and are not less favorable to the Lenders than the restrictions and conditions imposed by such Indebtedness (or, in the case of any Refinancing Indebtedness, by the applicable Original Indebtedness) at the time such Indebtedness first became subject to Section 6.1, (f) in connection with the sale of any Equity Interests in a Subsidiary or any other assets, customary restrictions and conditions contained in agreements relating to such sale pending the completion thereof, provided that such restrictions and conditions apply only to the Subsidiary or the other assets to be sold and such sale is permitted under Section 6.8, (g) restrictions and conditions imposed by any agreement or document governing Indebtedness of any Restricted Subsidiary that is not, and is not required to become, a Credit Party hereunder, provided that such restrictions and conditions apply only to such Restricted Subsidiary, (h) restrictions and conditions imposed by customary provisions in leases, licenses and other agreements restricting the assignment thereof or, in the case of any lease or license, permitting to exist any Lien on the assets leased or licensed thereunder, (i) restrictions on cash or deposits or net worth covenants imposed by customers, suppliers or landlords under agreements entered into in the ordinary course of business, (j) customary restrictions in respect of Intellectual Property contained in licenses or sublicenses of, or other grants of

rights to use or exploit, such Intellectual Property, (k) restrictions and conditions contained in any Permitted Senior Notes Indebtedness Document as in effect on the Closing Date and amendments, modifications, extensions and renewals thereof, provided, in each case, that the scope of any such restriction or condition shall not have been expanded as a result thereof, ~~(l) restrictions~~ and ~~conditions contained in the Versum Existing Credit Agreement and any Permitted Incremental Equivalent Indebtedness Documents relating thereto, in each case, as in effect on the Amendment No. 1 Effective Date and amendments, modifications, extensions and renewals thereof, provided, in each case, that the scope of any such restriction or condition shall not have been expanded as a result thereof, (m) restrictions and conditions contained in the Versum Existing Notes and the Versum Existing Indenture, in each case, as in effect on the Amendment No. 1 Effective Date and amendments, modifications, extensions and renewals thereof, provided, in each case, that the scope of any such restriction or condition shall not have been expanded as a result thereof, and (n~~**(l)** restrictions and conditions contained in any agreement or instrument evidencing or governing any Indebtedness permitted by Sections 6.1(i), 6.1(j), 6.1(k), 6.1(l) or 6.1(u) to the extent, in the good faith judgment of the Borrower, such restrictions and conditions are on customary market terms for Indebtedness of such type and so long as the Borrower has determined in good faith that such restrictions and conditions would not reasonably be expected to impair in any material respect the ability of the Credit Parties to meet their obligations under the Credit Documents.

**6.4. Restricted Junior Payments**. Neither the Borrower nor any Restricted Subsidiary will declare or pay or make, directly or indirectly, any Restricted Junior Payment, or incur any obligation (contingent or otherwise) to do so, except that:

(a) the Borrower and any Restricted Subsidiary may declare and pay dividends or other distributions with respect to its Equity Interests payable solely in additional Equity Interests in such Person permitted hereunder;

(b) any Restricted Subsidiary may declare and pay dividends or make other distributions with respect to its capital stock, partnership or membership interests or other similar Equity Interests, and declare and make other Restricted Junior Payments in respect of its Equity Interests, in each case ratably to the holders of such Equity Interests (or, if not ratably, on a basis more favorable to the Borrower and the Restricted Subsidiaries);

(c) the Borrower may pay dividends with respect to its common stock within 60 days after the declaration of such dividend; provided that at the date of such declaration, such payment would have complied with this Section 6.4 (it being understood that any dividends paid pursuant to this clause (c) shall be deemed for purposes of determining availability under the applicable clause under this Section 6.4, to have been paid under such clause);

(d) the Borrower may make payments in respect of, or repurchases of its Equity Interests deemed to occur upon the "cashless exercise" of, stock options, stock purchase rights, stock exchange rights or other equity-based awards if such payment or repurchase represents a portion of the exercise price of such options, rights or awards or withholding taxes, payroll taxes or other similar taxes due upon such exercise, purchase or exchange;

(e) the Borrower may make cash payments in lieu of the issuance of fractional shares representing Equity Interests in the Borrower in connection with the exercise of warrants, options or other Securities convertible into or exchangeable for common stock in the Borrower;

(f) the Borrower may make Restricted Junior Payments in respect of its Equity Interests pursuant to and in accordance with stock option plans or other benefit plans or agreements for directors, officers or employees of the Borrower and its Subsidiaries; provided that the amount of any such Restricted Junior Payments, together with the aggregate amount of all other Restricted Junior Payments made in reliance on this clause (e) during the same Fiscal Year, shall not exceed the sum of (i) the greater of (x) $20,000,000 and (y) 1.0% of Consolidated Total Assets as of the last day of the then most recently ended Test Period, plus (ii) any unutilized portion of such amount in any preceding Fiscal Year ended after the Closing Date;

(g) so long as no Default or Event of Default shall have occurred and be continuing, the Borrower may repurchase common stock in the Borrower, provided that the aggregate amount of Restricted Junior Payments made in reliance on this clause (f) shall not exceed the quotient obtained by dividing (i) the aggregate principal amount, without duplication, of all prepayments of the Tranche B Term Loans (other than any prepayments pursuant to Section 2.13 or in connection with any refinancing of any Tranche B Term Loans (including on account of incurrence of any Permitted Credit Agreement Refinancing Indebtedness)) by (ii) three (such repurchases, "**Permitted Stock Repurchases**");

(h) to the extent constituting Restricted Junior Payments of the type referred to in clause (a) or (b) of the definition of such term, the Borrower and the Restricted Subsidiaries may consummate the transactions permitted by Section 6.6 (other than in reliance on Section 6.6(q)) and Section 6.8 (other than in reliance on Section 6.8(b)(i)(D)) (it being understood that this clause (g) may be relied on to consummate any transaction that is technically subject to this Section 6.4 but is intended to be restricted primarily by any such other Section, but may not be relied on to consummate any transaction that is intended to be restricted primarily by this Section 6.4);

(i) the Borrower and the Restricted Subsidiaries may make regularly scheduled interest and principal payments as and when due in respect of any Junior Indebtedness (including any "AHYDO catch-up payment" with respect to, and required by the terms of, any indebtedness of the Borrower or any Restricted Subsidiary), other than payments in respect of Subordinated Indebtedness prohibited by the subordination provisions thereof;

(j) the Borrower and the Restricted Subsidiaries may refinance Junior Indebtedness with the proceeds of other Indebtedness to the extent permitted under Section 6.1;

(k) the Borrower and the Restricted Subsidiaries may make payments of or in respect of Junior Indebtedness made solely with Equity Interests in the Borrower (other than Disqualified Equity Interests);

(l) so long as no Default or Event of Default shall have occurred and be continuing, (i) the Borrower may declare and pay dividends or other distributions with respect to its common stock, provided that the aggregate amount of such dividends or distributions made in reliance on this clause (l)(i) during any Fiscal Year shall not exceed ~~(A) for any Fiscal Year ended prior to the consummation of the Versum Merger, $40,000,000 and (B) for any Fiscal Year ended on or after the consummation of the Versum Merger, $80,000,000~~**$40,000,000**, and (ii) the Borrower may repurchase common stock in the Borrower, provided that the aggregate amount of Restricted Junior Payments made in reliance on this clause (l)(ii) during any Fiscal Year shall not exceed $40,000,000;

(m) the Borrower and the Restricted Subsidiaries may make additional Restricted Junior Payments, provided that (i) no Default or Event of Default shall have occurred and be continuing or would result therefrom and (ii) the amount of any such Restricted Junior Payment shall not exceed the Available Basket Amount at the time such Restricted Junior Payment is made; and

(n) the Borrower and the Restricted Subsidiaries may make additional Restricted Junior Payments, provided that (i) no Default or Event of Default shall have occurred and be continuing or would result therefrom and (ii) immediately after giving effect to the making thereof on a Pro Forma Basis (including any related incurrence of Indebtedness), the Total Net Leverage Ratio, determined as of the last day of the then most recently ended Test Period, shall not exceed 2.00:1.00.

**6.5. Restrictions on Subsidiary Distributions**. Neither the Borrower nor any Restricted Subsidiary will, directly or indirectly, enter into, incur or permit to exist any agreement or other arrangement that prohibits, restricts or imposes any condition upon the ability of any Restricted Subsidiary (a) to pay dividends or make other distributions on its Equity Interests owned by the Borrower or any Restricted Subsidiary, (b) to repay or prepay any Indebtedness owing by such Restricted Subsidiary to the Borrower or any Restricted Subsidiary, (c) to make loans or advances to the Borrower or any Restricted Subsidiary or to Guarantee the Obligations or (d) to transfer, lease or license any of its assets to the Borrower or any Restricted Subsidiary; provided that the foregoing shall not apply to (i) restrictions and conditions imposed by law or by any Credit Document, (ii) restrictions and conditions existing on the Closing Date identified on Schedule 6.5, and amendments, modifications, extensions or renewals thereof (including any such extension or renewal arising as a result of an extension, renewal or refinancing of any Indebtedness containing such restriction or condition), provided, in each case, that the scope of any such restriction or condition shall not have been expanded as a result thereof, (iii) in the case of (A) any Restricted Subsidiary that is not a wholly-owned Restricted Subsidiary or (B) in the case of restrictions and conditions referred to in clause (d) above, the Equity Interests in any Person that is not a Restricted Subsidiary (including any Unrestricted Subsidiary), restrictions and conditions imposed by the Organizational Documents of such Restricted Subsidiary or such other Person or contained in any related joint venture, shareholders' or similar agreement or, in the case of clause (B), in any agreement or instrument relating to Indebtedness of such Person, provided, in each case, that such restrictions and conditions apply only to such Restricted Subsidiary and to any Equity Interests in such Restricted Subsidiary or to Equity Interests in such other Person (including any Unrestricted Subsidiary), as applicable, (iv) in the case of restrictions and conditions referred to clause in (d) above, restrictions and conditions imposed by any agreement relating to secured Indebtedness permitted by Section 6.1(e) or 6.1(s) or governing Liens permitted by Section 6.2(k) or 6.2(n) or by clause (c), (d), (j), (q) or (r) of the definition of "Permitted Encumbrances", provided that such restrictions and conditions apply only to the assets securing such Indebtedness or subject to such Liens, (v) restrictions and conditions imposed by any agreement or document governing Indebtedness permitted by Section 6.1(f), provided that such restrictions and conditions apply only to Persons that are permitted under such Section to be obligors in respect of such Indebtedness and are not less favorable to the Lenders than the restrictions and conditions imposed by such Indebtedness (or, in the case of any Refinancing Indebtedness, by the applicable Original Indebtedness) at the time such Indebtedness first became subject to Section 6.1, (vi) in connection with the sale of any Equity Interests in a Subsidiary or any other assets, customary restrictions and conditions contained in agreements relating to such sale pending the completion thereof, provided that such restrictions and conditions apply only to the Subsidiary or the other assets to be sold and such sale is permitted under Section 6.8, (vii) restrictions and conditions imposed by any agreement or document governing Indebtedness of any Restricted Subsidiary that is not, and is not required to become, a Credit Party hereunder, provided that such restrictions and conditions apply only to such Restricted Subsidiary, (viii) in the case of restrictions and conditions referred to in clause (d) above, restrictions and conditions imposed by customary provisions in leases, licenses and other agreements restricting the assignment thereof or, in the case of any lease or license, permitting to exist any Lien on the assets leased or licensed thereunder, (ix) restrictions on cash or deposits or net worth covenants imposed by customers, suppliers or landlords under agreements entered into in the ordinary course of business, (x) in the case of restrictions and conditions referred to in clause

(d) above, customary restrictions in respect of Intellectual Property contained in licenses or sublicenses of, or other grants of rights to use or exploit, such Intellectual Property, (xi) restrictions and conditions contained in any Permitted Senior Notes Indebtedness Document as in effect on the Closing Date and amendments, modifications, extensions and renewals thereof, provided, in each case, that the scope of any such restriction or condition shall not have been expanded as a result thereof, ~~(xii) restrictions and conditions contained in the Versum Existing Credit Agreement and any Permitted Incremental Equivalent Indebtedness Documents relating thereto, in each case, as in effect on the Amendment No. 1 Effective Date and amendments, modifications, extensions and renewals thereof, provided, in each case, that the scope of any such restriction or condition shall not have been expanded as a result thereof, (xiii) restrictions and conditions contained in the Versum Existing Notes and the Versum Existing Indenture, in each case, as in effect on the Amendment No. 1 Effective Date and amendments, modifications, extensions and renewals thereof, provided, in each case, that the scope of any such restriction or condition shall not have been expanded as a result thereof and (xiv~~**(xii)** restrictions and conditions contained in any agreement or instrument evidencing or governing any Indebtedness permitted pursuant to Section 6.1(i), 6.1(j), 6.1(k), 6.1(l) or 6.1(u) to the extent, in the good faith judgment of the Borrower, such restrictions and conditions are on customary market terms for Indebtedness of such type and so long as the Borrower has determined in good faith that such restrictions and conditions would not reasonably be expected to impair in any material respect the ability of the Credit Parties to meet their obligations under the Credit Documents.

**6.6. Investments**. Neither the Borrower nor any Restricted Subsidiary will purchase or acquire (including pursuant to any merger or consolidation with any Person that was not a wholly owned Restricted Subsidiary prior thereto), hold, make or otherwise permit to exist any Investment in any other Person, or make any Acquisition, except:

(a) Investments in Cash and Cash Equivalents and in assets that were Cash Equivalents when such Investment was made;

(b) Investments existing (or that are made pursuant to legally binding written commitments existing) on the Closing Date and, in each case, set forth on Schedule 6.6, and any modification, replacement, renewal, reinvestment or extension of any such Investment so long as the amount of any Investment permitted pursuant to this clause (b) is not increased from the amount of such Investment on the Closing Date except pursuant to the terms of such Investment as of the Closing Date (as set forth on Schedule 6.6) or as otherwise permitted by (and made in reliance on) another clause this Section 6.6;

(c) Investments by the Borrower or any Restricted Subsidiary in the Borrower or any Restricted Subsidiary; provided that, in the case of any such Investment in Restricted Subsidiaries, such investees are Restricted Subsidiaries prior to such Investments (or such Equity Interests in a Restricted Subsidiary are held as the result of a designation of an Unrestricted Subsidiary as a Restricted Subsidiary);

(d) Guarantees by the Borrower or any Restricted Subsidiary of Indebtedness or other monetary obligations of the Borrower or any other Restricted Subsidiary (including any such Guarantees arising as a result of any such Person being a joint and several co-applicant with respect to any letter of credit or letter of guaranty); provided that a Restricted Subsidiary shall not Guarantee any Permitted Senior Notes Indebtedness, any Permitted Credit Agreement Refinancing Indebtedness, any Permitted Incremental Equivalent Indebtedness or any Subordinated Indebtedness unless (i) such Restricted Subsidiary has Guaranteed the Obligations pursuant hereto and (ii) in the case of Subordinated Indebtedness, such Guarantee is subordinated to such Guarantee of the Obligations on terms no less favorable to the Lenders than the subordination provisions of such Subordinated Indebtedness;

(e) (i) Investments consisting of extensions of credit in the nature of accounts receivable or notes receivable arising from the grant of trade credit in the ordinary course of business, Investments (including debt obligations and Equity Interests) received in connection with the bankruptcy or reorganization of account debtors or in settlement of delinquent obligations of, or other disputes with, customers and suppliers or upon the foreclosure with respect to any secured Investment or other transfer of title with respect to any secured Investment and (ii) deposits, prepayments, expenditure reimbursements and other credits to suppliers or licensors made in the ordinary course of business;

(f) Investments made as a result of the receipt of noncash consideration from any Disposition in compliance with Section 6.8;

(g) Investments by the Borrower or any Restricted Subsidiary that result solely from the receipt by the Borrower or such Restricted Subsidiary from any of its Subsidiaries of a dividend or other Restricted Junior Payment in the form of Equity Interests, evidences of Indebtedness or other Securities (but not any additions thereto made after the date of the receipt thereof);

(h) Investments in the form of Hedge Agreements permitted under Section 6.12;

(i) payroll, travel and similar advances to directors, officers and employees of the Borrower or any Restricted Subsidiary to cover matters that are expected at the time of such advances to be treated as expenses of the Borrower or such Restricted Subsidiary for accounting purposes and that are made in the ordinary course of business;

(j) loans or advances to directors, officers and employees (or their respective estates, heirs, family members, spouses and former spouses, domestic partners and former domestic partners or beneficiaries under their respective estates) of the Borrower or any Restricted Subsidiary (i) in connection with such Person's purchase of Equity Interests in the Borrower, provided that no Cash or Cash Equivalents is actually advanced pursuant to this clause (i) other than to pay Taxes due in connection with such purchase unless such Cash or Cash Equivalents are promptly repaid or contributed to the Borrower in Cash as common equity, and (ii) for other purposes, provided that, in the case of any such Investment made in reliance on this clause (ii), such Investment shall not cause the aggregate amount of Investments outstanding in reliance on this clause (ii), measured at the time such Investment is made, to exceed the greater of (x) $10,000,000 and (y) 0.5% of Consolidated Total Assets as of the last day of the then most recently ended Test Period;

(k) Permitted Acquisitions, provided that after giving Pro Forma Effect to such Acquisition and any related incurrence of Indebtedness, the Total Net Leverage Ratio, determined as of the last day of the then most recently ended Test Period, shall not exceed 4.50:1.00;

(l) Investments in the ordinary course of business consisting of (i) endorsements for collection or deposit and (ii) customary trade arrangements with customers;

(m) Guarantees of obligations of the Borrower or any Restricted Subsidiary in respect of leases (other than Capital Lease Obligations) or of other obligations that do not constitute Indebtedness, in each case entered into in the ordinary course of business;

(n) Investments held by a Person that becomes (other than as a result of a redesignation of an Unrestricted Subsidiary) a Restricted Subsidiary (or of any Person not previously a Subsidiary that is merged or consolidated with or into a Restricted Subsidiary in a transaction permitted hereunder) after the Closing Date, provided that such Investments exist at the time such Person becomes a Restricted Subsidiary (or is so merged or consolidated) and are not made in contemplation of or in connection with such Person becoming a Restricted Subsidiary (or such merger or consolidation);

(o) Investments held by any Unrestricted Subsidiary at the time such Unrestricted Subsidiary is redesignated as a Restricted Subsidiary pursuant to the definition of the term "Unrestricted Subsidiary", provided that such Investments have not been made in contemplation of or in connection with such redesignation;

(p) any other Acquisition or other Investment to the extent consideration therefor is made solely with Equity Interests (other than Disqualified Equity Interests) in the Borrower;

(q) Investments (i) deemed to exist as a result of Liens permitted by Section 6.2, (ii) consisting of the incurrence or assumption of Indebtedness in accordance with Section 6.1 (other than in reliance on Section 6.1(b) or 6.1(c)) and (iii) consisting of the acquisition of assets resulting from the consummation of a merger, consolidation, dissolution or liquidation in accordance with Section 6.8(a) (it being understood that this clause (q) may be relied on to consummate any transaction that is technically subject to this Section 6.6 but is intended to be restricted primarily by any such other Section, but may not be relied on to consummate any transaction that is intended to be restricted primarily by this Section 6.6);

(r) any other Acquisition or other Investments, provided that (i) the Acquisition Consideration with respect to any such Acquisition or the amount of any such other Investment shall not exceed the Available Basket Amount at the time such Acquisition or other Investment is consummated and (ii) at the time such Acquisition or other Investment is consummated, no Default or Event of Default shall have occurred and be continuing or would result therefrom;

(s) Investments in any Escrow Subsidiary in an amount not to exceed the amount of Escrow Funds referred to in clause (b) of the definition thereof with respect to Escrow Indebtedness of such Escrow Subsidiary;

(t) Investments in a Receivables Subsidiary solely as a part of a Permitted Securitization Permitted under Section 6.1(u);

(u) any other Acquisition or other Investment, provided that the Acquisition Consideration with respect to any such Acquisition or the amount of any such other Investment shall not cause the aggregate amount of all Acquisition Consideration paid in connection with all Acquisitions made, together with the aggregate amount of all Investments outstanding, in each case in reliance on this clause (u), measured at the time such Acquisition or other Investment is consummated, to exceed the greater of (i) $100,000,000 and (ii) 5.5% of Consolidated Total Assets as of the last day of the then most recently ended Test Period; and

(v) any other Acquisition or other Investment, provided that (i) no Default or Event of Default shall have occurred and be continuing or would result therefrom and (ii) immediately after giving effect to the making thereof on a Pro Forma Basis (including any related incurrence of Indebtedness), the Total Net Leverage Ratio, determined as of the last day of the then most recently ended Test Period, shall not exceed 1.50:1.00.

Notwithstanding anything to the contrary in this Section 6.6, neither the Borrower nor any Restricted Subsidiary shall make any Investment that results in or facilitates in any manner any Restricted Junior Payment not permitted under Section 6.4.

**6.7. Financial Covenant**. Commencing with the Fiscal Quarter ending on March 31, 2019, on the last day of any Test Period on which the Revolving Facility Test Condition is satisfied, the Borrower shall not permit the Secured Net Leverage Ratio to exceed 3.25:1.00.

**6.8. Fundamental Changes; Disposition of Assets; Equity Interests of Subsidiaries**. Neither the Borrower nor any Restricted Subsidiary will merge or consolidate with or into any other Person, or liquidate, wind up or dissolve (or suffer any liquidation or dissolution), and neither the Borrower nor any Restricted Subsidiary shall Dispose (whether in one transaction or in a series of transactions) of assets that represent all or substantially all of the assets of the Borrower and the Restricted Subsidiaries, on a consolidated basis, except that:

(i) any Person may merge into the Borrower in a transaction in which the Borrower is the surviving corporation;

(ii) any Person (other than the Borrower) may merge or consolidate with or into any Restricted Subsidiary in a transaction in which the surviving entity is a Restricted Subsidiary;

(iii) any Restricted Subsidiary may merge or consolidate with or into any Person (other than the Borrower) in a transaction permitted under Section 6.8(b) in which, after giving effect to such transaction, the surviving entity is not a Subsidiary, provided that such transaction shall not result in the Borrower and the Restricted Subsidiaries Disposing (whether in one transaction or in a series of transactions) of assets that represent all or substantially all of the assets of the Borrower and the Restricted Subsidiaries, on a consolidated basis; and

(iv) any Restricted Subsidiary may liquidate or dissolve or may (if the validity, perfection and priority of the Liens created by the Collateral Documents are not adversely affected thereby) change its legal form, in each case if the Borrower determines in good faith that such liquidation or dissolution is in the best interests of the Borrower and is not disadvantageous to the Lenders in any material respect (it being understood that in the case of any liquidation or dissolution of a Restricted Subsidiary that is a Guarantor Subsidiary, such Restricted Subsidiary shall at or before the time of such liquidation or dissolution transfer its assets to the Borrower or another Restricted Subsidiary that is a Guarantor Subsidiary and in the case of any change in legal form, a Restricted Subsidiary that is a Guarantor Subsidiary will remain a Guarantor Subsidiary unless such Restricted Subsidiary is otherwise permitted to cease being a Guarantor Subsidiary hereunder);

provided that, in the case of clauses (i), (ii) and (iii) above, any such merger or consolidation shall not be permitted unless it, and each Investment resulting therefrom, is also permitted under Section 6.6 (other than in reliance on Section 6.6(q)).

(b) Neither the Borrower nor any Restricted Subsidiary will Dispose of, or exclusively license, any asset, including any Equity Interest, owned by it, except:

(i) Dispositions of (A) inventory and goods held for sale in the ordinary course of business, (B) used, obsolete, worn out or surplus equipment in the ordinary course of business, (C) items of property no longer used or useful in the conduct of the business of the Borrower and the Restricted Subsidiaries (including allowing any registrations or any applications for registration of any Intellectual Property to lapse or be abandoned), (D) leasehold improvements to landlords pursuant to the terms of leases in respect of Leasehold Property and (E) Cash and Cash Equivalents;

(ii) Dispositions and exclusive licenses to the Borrower or any Restricted Subsidiary;

(iii) Dispositions of (A) accounts receivable in connection with the compromise or collection thereof in the ordinary course of business and not as part of any accounts receivables financing transaction and (B) trade receivables as part of a Permitted Securitization permitted under Section 6.1(u);

(iv) Dispositions of assets in any Insurance/Condemnation Event;

(v) leases, subleases and licenses entered into by the Borrower or any Restricted Subsidiary as a lessor, sublessor or licensor in the ordinary course of business, provided that such leases, subleases or licenses do not adversely affect in any material respect the value of the properties subject thereto (including the value thereof as Collateral) or interfere in any material respect with the ordinary conduct of business of the Borrower or any Restricted Subsidiary;

(vi) Dispositions of property to the extent that (A) such property is exchanged for credit against the purchase price of similar replacement property or (B) the proceeds of such Disposition are promptly applied to the purchase price of such replacement property;

(vii) Sale/Leaseback Transactions permitted by Section 6.9;

(viii) the unwinding of Hedge Agreements in accordance with the terms thereof;

(ix) Dispositions of Investments (including Equity Interests) in, and issuances of Equity Interests by, any joint venture or non-wholly owned Restricted Subsidiary to the extent required by, or made pursuant to customary buy/sell arrangements between the parties to such joint venture or equityholders of such non-wholly owned Restricted Subsidiary set forth in, the joint venture agreement, operating agreement, shareholders agreement or similar agreement governing such joint venture or non-wholly-owned Restricted Subsidiary;

(x) Dispositions of Equity Interests in, or Indebtedness or other Securities of, any Unrestricted Subsidiary, provided that all Dispositions made in reliance on this clause (x) shall be made for fair value (as determined reasonably and in good faith by the Borrower); and

(xi) Dispositions of assets that are not permitted by any other clause of this Section 6.8(b), provided that (A) all Dispositions made in reliance on this clause (xi) shall be made for fair value (as determined reasonably and in good faith by the Borrower), (B) in the case of any Disposition (or a series of related Dispositions) for consideration in excess of $4,000,000 in value, the Borrower or such Restricted Subsidiary shall receive at least 75% of the consideration for such transaction in Cash (provided further that for the purposes of this clause (B), the following shall be deemed to be Cash: (x) the assumption by the transferee of Indebtedness or other liabilities (contingent or otherwise) of the Borrower or any Restricted Subsidiary (other than any Junior Indebtedness) for which the Borrower or such Restricted Subsidiary shall have been validly released in writing from all liability on such Indebtedness or other liability in connection with such Disposition, (y) Securities received by the Borrower or any Restricted Subsidiary from the transferee that are converted into Cash or Cash Equivalents (to the extent of the Cash or Cash Equivalents received in such conversion) within 180 days following the closing of the applicable Disposition and (z) aggregate non-Cash consideration received by the Borrower and the Restricted Subsidiaries for all Dispositions consummated in reliance on this clause (net of any non-Cash consideration converted into Cash and Cash Equivalents) having an aggregate fair value (determined as of the closing of the applicable Disposition for which such non-cash consideration is received) not in excess of $20,000,000, (C) the Net Proceeds thereof shall be applied as required by Section 2.13 and (D) before and after giving effect to any such Disposition, no Event of Default shall have occurred and be continuing.

(c) The Borrower will not permit any Person other than the Borrower, or one or more of its Restricted Subsidiaries that is not a CFC or a CFC Holding Company, to own any Equity Interests in any Restricted Subsidiary that is a Domestic Subsidiary and is not a CFC Holding Company, provided that (i) any CFC Holding Company may own Equity Interests in any other CFC Holding Company, (ii) the foregoing shall not apply with respect to any Domestic Subsidiary the Equity Interests of which are owned by a CFC or a CFC Holding Company as of the Closing Date or, in the case of any Domestics Subsidiary that becomes a Subsidiary after the Closing Date, as of the date such Domestic Subsidiary became a Subsidiary and (iii) any Restricted Subsidiary that is a Domestic Subsidiary and is not a CFC Holding Company may issue its Equity Interests to any Restricted Subsidiary that is a CFC or a CFC Holding Company as part of a tax planning reorganization, provided that substantially concurrently therewith such Equity Interests are transferred by such recipient Restricted Subsidiary to the Borrower or a Restricted Subsidiary that is not a CFC or a CFC Holding Company.

**6.9. Sales and Leasebacks**. Neither the Borrower nor any Restricted Subsidiary will enter into any Sale/Leaseback Transaction unless (a) any Capital Lease Obligations arising in connection therewith are permitted under Section 6.1(s), (b) any Liens arising in connection therewith (including Liens deemed to arise in connection with any such Capital Lease Obligations) are permitted under Section 6.2(p) and (c) after giving effect to such Sale/Leaseback Transaction, the aggregate fair value (as determined reasonably and in good faith by the Borrower) of all property Disposed of in the Sale/Leaseback Transactions consummated after the Closing Date shall not be in excess of the greater of (x) $20,000,000 and (y) 1.0% of Consolidated Total Assets as of the last day of the then most recently ended Test Period.

**6.10. Transactions with Affiliates**. Neither the Borrower nor any Restricted Subsidiary will, directly or indirectly, enter into or permit to exist any transaction (including the purchase, sale, lease or exchange of any property or the rendering of any service) with any Affiliate of the Borrower or such Restricted Subsidiary on terms that are less favorable to the Borrower or such Restricted Subsidiary, as the case may be, than those that would prevail in an arm's-length transaction with unrelated third parties; provided that the foregoing restriction shall not apply to (a) transactions between or among the Credit Parties or their Restricted Subsidiaries or any other Person that becomes a Restricted Subsidiary as a result of such transaction, not involving any other Affiliate, (b) the Transactions and the payment of fees and expenses in connection with the consummation of the Transactions, (c) any Restricted Junior Payment permitted under Section 6.4, (d) issuances by the Borrower of Equity Interests (other than Disqualified Equity Interests) and receipt by the Borrower of capital contributions, (e) employment, compensation, bonus, incentive, retention and severance arrangements and health, disability and similar insurance or benefit plans or other benefit arrangements between the Borrower or any of the Restricted Subsidiaries and their respective future, current or former officers, directors and employees (including management and employee benefit plans or agreements, subscription agreements or similar

agreements pertaining to the repurchase of Equity Interests pursuant to put/call rights or similar rights with future, current or former officers, directors and employees and stock option or incentive plans and other compensation arrangements) in the ordinary course of business, (f) payment of customary fees and indemnities to and reimbursement of out-of-pocket costs and expenses of any future, current or former officers, directors and employees of the Borrower and the Restricted Subsidiaries entered into in the ordinary course of business, (g) loans and advances permitted under Section 6.6(i) or 6.6(j) and Investments permitted by Section 6.6(s), (h) the transactions set forth on Schedule 6.10 and (i) transactions with a Receivables Subsidiary in connection with a Permitted Securitization permitted under Section 6.1(u).

**6.11. Conduct of Business**. Neither the Borrower nor any Restricted Subsidiary will engage to any material extent in any business substantially different from the types of businesses conducted by the Borrower and the Restricted Subsidiaries on the Closing Date and businesses reasonably related, complementary, synergistic or ancillary thereto or representing a reasonable extension thereof.

**6.12. Hedge Agreements**. Neither the Borrower nor any Restricted Subsidiary will enter into any Hedge Agreement, except (a) Hedge Agreements entered into to hedge or mitigate risks to which the Borrower or any Restricted Subsidiary has actual exposure (other than in respect of Equity Interests or Indebtedness of the Borrower or any Restricted Subsidiary) and (b) Hedge Agreements entered into in order to effectively cap, collar or exchange interest rates (from fixed to floating rates, from one floating rate to another floating rate or otherwise) with respect to any interest-bearing liability or investment of the Borrower or any Restricted Subsidiary.

**6.13. Amendments or Waivers of Organizational Documents and Certain Agreements**. Neither the Borrower nor any Restricted Subsidiary will agree to any amendment, restatement, supplement or other modification to, or waiver of any of its rights under, (a) any agreement or instrument governing or evidencing any Junior Indebtedness that is Material Indebtedness or (b) its Organizational Documents, in each case, to the extent such amendment, modification or waiver could reasonably be expected to be adverse in any material respect to the Lenders, it being understood that ~~(i)~~ any Junior Indebtedness may be modified to permit any extension or refinancing thereof to the extent otherwise permitted by this Agreement ~~and (ii) the amendment and restatement of the certificate of incorporation of the Borrower as contemplated by the Versum Merger Agreement as in effect on the Amendment No. 1 Effective Date is not adverse in any material respect to the Lenders~~.

**6.14. Fiscal Year.** Neither the Borrower nor any Restricted Subsidiary will change its Fiscal Year to end on a date other than December 31; provided that the Borrower may, upon written notice to the Administrative Agent, change its Fiscal Year to end on any other date reasonably acceptable to the Administrative Agent, in which case the Borrower and the Administrative Agent will, and are hereby authorized by the Lenders to, make any amendments or other modifications to this Agreement and the other Credit Documents that are necessary, in the reasonable judgment of the Administrative Agent and the Borrower, to reflect such change in Fiscal Year.

## SECTION 7. GUARANTEE

**7.1. Guarantee of the Obligations**. The Guarantors jointly and severally hereby irrevocably and unconditionally guarantee the due and punctual payment in full of all Obligations when and as the same shall become due. In furtherance of the foregoing, the Guarantors hereby jointly and severally agree that upon the failure of the Borrower or any other Person to pay any of the Obligations when and as the same shall become due, whether at stated maturity, by required prepayment, acceleration, demand or otherwise (including amounts that would become due but for the operation of the automatic stay under Section 362(a) of the Bankruptcy Code or any similar provision of, or stay imposed under, any other Debtor Relief Law), the Guarantors will upon demand pay, or cause to be paid, in Cash, to the Administrative Agent, for the ratable benefit of Secured Parties, an amount equal to the sum of all Obligations then due as aforesaid.

**7.2. Indemnity by the Borrower; Contribution by the Guarantors**. In addition to all such rights of indemnity and subrogation as any Guarantor Subsidiary may have under applicable law (but subject to Section 7.5), the Borrower agrees that (i) in the event a payment shall be made by any Guarantor Subsidiary under its Obligations Guarantee, the Borrower shall indemnify such Guarantor Subsidiary for the full amount of such payment and such Guarantor Subsidiary shall be subrogated to the rights of the Person to whom such payment shall have been made to the extent of such payment and (ii) in the event any Collateral provided by any Guarantor Subsidiary shall be sold pursuant to any Collateral Document to satisfy in whole or in part any Obligations, the Borrower shall indemnify such Guarantor Subsidiary in an amount equal to the fair market value of the assets so sold.

(a) The Guarantor Subsidiaries desire to allocate among themselves, in a fair and equitable manner, their obligations arising under this Section 7 and under the Collateral Documents. Accordingly, in the event any payment or distribution is made on any date by a Guarantor Subsidiary under its Obligations Guarantee such that its Aggregate Payments exceed its Fair Share as of such date (such Guarantor Subsidiary being referred to as a "**Claiming Guarantor**") and the Borrower does not indemnify such Claiming Guarantor in accordance with Section 7.2(a), such Claiming Guarantor shall be entitled to a contribution from each other Guarantor Subsidiary in an amount sufficient to cause each Guarantor Subsidiary's Aggregate Payments to equal

its Fair Share as of such date (and for all purposes of this Section 7.2(b), any sale or other dispositions of Collateral of a Guarantor Subsidiary pursuant to an exercise of remedies under any Collateral Document shall be deemed to be a payment by such Guarantor Subsidiary under its Obligations Guarantee in an amount equal to the fair market value of such Collateral, less any amount of the proceeds of such sale or other dispositions returned to such Guarantor Subsidiary). "**Fair Share**" means, with respect to any Guarantor Subsidiary as of any date of determination, an amount equal to (i) the ratio of (A) the Fair Share Contribution Amount with respect to such Guarantor Subsidiary to (B) the aggregate of the Fair Share Contribution Amounts with respect to all Guarantor Subsidiaries multiplied by (ii) the aggregate amount paid or distributed on or before such date by all Claiming Guarantors under their Obligations Guarantees. "**Fair Share Contribution Amount**" means, with respect to any Guarantor Subsidiary as of any date of determination, the maximum aggregate amount of the obligations of such Guarantor Subsidiary under its Obligations Guarantee that would not render its obligations thereunder subject to avoidance as a fraudulent transfer or conveyance under Section 548 of the Bankruptcy Code or any comparable applicable provisions of state law; provided that solely for purposes of calculating the "Fair Share Contribution Amount" with respect to any Guarantor Subsidiary for purposes of this Section 7.2(b), any assets or liabilities of such Guarantor Subsidiary arising by virtue of any rights to subrogation, reimbursement or indemnification or any rights to or obligations of contribution under this Section 7 shall not be considered as assets or liabilities of such Guarantor Subsidiary. "**Aggregate Payments**" means, with respect to any Guarantor Subsidiary as of any date of determination, an amount equal to (A) the aggregate amount of all payments and distributions made on or before such date by such Guarantor Subsidiary in respect of its Obligations Guarantee (including any payments and distributions made under this Section 7.2(b)), minus (B) the aggregate amount of all payments received on or before such date by such Guarantor Subsidiary from the Borrower pursuant to Section 7.2(a) or the other Guarantor Subsidiaries pursuant to this Section 7.2(b). The amounts payable under this Section 7.2(b) shall be determined as of the date on which the related payment or distribution is made by the applicable Claiming Guarantor. The allocation among Guarantor Subsidiaries of their obligations as set forth in this Section 7.2(b) shall not be construed in any way to limit the liability of any Guarantor Subsidiary hereunder or under any Collateral Document.

**7.3. Liability of Guarantors Absolute**. Each Guarantor agrees that its obligations under this Section 7 are irrevocable, absolute, independent and unconditional and shall not be affected by any circumstance that constitutes a legal or equitable discharge of a guarantor or surety other than payment in full in Cash of the Obligations. In furtherance of the foregoing and without limiting the generality thereof, each Guarantor agrees as follows:

(a) its Obligations Guarantee is a guarantee of payment when due and not of collectability and is a primary obligation of such Guarantor and not merely a contract of surety;

(b) the Administrative Agent may enforce its Obligations Guarantee upon the occurrence of an Event of Default notwithstanding the existence of any dispute between the Borrower and any Secured Party with respect to the existence of such Event of Default;

(c) the obligations of each Guarantor hereunder are independent of the obligations of the Borrower or of any other guarantor (including any other Guarantor) of the Obligations, and a separate action or actions may be brought and prosecuted against such Guarantor whether or not any action is brought against the Borrower, any other Guarantor or any other Person and whether or not the Borrower, any other Guarantor or any other Person is joined in any such action or actions;

(d) payment by any Guarantor of a portion, but not all, of the Obligations shall in no way limit, affect, modify or abridge any Guarantor's liability for any portion of the Obligations that has not been paid (and, without limiting the generality of the foregoing, if the Administrative Agent is awarded a judgment in any suit brought to enforce any Guarantor's covenant to pay a portion of the Obligations, such judgment shall not be deemed to release such Guarantor from its covenant to pay the portion of the Obligations that is not the subject of such suit, and such judgment shall not, except to the extent satisfied by such Guarantor, limit, affect, modify or abridge any other Guarantor's liability hereunder in respect of the Obligations);

(e) any Secured Party may, upon such terms as it deems appropriate, without notice or demand and without affecting the validity or enforceability of the Obligations Guarantees or giving rise to any reduction, limitation, impairment, discharge or termination of any Guarantor's liability under this Section 7, at any time and from time to time (i) renew, extend, accelerate, increase the rate of interest on or otherwise change the time, place, manner or terms of payment of the Obligations, (ii) settle, compromise, release or discharge, or accept or refuse any offer of performance with respect to, or substitutions for, the Obligations or any agreement relating thereto, and/or subordinate the payment of the same to the payment of any other obligations, (iii) request and accept other guarantees of the Obligations and take and hold security for the payment of the Obligations, (iv) release, surrender, exchange, substitute, compromise, settle, rescind, waive, alter, subordinate or modify, with or without consideration, any security for payment of the Obligations, any other guarantees of the Obligations or any other obligation of any Person (including any other Guarantor) with respect to the Obligations, (v) enforce and apply any security now or hereafter held by or for the benefit of such Secured Party in respect of the Obligations and direct the order or manner of sale thereof, or exercise any other right or remedy that such Secured Party may have against any such security, in each case as such Secured Party in its discretion may determine consistent herewith or with the applicable Specified Hedge Agreement or Specified Cash Management Services Agreement and any applicable security agreement, including foreclosure on any such security or exercise of a power of sale pursuant to one or more judicial or nonjudicial sales, whether or not every aspect of any such sale is commercially reasonable,

and even though such action operates to impair or extinguish any right of reimbursement or subrogation or other right or remedy of any Guarantor against any other Credit Party or any security for the Obligations, and (vi) exercise any other rights available to it under the Credit Documents or any Specified Hedge Agreements or Specified Cash Management Services Agreements; and

(f) the Obligations Guarantees and the obligations of the Guarantors thereunder shall be valid and enforceable and shall not be subject to any reduction, limitation, impairment, discharge or termination for any reason, including the occurrence of any of the following, whether or not any Guarantor shall have had notice or knowledge of any of them (in any case other than payment in full in Cash of the Obligations or release of a Guarantor Subsidiary's Obligations Guarantee in accordance with Section 9.8(d)(ii)): (i) any failure or omission to assert or enforce or agreement or election not to assert or enforce, or the stay or enjoining, by order of court, by operation of law or otherwise, of the exercise or enforcement of, any claim or demand or any right, power or remedy (whether arising under the Credit Documents or any Specified Hedge Agreements or Specified Cash Management Services Agreements, at law, in equity or otherwise) with respect to the Obligations or any agreement relating thereto, or with respect to any other guarantee of or security for the payment of the Obligations, (ii) any rescission, waiver, amendment or modification of, or any consent to departure from, any of the terms or provisions (including provisions relating to events of default) of any Credit Document, any Specified Hedge Agreement or any Specified Cash Management Services Agreement or any agreement or instrument executed pursuant thereto, or of any other guarantee or security for the Obligations, in each case whether or not in accordance with the terms hereof or such Credit Document, such Specified Hedge Agreement or such Specified Cash Management Services Agreement or any agreement relating to such other guarantee or security, (iii) the Obligations, or any agreement relating thereto, at any time being found to be illegal, invalid or unenforceable in any respect, (iv) the application of payments received from any source (other than payments received pursuant to the other Credit Documents or any Specified Hedge Agreement or Specified Cash Management Services Agreement under which any Obligations arose or from the proceeds of any security for the Obligations, except to the extent such security also serves as collateral for indebtedness other than the Obligations) to the payment of obligations other than the Obligations, even though any Secured Party could have elected to apply such payment to all or any part of the Obligations, (v) any Secured Party's consent to the change, reorganization or termination of the corporate structure or existence of the Borrower or any Subsidiary and to any corresponding restructuring of the Obligations, (vi) any failure to perfect or continue perfection of a security interest in any collateral that secures any of the Obligations, (vii) any defenses, set-offs or counterclaims that the Borrower or any other Person may allege or assert against any Secured Party in respect of the Obligations, including failure of consideration, breach of warranty, statute of frauds, statute of limitations, accord and satisfaction and usury, and (viii) any other act or thing or omission, or delay to do any other act or thing, that may or might in any manner or to any extent vary the risk of any Guarantor as an obligor in respect of the Obligations.

**7.4. Waivers by the Guarantors**. Each Guarantor hereby waives, for the benefit of the Secured Parties: (a) any right to require any Secured Party, as a condition of payment or performance by such Guarantor in respect of its obligations under this Section 7, (i) to proceed against the Borrower, any other guarantor (including any other Guarantor) of the Obligations or any other Person, (ii) to proceed against or exhaust any security held from the Borrower, any such other guarantor or any other Person, (iii) to proceed against or have resort to any balance of any deposit account or credit on the books of any Secured Party in favor of any Credit Party or any other Person or (iv) to pursue any other remedy in the power of any Secured Party whatsoever; (b) any defense arising by reason of the incapacity, lack of authority or any disability or other defense of the Borrower or any other Guarantor, including any defense based on or arising out of the lack of validity or the unenforceability of the Obligations or any agreement or instrument relating thereto or by reason of the cessation of the liability of the Borrower or any other Guarantor from any cause other than payment in full in Cash of the Obligations; (c) any defense based upon any law that provides that the obligation of a surety must be neither larger in amount nor in other respects more burdensome than that of the principal; (d) any defense based upon any Secured Party's errors or omissions in the administration of the Obligations; (e) (1) any principles or provisions of any law that are or might be in conflict with the terms hereof or any legal or equitable discharge of such Guarantor's obligations hereunder, (2) the benefit of any statute of limitations affecting such Guarantor's liability hereunder or the enforcement hereof, (3) any rights to set-offs, recoupments and counterclaims and (4) promptness, diligence and any requirement that any Secured Party protect, secure, perfect or insure any security interest or lien or any property subject thereto; (f) notices, demands, presentments, protests, notices of protest, notices of dishonor and notices of any action or inaction, including acceptance hereof, notices of default under the Credit Documents or any Specified Hedge Agreement or any Specified Cash Management Services Agreement or any agreement or instrument related thereto, notices of any renewal, extension or modification of the Obligations or any agreement related thereto, notices of any extension of credit to the Borrower or any other Credit Party and notices of any of the matters referred to in Section 7.3 and any right to consent to any thereof; and (g) any defenses or benefits that may be derived from or afforded by law which limit the liability of or exonerate guarantors or sureties, or which may conflict with the terms hereof.

**7.5. Guarantors' Rights of Subrogation, Contribution, Etc.** Until the Obligations shall have been indefeasibly paid in full in Cash, the Commitments shall have terminated and all Letters of Credit shall have expired or been terminated, each Guarantor hereby waives any claim, right or remedy, direct or indirect, that such Guarantor now has or may hereafter have against the Borrower or any other Guarantor or any of its assets in connection with its Obligations Guarantee or the performance by such Guarantor of its obligations thereunder, in each case whether such claim, right or remedy arises in equity, under contract, by statute, under common law or otherwise and including (a) any right of subrogation, reimbursement or indemnity that such Guarantor now has or may hereafter have against the Borrower with respect to the Obligations, including any such right of indemnity under

Section 7.2(a), (b) any right to enforce, or to participate in, any claim, right or remedy that any Secured Party now has or may hereafter have against the Borrower and (c) any benefit of, and any right to participate in, any collateral or security now or hereafter held by or for the benefit of any Secured Party. In addition, until the Obligations shall have been indefeasibly paid in full in Cash, the Commitments shall have terminated and all Letters of Credit shall have expired or been terminated, each Guarantor shall withhold exercise of any right of contribution such Guarantor may have against any other guarantor (including any other Guarantor) of the Obligations, including any such right of contribution under Section 7.2(b). Each Guarantor further agrees that, to the extent the waiver or agreement to withhold the exercise of its rights of subrogation, reimbursement, indemnity and contribution as set forth herein is found by a court of competent jurisdiction to be void or voidable for any reason, any rights of subrogation, reimbursement or indemnity such Guarantor may have against the Borrower or against any collateral or security, and any rights of contribution such Guarantor may have against any other Guarantor, shall be junior and subordinate to any rights any Secured Party may have against the Borrower or any other Credit Party, to all right, title and interest any Secured Party may have in any such collateral or security, and to any right any Secured Party may have against such other Guarantor. If any amount shall be paid to any Guarantor on account of any such subrogation, reimbursement, indemnity or contribution rights at any time when all Obligations shall not have been indefeasibly paid in full in Cash, all Commitments not having terminated and all Letters of Credit not having expired or been terminated, such amount shall be held in trust for the Administrative Agent, for the benefit of the Secured Parties, and shall forthwith be paid over to the Administrative Agent, for the benefit of Secured Parties, to be credited and applied against the Obligations, whether matured or unmatured, in accordance with the terms hereof.

**7.6. Continuing Guarantee**. The Obligations Guarantee is a continuing guarantee and shall remain in effect (except, in the case of a Guarantor Subsidiary, if such Guarantor Subsidiary's Obligations Guarantee shall have been released in accordance with Section 9.8(d)(ii)) until all of the Obligations (excluding contingent obligations as to which no claim has been made) shall have been paid in full in Cash, the Commitments shall have terminated and all Letters of Credit shall have expired or been terminated. Each Guarantor hereby irrevocably waives any right to revoke its Obligations Guarantee as to future transactions giving rise to any Obligations.

**7.7. Authority of the Guarantors or the Borrower**. It is not necessary for any Secured Party to inquire into the capacity or powers of any Guarantor or the Borrower or any Related Party acting or purporting to act on behalf of any such Person.

**7.8. Financial Condition of the Credit Parties**. Any Credit Extension may be made or continued from time to time, and any Obligations arising under Specified Hedge Agreements or Specified Cash Management Services Agreements may be incurred from time to time, in each case without notice to or authorization from any Guarantor regardless of the financial or other condition of the Borrower or any Subsidiary at the time of any such grant or continuation or at the time such other Obligations are incurred, as the case may be. No Secured Party shall have any obligation to disclose or discuss with any Guarantor its assessment, or any Guarantor's assessment, of the financial condition of the Borrower or any Subsidiary. Each Guarantor has adequate means to obtain information from the Borrower and its Subsidiaries on a continuing basis concerning the financial condition of the Borrower and its Subsidiaries and their ability to perform the Obligations, and each Guarantor assumes the responsibility for being and keeping informed of the financial condition of the Borrower and its Subsidiaries and of all circumstances bearing upon the risk of nonpayment of the Obligations. Each Guarantor hereby waives and relinquishes any duty on the part of any Secured Party to disclose any matter, fact or thing relating to the business, results of operations, assets, liabilities, condition (financial or otherwise) or prospects of the Borrower or any Subsidiary now or hereafter known by any Secured Party.

**7.9. Bankruptcy, Etc.** The obligations of the Guarantors hereunder shall not be reduced, limited, impaired, discharged, deferred, suspended or terminated by any case or proceeding, voluntary or involuntary, involving the bankruptcy, insolvency, receivership, reorganization, liquidation, arrangement or similar proceeding of the Borrower or any other Guarantor or by any defense that the Borrower or any other Guarantor may have by reason of the order, decree or decision of any court or administrative body resulting from any such proceeding.

(a) Each Guarantor acknowledges and agrees that any interest on any portion of the Obligations that accrues after the commencement of any case or proceeding referred to in Section 7.9(a) (or, if interest on any portion of the Obligations ceases to accrue by operation of law by reason of the commencement of such case or proceeding, such interest as would have accrued on such portion of the Obligations if such case or proceeding had not been commenced) shall be included in the Obligations because it is the intention of the Guarantors and the Secured Parties that the Obligations that are guaranteed by the Guarantors pursuant to this Section 7 should be determined without regard to any rule of law or order that may relieve the Borrower or any Subsidiary of any portion of any Obligations. The Guarantors will permit any trustee in bankruptcy, receiver, debtor in possession, assignee for the benefit of creditors or similar Person to pay to the Administrative Agent, for the benefit of the Secured Parties, or allow the claim of any Secured Party or of the Administrative Agent, for the benefit of the Secured Parties, in respect of, any such interest accruing after the date on which such case or proceeding is commenced.

(b) In the event that all or any portion of the Obligations are paid by the Borrower or any Subsidiary, the obligations of the Guarantors under this Section 7 shall continue and remain in full force and effect or be reinstated, as the case may be (notwithstanding any prior release of any Obligations Guarantee), in the event that all or any part of such payment(s) are rescinded or recovered directly or indirectly from any Secured Party as a preference, fraudulent transfer or conveyance or transfer

at undervalue or otherwise, and any such payments that are so rescinded or recovered shall constitute Obligations for all purposes hereunder.

**7.10. Keepwell.** Each Qualified ECP Guarantor hereby jointly and severally absolutely, unconditionally and irrevocably undertakes to provide such funds or other support as may be needed from time to time by any other Guarantor to honor all of such Guarantor's obligations under this Obligations Guarantee or any other Credit Document in respect of Swap Obligations, provided that each Qualified ECP Guarantor shall only be liable under this Section 7.10 for the maximum amount of such liability that can be incurred without rendering its obligations under this Section 7.10, or otherwise under this Obligations Guarantee, as it relates to such Guarantor, voidable under applicable law relating to fraudulent transfer or conveyance, and not for any greater amount. The obligations of each Qualified ECP Guarantor under this Section 7.10 shall remain in full force and effect until the Obligations shall have been indefeasibly paid in full, the Commitments shall have terminated and all Letters of Credit shall have expired or been terminated. Each Qualified ECP Guarantor intends that this Section 7.10 constitute, and this Section 7.10 shall be deemed to constitute, a "keepwell, support, or other agreement" for the benefit of each other Guarantor for all purposes of Section 1a(18)(A)(v)(II) of the Commodity Exchange Act.

## SECTION 8. EVENTS OF DEFAULT

**8.1. Events of Default**. If any one or more of the following conditions or events shall occur:

(a) Failure to Make Payments When Due. Failure by the Borrower (i) to pay, when due, any principal of any Loan, whether at stated maturity, by acceleration, by notice of voluntary prepayment, by mandatory prepayment or otherwise, (ii) to pay, when due, any amount payable to the applicable Issuing Bank in reimbursement of any drawing under any Letter of Credit or to deposit, when due, any Cash Collateral required pursuant to Section 2.13(e) or 2.21 or (iii) to pay, within five Business Days after the date due, any interest on any Loan or any fee or any other amount due hereunder;

(b) Default in Other Agreements. (i) Failure by the Borrower or any Restricted Subsidiary, after the expiration of any applicable grace period, to make any payment that shall have become due and payable (whether of principal, interest or otherwise) in respect of any Material Indebtedness, or (ii) any condition or event shall occur that results in any Material Indebtedness becoming due, or being required to be prepaid, repurchased, redeemed or defeased, prior to its stated final maturity or, in the case of any Hedge Agreement, being terminated, or that enables or permits the holder or holders of any Material Indebtedness or any trustee or agent on its or their behalf, or, in the case of any Hedge Agreement, the applicable counterparty, or in the case of any Permitted Securitization, the applicable purchasers or lenders thereunder, with or without the giving of notice but only after the expiration of any applicable grace period, to cause such Material Indebtedness to become due, or to require the prepayment, repurchase, redemption or defeasance thereof, prior to its stated maturity or, in the case of any Hedge Agreement, to cause the termination thereof; provided that, notwithstanding the foregoing, this clause (b) shall not apply to (A) any secured Indebtedness becoming due as a result of the voluntary sale or transfer of the assets securing such Indebtedness, (B) any Indebtedness becoming due as a result of a voluntary refinancing thereof permitted under Section 6.1, (C) any Indebtedness becoming due as a result of a voluntary (or, in the case of customary "asset sale sweeps", "casualty/condemnation sweeps" or "excess cash flow sweeps", mandatory) prepayment, repurchase, redemption or defeasance thereof permitted hereunder or (D) any Indebtedness becoming due or being required to be prepaid, repurchased, redeemed or defeased, prior to its stated maturity, in each case, as a result of a Special Mandatory Redemption/Prepayment;

(c) Breach of Certain Covenants. Failure of any Credit Party to perform or comply with any term or condition contained in Section 2.5, 5.1(f)(i), 5.2 (with respect to the existence of the Borrower only) or 6; provided that, notwithstanding the foregoing, any breach of the Financial Covenant will not constitute an Event of Default under this Section 8.1(c) with respect to any Term Loans or any Term Lenders until and unless the Revolving Loans shall have been declared to be due and payable, and the Revolving Commitments shall have been terminated, in each case, as set forth below in this Section 8;

(d) Breach of Representations, Etc. Any representation, warranty, certification or other statement made or deemed made by or on behalf of any Credit Party in any Credit Document or in any report, certificate or statement at any time provided in writing by or on behalf of any Credit Party pursuant to or in connection with any Credit Document shall be incorrect in any material respect as of the date made or deemed made;

(e) Other Defaults under Credit Documents. Failure of any Credit Party to perform or comply with any term or condition contained herein or in any other Credit Document, other than any such term or condition referred to in any other clause of this Section 8.1, and such failure shall not have been remedied within 30 days after receipt by the Borrower of notice from the Administrative Agent of such failure;

(f) Involuntary Bankruptcy; Appointment of Receiver, Etc. (i) A court of competent jurisdiction shall enter a decree or order for relief in respect of the Borrower or any Restricted Subsidiary that is a Material Subsidiary in an involuntary case under any Debtor Relief Law, which decree or order is not stayed; or any other similar relief shall be granted under any applicable federal, state or foreign law; or (ii) an involuntary case shall be commenced against the Borrower or any Restricted Subsidiary that

is a Material Subsidiary under any Debtor Relief Law; or a decree or order of a court having jurisdiction in the premises for the involuntary appointment of an interim receiver, receiver, liquidator, sequestrator, trustee, custodian or other officer having similar powers over the Borrower or any Restricted Subsidiary that is a Material Subsidiary, or over all or a substantial part of its property, shall have been entered; or there shall have occurred the involuntary appointment of an interim receiver, receiver, liquidator, sequestrator, trustee, custodian or other officer having similar powers over the Borrower or any Restricted Subsidiary that is a Material Subsidiary, or over all or a substantial part of its property; or a warrant of attachment, execution or similar process shall have been issued against all or a substantial part of the property of the Borrower or any Restricted Subsidiary that is a Material Subsidiary, and any such event described in this clause (ii) shall continue for 60 days without having been dismissed or discharged;

(g) Voluntary Bankruptcy; Appointment of Receiver, Etc. The Borrower or any Restricted Subsidiary that is a Material Subsidiary shall have an order for relief entered with respect to it or shall commence a voluntary case under any Debtor Relief Law, or shall consent to the entry of an order for relief in an involuntary case, or to the conversion of an involuntary case to a voluntary case, under any Debtor Relief Law, or shall consent to the appointment of or taking possession by an interim receiver, receiver, liquidator, sequestrator, trustee, custodian or other officer having similar powers over the Borrower or any Restricted Subsidiary that is a Material Subsidiary, or over all or a substantial part of its property (other than any liquidation permitted by Section 6.8(a)(iv)); or the Borrower or any Restricted Subsidiary that is a Material Subsidiary shall make any assignment for the benefit of creditors; or the Borrower or any Restricted Subsidiary that is a Material Subsidiary shall be unable, or shall fail generally, or shall admit in writing its inability, to pay its debts as such debts become due; or the board of directors (or similar governing body) of the Borrower or any Restricted Subsidiary that is a Material Subsidiary (or any committee thereof) shall adopt any resolution or otherwise authorize any action to approve any of the actions referred to in this Section 8.1(g) or in Section 8.1(f);

(h) Judgments and Attachments. One or more judgments for the payment of money in an aggregate amount of $100,000,000 or more (other than any such judgment covered by insurance (other than under a self-insurance program) provided by a financially sound insurer to the extent a claim therefor has been made in writing and liability therefor has not been denied by the insurer), shall be rendered against the Borrower, any Restricted Subsidiary or any combination thereof and the same shall remain undischarged for a period of 60 consecutive days during which execution shall not be effectively stayed, or any action shall be legally taken by a judgment creditor to attach or levy upon any assets of the Borrower or any Restricted Subsidiary to enforce any such judgment;

(i) Employee Benefit Plans. There shall occur one or more ERISA Events that individually or in the aggregate have resulted in, or could reasonably be expected to result in, a Material Adverse Effect;

(j) Change of Control. A Change of Control shall occur; or

(k) Obligations Guarantees, Collateral Documents and other Credit Documents. Any Obligations Guarantee (other than any Obligations Guarantee by any Restricted Subsidiary that is not a Material Subsidiary) for any reason shall cease to be, or shall be asserted by any Credit Party not to be, in full force and effect (other than in accordance with its terms), or shall be declared to be null and void; any Lien purported to be created under any Collateral Document shall cease to be, or shall be asserted by any Credit Party not to be, a valid and (to the extent required by the Credit Documents) perfected Lien on any material Collateral, with the priority required by the Credit Documents, except as a result of (i) a Disposition of the applicable Collateral in a transaction permitted under the Credit Documents, (ii) the release thereof as provided in Section 9.8(d) or (iii) the Collateral Agent's failure to maintain possession of any stock certificate, promissory note or other instrument delivered to it under the Collateral Documents or, in the case of Collateral consisting of real property, to the extent covered by the title insurance policy applicable to such real property required pursuant to the Collateral and Guarantee Requirement to the extent the insurer has not denied coverage under such title insurance policy; or this Agreement or any Collateral Document shall cease to be in full force and effect (other than in accordance with its terms), or shall be declared null and void, or any Credit Party shall contest the validity or enforceability of any Credit Document or deny that it has any further liability, including with respect to future advances by Lenders, under any Credit Document to which it is a party;

**THEN**, (i) upon the occurrence of any Event of Default described in Section 8.1(f) or 8.1(g), automatically, and (ii) upon (A) the occurrence and during the continuance of any other Event of Default and (B) notice to the Borrower by the Administrative Agent provided at the request of (or with the consent of) the Requisite Lenders (or, in the case of an Event of Default under Section 8.1(c) with respect to the Financial Covenant prior to such Event of Default constituting an Event of Default with respect to the Term Loans and the Term Lenders as contemplated by the proviso set forth in Section 8.1(c), at the request of (or with the consent of) the Majority in Interest of the Revolving Lenders), (1) the Commitments (or, in the case referred to in the immediately preceding parenthetical, the Revolving Commitments) and the obligation of each Issuing Bank to issue, amend, extend or renew any Letter of Credit shall immediately terminate, (2) the unpaid principal amount of and accrued interest on the Loans (or, in the case referred to in the immediately preceding parenthetical, the Revolving Loans) and all other Obligations (other than the Specified Hedge Obligations and the Specified Cash Management Services Obligations) shall immediately become due and payable, and the Borrower shall immediately be required to deposit Cash Collateral in respect of Letter of Credit Usage in accordance with Section 2.3(h), in each case without presentment, demand, protest or other requirement of any kind, all of which are hereby expressly

waived by each Credit Party, and (3) the Administrative Agent may cause the Collateral Agent to enforce any and all Liens created pursuant to the Collateral Documents.

**SECTION 9. AGENTS**

**9.1. Appointment of Agents**. ~~Goldman Sachs~~**Morgan Stanley** is hereby appointed Administrative Agent and Collateral Agent hereunder and under the other Credit Documents, and each Lender and Issuing Bank hereby authorizes ~~Goldman Sachs~~**Morgan Stanley** to act as the Administrative Agent and the Collateral Agent in accordance with the terms hereof and of the other Credit Documents. Each such Agent hereby agrees to act in its capacity as such upon the express conditions contained herein and in the other Credit Documents, as applicable. The provisions of this Section 9, other than Sections 9.7 and 9.8(d), are solely for the benefit of the Agents, the Lenders and the Issuing Banks, and no Credit Party shall have any rights as a third party beneficiary of any such provisions. In performing its functions and duties hereunder, no Agent assumes, and shall not be deemed to have assumed, any obligation towards or relationship of agency or trust with or for the Borrower or any Subsidiary.

**9.2. Powers and Duties**. Each Lender and Issuing Bank irrevocably authorizes each Agent to take such actions and to exercise such powers, rights and remedies hereunder and under the other Credit Documents as are specifically delegated or granted to such Agent by the terms hereof and thereof, together with such actions, powers, rights and remedies as are reasonably incidental thereto. Each Agent shall have only those duties and responsibilities that are expressly specified herein and in the other Credit Documents. No Agent shall have, by reason hereof or of any of the other Credit Documents, a fiduciary relationship in respect of any Lender, any Issuing Bank or any other Person (regardless of whether or not a Default or an Event of Default has occurred), it being understood and agreed that the use of the term "agent" (or any other similar term) herein or in any other Credit Document with reference to any Agent is not intended to connote any fiduciary or other implied obligations arising under any agency doctrine of any applicable law, and that such term is used as a matter of market custom; and nothing herein or in any of the other Credit Documents, expressed or implied, is intended to or shall be so construed as to impose upon any Agent any obligations in respect hereof or of any of the other Credit Documents except as expressly set forth herein or therein. Without limiting the generality of the foregoing, no Agent shall, except as expressly set forth herein and in the other Credit Documents, have any duty to disclose, or be liable for the failure to disclose, any information relating to the Borrower or any of its Affiliates that is communicated to or obtained by the Person serving as such Agent or any of its Affiliates in any capacity.

**9.3. General Immunity**. No Responsibility for Certain Matters. No Agent shall be responsible to any Lender or Issuing Bank for (i) the execution, effectiveness, genuineness, validity, enforceability, collectability or sufficiency hereof or of any other Credit Document; (ii) the creation, perfection, maintenance, preservation, continuation or priority of any Lien or security interest created, purported to be created or required under any Credit Document; (iii) the value or the sufficiency of any Collateral; (iv) the satisfaction of any condition set forth in Section 3 or elsewhere herein, other than to confirm receipt of items expressly required to be delivered to such Agent; (v) the failure of any Credit Party, Lender, Issuing Bank or other Agent to perform its obligations hereunder or under any other Credit Document; or (vi) any representations, warranties, recitals or statements made herein or therein or in any written or oral statements or in any financial or other statements, instruments, reports or certificates or any other documents furnished or made by any Agent to the Lenders or the Issuing Banks or by or on behalf of any Credit Party to any Agent, any Lender or any Issuing Bank in connection with the Credit Documents and the transactions contemplated thereby or for the financial condition or affairs of any Credit Party or any other Person liable for the payment of any Obligations, nor shall any Agent be required to ascertain or inquire as to the performance or observance of any of the terms, conditions, provisions, covenants or agreements contained in any of the Credit Documents or as to the use of the proceeds of the Loans or as to the existence or possible existence of any Default or Event of Default (nor shall any Agent be deemed to have knowledge of the existence or possible existence of any Default or Event of Default unless and until written notice thereof (stating that it is a "notice of default") is given to such Agent by the Borrower or any Lender) or to make any disclosures with respect to the foregoing. Notwithstanding anything herein to the contrary, the Administrative Agent shall not have any liability arising from, or be responsible for any loss, cost or expense suffered by the Borrower, any Subsidiary, any Lender, any Issuing Bank or any other Secured Party as a result of, confirmations of the amount of outstanding Loans, the Letter of Credit Usage or the component amounts thereof, the calculation of the Effective Yield with respect to any Indebtedness, any exchange rate determination or currency conversion, the terms and conditions of any Permitted Intercreditor Agreement, any amendment, supplement or other modification thereof, or the calculation of the outstanding amount of Specified Hedge Obligations or Specified Cash Management Services Obligations.

(a) Exculpatory Provisions. None of any Agent or any of its Related Parties shall be liable to the Lenders or the Issuing Banks for any action taken or omitted by such Agent under or in connection with any of the Credit Documents except to the extent caused by such Agent's gross negligence or willful misconduct, as determined by a final, non-appealable judgment of a court of competent jurisdiction. Each Agent shall be entitled to refrain from the taking of any action (including the failure to take an action) in connection herewith or with any of the other Credit Documents or from the exercise of any power, discretion or authority (including the making of any requests, determinations, judgments, calculations or the expression of any satisfaction or approval) vested in it hereunder or thereunder unless and until such Agent shall have received instructions in respect thereof from the Requisite Lenders (or such other Lenders as may be required, or as such Agent shall believe in good faith to be required, to give such instructions under Section 10.5) and upon receipt of such instructions from the Requisite Lenders (or such other Lenders, as the case may be), such Agent shall be entitled to act or (where so instructed) refrain from acting, or to exercise such power,

discretion or authority, in accordance with such instructions; provided that such Agent shall not be required to take any action that, in its opinion, could expose such Agent to liability or be contrary to any Credit Document or applicable law, including any action that may be in violation of the automatic stay under any Debtor Relief Law or that may effect a forfeiture, modification or termination of property of a Defaulting Lender in violation of any Debtor Relief Law. Without prejudice to the generality of the foregoing, (i) each Agent shall be entitled to rely, and shall be fully protected in relying, upon any notice, request, certificate, consent, statement, instrument, document or other writing (including any telephonic notice, electronic message, Internet or intranet website posting or other distribution) believed by it to be genuine and to have been signed, sent or otherwise provided by the proper Person (whether or not such Person in fact meets the requirements set forth in the Credit Documents for being the signatory, sender or provider thereof) and on opinions and judgments of attorneys (who may be attorneys for the Borrower and its Subsidiaries), accountants, insurance consultants and other experts or professional advisors selected by it, and such Agent shall not be liable for any action it takes or omits to take in good faith in reliance on any of the foregoing documents; and (ii) no Lender or Issuing Bank shall have any right of action whatsoever against any Agent as a result of such Agent acting or (where so instructed) refraining from acting hereunder or any of the other Credit Documents in accordance with the instructions of the Requisite Lenders (or such other Lenders as may be required, or as such Agent shall believe in good faith to be required, to give such instructions under Section 10.5). In determining compliance with any condition hereunder to the making of any Credit Extension that by its terms must be fulfilled to the satisfaction of a Lender or an Issuing Bank, the Administrative Agent may presume the satisfaction of such Lender or Issuing Bank unless the Administrative Agent shall have received notice to the contrary from such Lender or Issuing Bank reasonably in advance of such Credit Extension.

(b) Delegation of Duties. Each Agent may perform any and all of its duties and exercise any and all of its powers, rights and remedies under this Agreement or any other Credit Document by or through any one or more sub-agents appointed by such Agent. Each Agent and any such of its sub-agents may perform any and all of its duties and exercise any and all of its powers, rights and remedies by or through their respective Affiliates. The exculpatory, indemnification and other provisions set forth in this Section 9.3 and in Sections 9.6 and 10.3 shall apply to any such sub-agent or Affiliate (and to their respective Related Parties) as if they were named as such Agent. No Agent shall be responsible for the negligence or misconduct of any sub-agent appointed by it except to the extent that a court of competent jurisdiction determines in a final, non-appealable judgment that such Agent acted with gross negligence or willful misconduct in the selection of such sub-agent. Notwithstanding anything herein to the contrary, with respect to each sub-agent appointed by any Agent, (i) such sub-agent shall be a third party beneficiary under the exculpatory, indemnification and other provisions set forth in this Section 9.3 and Sections 9.6 and 10.3 and shall have all of the rights and benefits of a third party beneficiary, including an independent right of action to enforce such provisions directly, without the consent or joinder of any other Person, against any or all of the Credit Parties and the Lenders and (ii) such sub-agent shall only have obligations to such Agent, and not to any Credit Party, any Lender or any other Person, and no Credit Party, Lender or any other Person shall have any rights, directly or indirectly, as a third party beneficiary or otherwise, against such sub-agent.

(c) Concerning Arrangers and Certain Other Indemnitees. Notwithstanding anything herein to the contrary, none of the Arrangers or any of the co-agents, bookrunners or managers listed on the cover page hereof shall have any duties or responsibilities under this Agreement or any of the other Credit Documents, except in its capacity, as applicable, as the Administrative Agent, the Collateral Agent, a Lender or an Issuing Bank hereunder or, in the case of any Auction Manager or any other Person appointed under the Credit Documents to serve as an agent or in a similar capacity, the duties and responsibilities that are expressly specified in the applicable Credit Documents with respect thereto, but all such Persons shall have the benefit of the exculpatory, indemnification and other provisions set forth in this Section 9 and in Section 10.3 and shall have all of the rights and benefits of a third party beneficiary with respect thereto, including an independent right of action to enforce such provisions directly, without the consent or joinder of any other Person, against any or all of the Credit Parties and the Lenders. The exculpatory, indemnification and other provisions set forth in this Section 9 and in Section 10.3 shall apply to any Affiliate or other Related Party of any Arranger or any Agent in connection with the arrangement and syndication of the credit facilities provided for herein (including pursuant to Section 2.23, 2.24 and 2.25) and any amendment, supplement or modification hereof or of any other Credit Document (including in connection with any Extension/Modification Offer), as well as activities as an Agent.

**9.4. Acts in Individual Capacity**. Nothing herein or in any other Credit Document shall in any way impair or affect any of the rights and powers of, or impose any duties or obligations upon, any Agent in its individual capacity as a Lender or an Issuing Bank hereunder. With respect to its Loans, Letters of Credit and participations in the Letters of Credit, each Agent shall have the same rights and powers hereunder as any other Lender or Issuing Bank and may exercise the same as if it were not performing the duties and functions delegated to it hereunder. Each Agent and its Affiliates may accept deposits from, lend money to, own securities of, act as the financial advisor or in any other advisory capacity for and generally engage in any kind of banking, trust, financial advisory, commodity, derivative or other business with the Borrower or any of its Affiliates as if it were not performing the duties and functions specified herein, and may accept fees and other consideration from the Borrower and its Affiliates for services in connection herewith and otherwise, in each case without having to account therefor to the Lenders or the Issuing Banks. Each Agent and its Affiliates, when acting under any agreement in respect of any such activity or under any related agreements, will be acting for its own account as principal and will be under no obligation or duty as a result of such Agent's role in connection with the credit facility provided herein or otherwise to take any action or refrain from taking any action (including refraining from exercising any right or remedy that might be available to it).

**9.5. Lenders' and Issuing Banks' Representations, Warranties and Acknowledgments**. Each Lender and Issuing Bank represents and warrants that it has made, and will continue to make, its own independent investigation of the financial condition and affairs of the Borrower and its Subsidiaries in connection with Credit Extensions or taking or not taking action under or based upon any Credit Document, in each case without reliance on any Agent, any Arranger or any of their respective Related Parties. No Agent shall have any duty or responsibility, either initially or on a continuing basis, to make any such investigation or any such appraisal on behalf of Lenders or Issuing Banks or to provide any Lender or Issuing Bank with any credit or other information with respect thereto, whether coming into its possession before the making of the Credit Extensions or at any time or times thereafter.

(a) Each Lender, by delivering its signature page to this Agreement, an Assignment Agreement, a Refinancing Facility Agreement, an Incremental Facility Agreement or an Extension/Modification Agreement and funding its Tranche B Term Loans on the Closing Date and/or providing its Revolving Commitment on the Closing Date or by funding any Refinancing Term Loan or any Incremental Term Loan or providing any Incremental Revolving Commitment, any Extended/Modified Commitment or any Extended/Modified Loan, as the case may be, shall be deemed to have acknowledged receipt of, and consented to and approved, each Credit Document and each other document required to be approved by any Agent, the Requisite Lenders or any other Lenders, as applicable, on the Closing Date or as of the date of funding of such Refinancing Term Loans or such Incremental Term Loans or the date of the effectiveness of such Incremental Revolving Commitment, Extended/Modified Commitment or Extended/Modified Loan.

(b) Each Lender and Issuing Bank acknowledges and agrees that ~~Goldman Sachs~~**Morgan Stanley** or one or more of its Affiliates may (but is not obligated to) act as administrative agent, collateral agent or a similar representative for the holders of any Permitted Credit Agreement Refinancing Indebtedness and any Permitted Incremental Equivalent Indebtedness and, in such capacities, may be a party to any Permitted Intercreditor Agreement. Each Lender, Issuing Bank and Credit Party waives any conflict of interest, now contemplated or arising hereafter, in connection therewith and agrees not to assert against ~~Goldman Sachs~~**Morgan Stanley** or any of its Affiliates any claims, causes of action, damages or liabilities of whatever kind or nature relating to any such conflict of interest.

**9.6. Right to Indemnity**. Each Lender, in proportion to its applicable Pro Rata Share (determined as set forth below), severally agrees to indemnify each Agent and each Related Party thereof, to the extent that such Agent or such Related Party shall not have been reimbursed by any Credit Party (and without limiting any Credit Party's obligations under the Credit Documents to do so), for and against any and all liabilities, obligations, losses, damages, penalties, claims, actions, judgments, suits, costs, expenses (including fees, expenses and other charges of counsel) or disbursements of any kind or nature whatsoever that may be imposed on, incurred by or asserted against such Agent or any such Related Party in exercising the powers, rights and remedies, or performing the duties and functions, of such Agent under the Credit Documents or any other documents contemplated by or referred to therein or otherwise in relation to its capacity as an Agent; provided that no Lender shall be liable for any portion of such liabilities, obligations, losses, damages, penalties, claims, actions, judgments, suits, costs, expenses or disbursements resulting from such Agent's gross negligence or willful misconduct, as determined by a final, non-appealable judgment of a court of competent jurisdiction. If any indemnity furnished to any Agent for any purpose shall, in the opinion of such Agent, be insufficient or become impaired, such Agent may call for additional indemnity and cease, or not commence, to do the acts indemnified against until such additional indemnity is furnished; provided that in no event shall this sentence require any Lender to indemnify such Agent against any liability, obligation, loss, damage, penalty, claim, action, judgment, suit, cost, expense or disbursement in excess of such Lender's applicable Pro Rata Share thereof; and provided further that this sentence shall not be deemed to require any Lender to indemnify such Agent against any liability, obligation, loss, damage, penalty, claim, action, judgment, suit, cost, expense or disbursement described in the proviso in the immediately preceding sentence. For purposes of this Section 9.6, "Pro Rata Share" shall be determined as of the time that the applicable indemnity payment is sought (or, in the event at such time all the Commitments shall have terminated and all the Loans shall have been repaid in full, as of the time most recently prior thereto when any Loans or Commitments remained outstanding).

**9.7. Successor Administrative Agent and Collateral Agent**. Subject to the terms of this Section 9.7, the Administrative Agent may resign at any time upon 30 days, advance written notice to the Borrower and the Lenders from its capacity as such. Any resignation of the Administrative Agent shall be deemed to be a resignation of the Collateral Agent, and any successor Administrative Agent appointed pursuant to this Section 9.7 shall, upon its acceptance of such appointment, become the successor Collateral Agent for all purposes of the Credit Documents. Upon receipt of any such notice of resignation, the Requisite Lenders shall have the right, in consultation with the Borrower, to appoint a successor. If no successor shall have been so appointed by the Requisite Lenders and shall have accepted such appointment within 30 days after the retiring Administrative Agent gives notice of its intent to resign, then the retiring Administrative Agent may, on behalf of the Lenders, appoint a successor. Upon the acceptance of its appointment as Administrative Agent and Collateral Agent hereunder by a successor, such successor shall succeed to and become vested with all the rights, powers, privileges and duties of the retiring Administrative Agent and Collateral Agent, and the retiring Administrative Agent and Collateral Agent shall be discharged from its duties and obligations hereunder and under the other Credit Documents. The fees payable by the Borrower to a successor Administrative Agent and Collateral Agent shall be the same as those payable to its predecessor unless otherwise agreed by the Borrower and such successor. Notwithstanding the

foregoing, in the event no successor shall have been so appointed and shall have accepted such appointment within 30 days after the retiring Administrative Agent gives notice of its intent to resign, the retiring Administrative Agent may give notice of the effectiveness of its resignation to the Lenders and the Borrower, whereupon, on the date of effectiveness of such resignation stated in such notice, (a) the retiring Administrative Agent and Collateral Agent shall be discharged from its duties and obligations hereunder and under the other Credit Documents, provided that, solely for purposes of maintaining any security interest granted to the Collateral Agent under any Collateral Document for the benefit of the Secured Parties, the retiring Collateral Agent shall continue to be vested with such security interest as collateral agent for the benefit of the Secured Parties and, in the case of any Collateral in the possession of the Collateral Agent, shall continue to hold such Collateral, in each case until such time as a successor Collateral Agent is appointed and accepts such appointment in accordance with this paragraph (it being understood and agreed that the retiring Collateral Agent shall have no duty or obligation to take any further action under any Collateral Document, including any action required to maintain the perfection of any such security interest), and (b) the Requisite Lenders shall succeed to and become vested with all the rights, powers, privileges and duties of the retiring Administrative Agent and Collateral Agent, provided that (i) all payments required to be made hereunder or under any other Credit Document to the Administrative Agent for the account of any Person other than the Administrative Agent shall be made directly to such Person and (ii) all notices and other communications required or contemplated to be given or made to the Administrative Agent or the Collateral Agent shall also directly be given or made to each Lender. Following the effectiveness of the Administrative Agent's and Collateral Agent's resignation from its capacity as such, the provisions of **Sections 2.18, 2.19, 10.3 and 10.23 and** this Section 9 ~~and of Section 10.3~~**, any other reimbursement, indemnity or exculpatory provision set forth in any Credit Document for the benefit of any Agent, any sub-agent thereof or their respective Related Parties and any other provision set forth in any Credit Document that by its terms expressly survives the termination of such Credit Document for the benefit of any Agent, any sub-agent thereof or their respective Related Parties** shall**, in each case,** continue in effect for the benefit of such retiring Agent, its sub-agents and their respective Related Parties in respect of any actions taken or omitted to be taken by any of them while it was acting as Administrative Agent or Collateral Agent, as applicable, and in respect of **all liabilities, losses, damages, costs or expenses arising from or relating to the Credit Documents (whether now existing or hereinafter arising), all other Indemnified Liabilities and** the matters referred to in the proviso under clause (a) above. If the Person serving as the resigning Administrative Agent shall also be an Issuing Bank, then, unless otherwise agreed to by such Person, upon the effectiveness of the resignation thereof in its capacity as the Administrative Agent, (A) such Person shall no longer be obligated to issue, amend, renew or extend any Letter of Credit, but shall continue to have all the rights of an Issuing Bank under this Agreement with respect to Letters of Credit issued by it prior to the effectiveness of such resignation, (B) the Borrower shall pay all unpaid fees accrued for the account of such Person in its capacity as an Issuing Bank pursuant to Section 2.10(b) and (C) the Borrower may appoint a replacement Issuing Bank (which appointment shall be made in accordance with the procedures set forth in Section 2.3(i), mutatis mutandis).

**9.8. Collateral Documents and Obligations Guarantee**. Agents under Collateral Documents and the Obligations Guarantee. Each Secured Party hereby further authorizes the Administrative Agent and the Collateral Agent to be the agent for and representative of the Secured Parties with respect to the Obligations Guarantee, the Collateral and the Credit Documents and authorizes the Administrative Agent and the Collateral Agent to execute and deliver, on behalf of such Secured Party, any Collateral Documents that the Administrative Agent or the Collateral Agent determines in its discretion to execute and deliver in connection with the satisfaction of the Collateral and Guarantee Requirement (and hereby grants to the Administrative Agent and the Collateral Agent any power of attorney that may be required under any applicable law in connection with such execution and delivery on behalf of such Secured Party).

(a) Right to Realize on Collateral and Enforce Obligations Guarantee. Notwithstanding anything contained in any of the Credit Documents to the contrary, the Credit Parties, the Administrative Agent, the Collateral Agent and each Secured Party hereby agree that (i) except with respect to the exercise of set-off rights of any Lender or Issuing Bank or with respect to a Secured Party's right to file a proof of claim in any proceeding under the Debtor Relief Laws, no Secured Party shall have any right individually to realize upon any of the Collateral or to enforce any Obligations Guarantee, it being understood and agreed that all powers, rights and remedies under the Credit Documents may be exercised solely by the Administrative Agent or the Collateral Agent, as applicable, for the benefit of the Secured Parties in accordance with the terms thereof and that all powers, rights and remedies under the Collateral Documents may be exercised solely by the Collateral Agent for the benefit of the Secured Parties in accordance with the terms thereof and (ii) in the event of a foreclosure, exercise of a power of sale or similar enforcement action by the Collateral Agent on any of the Collateral pursuant to a public or private sale or other disposition (including pursuant to Section 363(k), Section 1129(b)(2)(a)(ii) or any other applicable section of the Bankruptcy Code, any analogous Debtor Relief Law or any law relating to the granting or perfection of security interests), the Collateral Agent (or any Lender, except with respect to a "credit bid" pursuant to Section 363(k), Section 1129(b)(2)(a)(ii) or any other applicable section of the Bankruptcy Code, any analogous Debtor Relief Law or any law relating to the granting or perfection of security interests) may be the purchaser or licensor of any or all of such Collateral at any such sale or other disposition and the Collateral Agent, as agent for and representative of the Secured Parties (but not any Lender or Lenders in its or their respective individual capacities) shall be entitled, upon instructions from the Requisite Lenders, for the purpose of bidding and making settlement or payment of the purchase price for all or any portion of the Collateral sold or licensed at any such sale or other disposition, to use and apply any of the Obligations as a credit on account of the purchase price for any Collateral payable by the Collateral Agent at such sale or other disposition.

(b) Specified Hedge Obligations. No obligations under any Specified Hedge Agreement or under any Specified Cash Management Services Provider Agreement will create (or be deemed to create) in favor of any Secured Party that is a party thereto any rights in connection with the management or release of any Collateral or of the obligations of any Guarantor under the Credit Documents except as expressly provided in Section 10.5(c)(ii) of this Agreement. Notwithstanding anything to the contrary herein, neither the Administrative Agent nor the Collateral Agent shall owe any fiduciary duty, duty of loyalty, duty of care, duty of disclosure or any other obligation whatsoever to any holder of any Specified Hedge Obligations or Specified Cash Management Services Obligations.

(c) Release of Collateral and Obligations Guarantees. Notwithstanding anything to the contrary herein or in any other Credit Document:

(i) When all Obligations (excluding contingent obligations as to which no claim has been made and the Specified Hedge Obligations and Specified Cash Management Services Obligations) have been paid in full, all Commitments have terminated and no Letter of Credit shall be outstanding, upon request of the Borrower, the Administrative Agent and the Collateral Agent shall (without notice to, or vote or consent of, any Secured Party) take such actions as shall be required to release its security interest in all Collateral, and to release all Obligations Guarantees provided for in any Credit Document, whether or not on the date of such release there may be outstanding Specified Hedge Obligations or Specified Cash Management Services Obligations.

(ii) If (A) any Guarantor Subsidiary shall have been designated as an Unrestricted Subsidiary in accordance with the terms hereof, (B) all the Equity Interests in any Guarantor Subsidiary held by the Borrower and its Subsidiaries shall be sold or otherwise disposed of (including by merger or consolidation) in any transaction permitted hereunder or (C) any Guarantor Subsidiary shall cease to be a wholly-owned Subsidiary of the Borrower as a result of the consummation of a joint venture entered into for a valid business purpose and permitted hereunder, then such Guarantor Subsidiary shall, upon effectiveness of such designation, or the consummation of such transaction, automatically be discharged and released from its Obligations Guarantee and all security interests created by the Collateral Documents in Collateral owned by such Guarantor Subsidiary shall be automatically released, without any further action by any Secured Party or any other Person; provided that no such discharge or release shall occur unless (x) substantially concurrently therewith, such Subsidiary shall have been discharged and released from its Guarantee of all Permitted Credit Agreement Refinancing Indebtedness and all Permitted Incremental Equivalent Indebtedness, and all Liens on the assets of such Subsidiary securing any such Indebtedness shall have been released, and (y) no Event of Default under Section 8.1(a), 8.1(f) or 8.1(g) shall have occurred and be continuing. Upon any sale or other transfer by any Credit Party (other than to any Credit Party or any other Designated Subsidiary) of any Collateral in a transaction permitted under this Agreement, or upon the effectiveness of any written consent to the release of the security interest created under any Collateral Document in any Collateral pursuant to Section 10.5, the security interests in such Collateral created by the Collateral Documents shall be automatically released, without any further action by any Secured Party or any other Person; provided that no such release shall occur unless substantially concurrently therewith, such Collateral shall cease to be subject to any security interests securing any Permitted Credit Agreement Refinancing Indebtedness or any Permitted Incremental Equivalent Indebtedness.

(iii) Each Secured Party hereby authorizes the Collateral Agent to subordinate, at the request of the Borrower, any Lien on any property granted to or held by the Collateral Agent under any Credit Document to the holder of any Lien on such property that is permitted by Section 6.2(d), 6.2(k) or 6.2(q).

(iv) In connection with any termination, release or subordination pursuant to this Section 9.8(d), the Administrative Agent and the Collateral Agent shall execute and deliver to any Credit Party, at such Credit Party's expense, all documents that such Credit Party shall reasonably request to evidence such termination, release or subordination. Any execution and delivery of documents pursuant to this Section 9.8(d) shall be without recourse to or warranty by the Administrative Agent or the Collateral Agent.

(d) Additional Exculpatory Provisions. The Collateral Agent shall not be responsible for or have a duty to ascertain or inquire into any representation or warranty regarding the existence, value or collectability of any Collateral, the existence, priority or perfection of the Collateral Agent's Lien on any Collateral or any certificate prepared by any Credit Party in connection therewith, nor shall the Collateral Agent be responsible or liable to the Secured Parties for any failure to monitor or maintain any portion of the Collateral.

(e) Acceptance of Benefits. Each Secured Party, whether or not a party hereto, will be deemed, by its acceptance of the benefits of the Collateral or the Obligations Guarantees, to have agreed to the provisions of this Section 9 (including the authorization and the grant of the power of attorney pursuant to Section 9.8(a)), Section 10.24 and all the other provisions of this Agreement relating to Collateral, any Obligations Guarantee or any Collateral Document and to have agreed to be bound by the Credit Documents as a Secured Party thereunder. It is understood and agreed that the benefits of the Collateral and the Obligations Guarantee to any Secured Party are made available on an express condition that, and is subject to, such Secured Party not asserting

that it is not bound by the appointments and other agreements expressed herein to be made, or deemed herein to be made, by such Secured Party.

**9.9. Withholding Taxes**. To the extent required by any applicable law, the Administrative Agent may withhold from any payment to any Lender or Issuing Bank an amount equivalent to any applicable withholding Tax. If the IRS or any other Governmental Authority asserts a claim that the Administrative Agent did not properly withhold Tax from amounts paid to or for the account of any Lender or Issuing Bank because the appropriate form was not delivered or was not properly executed or because such Lender or Issuing Bank failed to notify the Administrative Agent of a change in circumstance which rendered the exemption from, or reduction of, withholding Tax ineffective or for any other reason, or if the Administrative Agent reasonably determines that a payment was made to a Lender or Issuing Bank pursuant to this Agreement without deduction of applicable withholding Tax from such payment, such Lender or Issuing Bank shall indemnify the Administrative Agent fully for all amounts paid, directly or indirectly, by the Administrative Agent as Tax or otherwise, including any penalties or interest and together with all expenses (including legal expenses, allocated internal costs and out-of-pocket expenses) incurred.

**9.10. Administrative Agent May File Bankruptcy Disclosure and Proofs of Claim**. In case of the pendency of any proceeding under any Debtor Relief Law with respect to any Credit Party, the Administrative Agent (irrespective of whether the principal of any Loan or any Obligation under a Letter of Credit shall then be due and payable as herein expressed or by declaration or otherwise and irrespective of whether the Administrative Agent shall have made any demand on the Borrower) shall be entitled and empowered (but not obligated) by intervention in such proceeding or otherwise:

(a) to file a verified statement pursuant to rule 2019 of the Federal Rules of Bankruptcy Procedure that, in its sole opinion, complies with such rule's disclosure requirements for entities representing more than one creditor;

(b) to file and prove a claim for the whole amount of the principal and interest owing and unpaid in respect of the Loans and all other Obligations that are owing and unpaid and to file such other documents as may be necessary or advisable in order to have the claims of the Lenders, the Issuing Banks, the Administrative Agent, the Collateral Agent and any other Secured Party (including any claim under Sections 2.7, 2.9, 2.15, 2.17, 2.18, 2.19, 10.2 and 10.3) allowed in such judicial proceeding; and

(c) to collect and receive any monies or other property payable or deliverable on any such claims and to distribute the same;

and any custodian, receiver, assignee, trustee, liquidator, sequestrator or other similar official in any such proceeding is hereby authorized by each Lender, each Issuing Bank, and each other Secured Party to make such payments to the Administrative Agent and, in the event that the Administrative Agent shall consent to the making of such payments directly to the Lenders, the Issuing Banks or the other Secured Parties, to pay to the Administrative Agent any amount due to the Administrative Agent, in such capacity or in its capacity as the Collateral Agent, or to its Related Parties under the Credit Documents (including under Sections 10.2 and 10.3). To the extent that the payment of any such amounts due to the Administrative Agent, in such capacity or in its capacity as the Collateral Agent, or to its Related Parties out of the estate in any such proceeding shall be denied for any reason, payment of the same shall be secured by a Lien on, and shall be paid out of, any and all distributions, dividends, money, securities and other property that the Lenders, the Issuing Banks or the other Secured Parties may be entitled to receive in such proceeding, whether in liquidation or under any plan of reorganization or arrangement or otherwise. Nothing contained herein shall be deemed to authorize the Administrative Agent to authorize or consent to or accept or adopt on behalf of any Lender or Issuing Bank any plan of reorganization, arrangement, adjustment or composition affecting the Obligations or the rights of any Lender or Issuing Bank, or to vote in respect of the claim of any Lender or Issuing Bank in any such proceeding.

**9.11. Certain ERISA Matters**. Each Lender (x) represents and warrants, as of the date such Person became a Lender party hereto, to, and (y) covenants, from the date such Person became a Lender party hereto to the date such Person ceases being a Lender party hereto, for the benefit of the Administrative Agent and the Arrangers and their respective Affiliates, and not, for the avoidance of doubt, to or for the benefit of the Borrower or any other Credit Party, that at least one of the following is and will be true:

(i) such Lender is not using "plan assets" (within the meaning of Section 3(42) of ERISA or otherwise) of one or more Benefit Plans with respect to such Lender's entrance into, participation in, administration of and performance of the Loans, the Letters of Credit, the Commitments or this Agreement;

(ii) the transaction exemption set forth in one or more PTEs, such as PTE 84-14 (a class exemption for certain transactions determined by independent qualified professional asset managers), PTE 95-60 (a class exemption for certain transactions involving insurance company general accounts), PTE 90-1 (a class exemption for certain transactions involving insurance company pooled separate accounts), PTE 91-38 (a class exemption for certain transactions involving bank collective investment funds) or PTE 96-23 (a class exemption for certain transactions determined by in-house asset managers), is applicable with respect to such Lender's entrance into, participation in, administration of and performance of the Loans, the Letters of Credit, the Commitments and this Agreement;

(iii) (A) such Lender is an investment fund managed by a "Qualified Professional Asset Manager" (within the meaning of Part VI of PTE 84-14), (B) such Qualified Professional Asset Manager made the investment decision on behalf of such Lender to enter into, participate in, administer and perform the Loans, the Letters of Credit, the Commitments and this Agreement, (C) the entrance into, participation in, administration of and performance of the Loans, the Letters of Credit, the Commitments and this Agreement satisfies the requirements of sub-sections (b) through (g) of Part I of PTE 84-14 and (D) to the best knowledge of such Lender, the requirements of subsection (a) of Part I of PTE 84-14 are satisfied with respect to such Lender's entrance into, participation in, administration of and performance of the Loans, the Letters of Credit, the Commitments and this Agreement; or

(iv) such other representation, warranty and covenant as may be agreed in writing between the Administrative Agent, in its sole discretion, and such Lender.

(b) In addition, unless either (1) sub-clause (i) in the immediately preceding clause (a) is true with respect to a Lender or (2) a Lender has provided another representation, warranty and covenant in accordance with sub-clause (iv) in the immediately preceding clause (a), such Lender further (x) represents and warrants, as of the date such Person became a Lender party hereto, to, and (y) covenants, from the date such Person became a Lender party hereto to the date such Person ceases being a Lender party hereto, for the benefit of, the Administrative Agent and not, for the avoidance of doubt, to or for the benefit of the Borrower or any other Credit Party, that the Administrative Agent is not a fiduciary with respect to the assets of such Lender involved in such Lender's entrance into, participation in, administration of and performance of the Loans, the Letters of Credit, the Commitments and this Agreement (including in connection with the reservation or exercise of any rights by the Administrative Agent under this Agreement, the Loan or any documents related hereto or thereto).

## SECTION 10. MISCELLANEOUS

**10.1. Notices**. Notices Generally. Any notice or other communication hereunder given to any Credit Party, the Administrative Agent, the Collateral Agent, any Lender or any Issuing Bank shall be given to such Person at its address, fax number **(other than in the case of notices and other communications to the Administrative Agent or the Collateral Agent)** or e-mail address as set forth on Schedule 10.1 or, in the case of any Lender or Issuing Bank, at such address, fax number or e-mail address as shall have been provided by such Lender or Issuing Bank to the Administrative Agent in writing. Except in the case of notices and other communications expressly permitted to be given by telephone and as otherwise provided in Section 10.1(b), each notice or other communication hereunder shall be in writing and shall be delivered in person or sent by facsimile **(other than in the case of notices and other communications to the Administrative Agent or the Collateral Agent)**, e-mail, courier service or certified or registered United States mail and shall be deemed to have been given when delivered in person or by courier service and signed for against receipt thereof, when sent by facsimile as shown on the transmission report therefor (or, if not sent during normal business hours for the recipient, at the opening of business on the next Business Day for the recipient), as provided in Section 10.1(b) if sent by e-mail or upon receipt if sent by United States mail; provided that no notice or other communication given to the Administrative Agent or the Collateral Agent shall be effective until received by it; and provided further that any such notice or other communication shall, at the request of the Administrative Agent, be provided to any sub-agent appointed pursuant to Section 9.3(c) from time to time. Any party hereto may change its address (including its e-mail address or fax or telephone number) for notices and other communications hereunder by notice to each of the Administrative Agent and the Borrower.

(a) Electronic Communications.

(i) Notices and other communications to any Lender and any Issuing Bank hereunder may be delivered or furnished by electronic communication (including e-mail and Internet or intranet websites, including the Platform) pursuant to procedures approved by the Administrative Agent; provided that the foregoing shall not apply to notices to any Lender or any Issuing Bank pursuant to Section 2 if such Lender or such Issuing Bank has notified the Administrative Agent that it is incapable of receiving notices under such Section by electronic communication. Each of the Administrative Agent, the Collateral Agent and the Borrower may, in its discretion, agree to accept notices and other communications to it hereunder by electronic communications pursuant to procedures approved by it; provided that approval of such procedures may be limited to particular notices or communications or rescinded by such Person by notice to each other such Person. Unless the Administrative Agent otherwise prescribes, (A) notices and other communications sent to an e-mail address shall be deemed received upon the sender's receipt of an acknowledgment from the intended recipient (such as by the "return receipt requested" function, as available, return e-mail or other written acknowledgment); provided that if such notice or other communication is not sent during the normal business hours of the recipient, such notice or communication shall be deemed to have been sent at the opening of business on the next Business Day for the recipient; and (B) notices or communications posted to an Internet or intranet website shall be deemed received upon the deemed receipt by the intended recipient at its e-mail address as described in the foregoing clause (A) of notification that such notice or communication is available and identifying the website address therefor.

(ii) Each Credit Party understands that the distribution of materials through an electronic medium is not necessarily secure and that there are confidentiality and other risks associated with such distribution, and agrees and

assumes the risks associated with such electronic distribution, except to the extent caused by the willful misconduct or gross negligence of the Administrative Agent, as determined by a final, non-appealable judgment of a court of competent jurisdiction.

(iii) THE PLATFORM AND ANY APPROVED ELECTRONIC COMMUNICATIONS ARE PROVIDED "AS IS" AND "AS AVAILABLE". NONE OF THE AGENTS OR ANY OF THEIR RELATED PARTIES WARRANTS AS TO THE ACCURACY, ADEQUACY OR COMPLETENESS OF THE APPROVED ELECTRONIC COMMUNICATIONS OR THE PLATFORM, AND EACH OF THE AGENTS AND THEIR RELATED PARTIES EXPRESSLY DISCLAIMS LIABILITY FOR ERRORS OR OMISSIONS IN THE PLATFORM AND THE APPROVED ELECTRONIC COMMUNICATIONS. NO WARRANTY OF ANY KIND, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT OF THIRD PARTY RIGHTS OR FREEDOM FROM VIRUSES OR OTHER CODE DEFECTS, IS MADE BY ANY AGENT OR ANY OF ITS RELATED PARTIES IN CONNECTION WITH THE PLATFORM OR THE APPROVED ELECTRONIC COMMUNICATIONS.

(iv) Each Credit Party, each Lender and each Issuing Bank agrees that the Administrative Agent may, but shall not be obligated to, store any Approved Electronic Communications on the Platform in accordance with the Administrative Agent's customary document retention procedures and policies.

(v) Any notice of Default or Event of Default may be provided by telephone if confirmed promptly thereafter by delivery of written notice thereof.

(b) Private Side Information Contacts. Each Public Lender agrees to cause at least one individual at or acting on behalf of such Public Lender to at all times have selected the "Private Side Information" or similar designation on the content declaration screen of the Platform in order to enable such Public Lender or its delegate, in accordance with such Public Lender's compliance procedures and applicable law, including United States federal and state securities laws, to make reference to information that is not made available through the "Public Side Information" portion of the Platform and that may contain Private-Side Information. In the event that any Public Lender has determined for itself not to access any information disclosed through the Platform or otherwise, such Public Lender acknowledges that (i) other Lenders may have availed themselves of such information and (ii) none of any Credit Party or any Agent has any responsibility for such Public Lender's decision to limit the scope of the information it has obtained in connection with this Agreement and the other Credit Documents.

**10.2. Expenses**. The Borrower agrees to pay promptly (a) all the actual costs and reasonable out-of-pocket expenses (including the reasonable fees, expenses and other charges of counsel) incurred by any Agent, any Arranger or any of their respective Affiliates in connection with the structuring, arrangement and syndication of the credit facilities provided for herein and any credit or similar facility refinancing, extending or replacing, in whole or in part, the credit facilities provided herein, including the preparation, execution, delivery and administration of this Agreement, the other Credit Documents or any amendments, modifications or waivers of the provisions hereof or thereof (whether or not the transactions contemplated thereby shall be consummated) or any other document or matter requested by the Borrower, (b) all the actual costs and reasonable out-of-pocket expenses of creating, perfecting, recording, maintaining and preserving Liens in favor of the Collateral Agent for the benefit of the Secured Parties, including filing and recording fees, expenses and taxes, stamp or documentary taxes, search fees, title insurance premiums and reasonable fees, expenses and other charges of counsel to the Collateral Agent and of counsel providing any opinions that the Administrative Agent or the Collateral Agent may reasonably request in respect of the Collateral or the Liens created pursuant to the Collateral Documents, (c) all the actual costs and reasonable fees, expenses and other charges of any auditors, accountants, consultants or appraisers, (d) all the actual costs and reasonable expenses (including the reasonable fees, expenses and other charges of any appraisers, consultants, advisors and agents employed or retained by the Collateral Agent and its counsel) in connection with the custody or preservation of any of the Collateral or any insurance process and (e) after the occurrence and during the continuance of a Default or an Event of Default, all costs and expenses, including reasonable fees, expenses and other charges of counsel and costs of settlement, incurred by any Agent, Arranger, Lender or Issuing Bank in enforcing any Obligations of or in collecting any payments due from any Credit Party hereunder or under the other Credit Documents by reason of such Default or Event of Default (including in connection with the sale, lease or license of, collection from, or other realization upon any of the Collateral or the enforcement of any Obligations Guarantee) or in connection with any refinancing or restructuring of the credit arrangements provided hereunder in the nature of a "work-out" or pursuant to any insolvency or bankruptcy cases or proceedings; provided that, in the case of clauses (a), (b), (c) and (d) above, expenses with respect to counsel shall be limited to one firm of primary counsel and one firm of local counsel in each applicable jurisdiction for all Persons entitled to reimbursement under this Section 10.2 (and, if any such Person shall have advised the Borrower that there is an actual or perceived conflict of interest, one additional firm of primary counsel and one additional firm of local counsel in each applicable jurisdiction for each group of affected Persons that are similarly situated). All amounts due under this Section 10.2 shall be payable within 30 days after written demand therefor.

**10.3. Indemnity**. In addition to the payment of expenses pursuant to Section 10.2, whether or not the transactions contemplated hereby shall be consummated, each Credit Party agrees to defend (subject to the applicable Indemnitee's selection of

counsel), indemnify, pay and hold harmless each Agent (and each sub-agent thereof), each Arranger, each Lender and each Issuing Bank and each of their respective Related Parties (each, an "**Indemnitee**"), from and against any and all Indemnified Liabilities. **THE FOREGOING INDEMNIFICATION SHALL APPLY WHETHER OR NOT SUCH INDEMNIFIED LIABILITIES ARE IN ANY WAY OR TO ANY EXTENT OWED, IN WHOLE OR IN PART, UNDER ANY CLAIM OR THEORY OF STRICT LIABILITY, OR ARE CAUSED, IN WHOLE OR IN PART, BY ANY NEGLIGENT ACT OR OMISSION OF ANY KIND BY ANY INDEMNITEE**; provided that no Credit Party shall have any obligation to any Indemnitee hereunder with respect to any Indemnified Liabilities to the extent such Indemnified Liabilities (i) have been found by a final, non-appealable judgment of a court of competent jurisdiction to have resulted from (A) the gross negligence, bad faith or willful misconduct of such Indemnitee or its Related Parties or (B) a material breach of the express obligations of such Indemnitee or its Related Parties under the Credit Documents (provided, that with respect to Indemnified Liabilities arising out of claims, demands, suits, actions, investigations or proceedings commenced or threatened by a Credit Party that are relating to any Letter of Credit, this clause (B) shall only apply to a material breach of the express obligations of such Indemnitee or its Related Parties under the provisions of Section 2.3 with respect to such Letter of Credit) or (ii) arise out of or in connection with any action, claim or proceeding not involving any Credit Party or the equityholders or Affiliates of any Credit Party (or the Related Parties of any Credit Party) that is brought by an Indemnitee against another Indemnitee (other than against any Agent or any Arranger (or any holder of any other title or role) in its capacity as such). To the extent that the undertakings to defend, indemnify, pay and hold harmless set forth in this Section 10.3 may be unenforceable in whole or in part because they are violative of any law or public policy, the applicable Credit Party shall contribute the maximum portion that it is permitted to pay and satisfy under applicable law to the payment and satisfaction of all Indemnified Liabilities incurred by the Indemnitees or any of them.

(a) To the extent permitted by applicable law, (i) no Credit Party shall assert, and each Credit Party hereby waives, any claim against any Agent, any Arranger, any Lender or any Issuing Bank or any Related Party of any of the foregoing and (ii) no Indemnitee shall assert, and each Indemnitee hereby waives, any claim against any Credit Party or any Related Party of any Credit Party, in each case, on any theory of liability, for special, indirect, consequential or punitive damages (as opposed to direct or actual damages) (whether or not the claim therefor is based on contract, tort or any duty imposed by any applicable legal requirement) arising out of, in connection with, as a result of, or in any way related to this Agreement or any other Credit Document or any agreement or instrument contemplated hereby or thereby or referred to herein or therein, the transactions contemplated hereby or thereby, any Loan or the use of the proceeds thereof or any act or omission or event occurring in connection therewith, and each Indemnitee and each Credit Party hereby waives, releases and agrees not to sue upon any such claim for special, indirect, consequential or punitive damages, whether or not accrued and whether or not known or suspected to exist in its favor; provided that nothing in this Section 10.3(b) shall diminish obligations of the Credit Parties under Section 10.2 or 10.3(a).

(b) Each Credit Party agrees that none of the Agents, the Arrangers, the Lenders or the Issuing Banks or any Related Party of any of the foregoing will have any liability to any Credit Party or any Person asserting claims on behalf of or in right of any Credit Party or any other Person in connection with or as a result of this Agreement or any other Credit Document or any agreement or instrument contemplated hereby or thereby or referred to herein or therein, the transactions contemplated hereby or thereby, any Loan or the use of the proceeds thereof or any act or omission or event occurring in connection therewith except (but subject to Section 10.3(b)), in the case of any Credit Party, to the extent that any losses, claims, damages, liabilities or expenses have been found by a final, non-appealable judgment of a court of competent jurisdiction to have resulted from the gross negligence, bad faith or willful misconduct of such Agent, such Arranger, such Lender or such Issuing Bank in performing its express obligations under this Agreement or any other Credit Document.

**10.4. Set-Off**. In addition to any rights now or hereafter granted under applicable law and not by way of limitation of any such rights, upon the occurrence and during the continuance of any Event of Default each Lender and each Issuing Bank is hereby authorized by each Credit Party at any time or from time to time, without notice to any Credit Party, any such notice being hereby expressly waived, to set off and to appropriate and to apply any and all deposits (general or special, including Indebtedness evidenced by certificates of deposit, whether matured or unmatured, but not including trust accounts) and any other Indebtedness at any time held or owing by such Lender or such Issuing Bank to or for the credit or the account of any Credit Party against and on account of the obligations and liabilities of any Credit Party to such Lender or such Issuing Bank hereunder and under the other Credit Documents, including all claims of any nature or description arising out of or connected hereto or thereto, irrespective of whether or not (a) such Lender or such Issuing Bank shall have made any demand hereunder or (b) the principal of or the interest on the Loans or any amounts in respect of the Letters of Credit or any other amounts due hereunder shall have become due and payable and although such obligations and liabilities, or any of them, may be contingent or unmatured; provided that in the event that any Defaulting Lender shall exercise any such right of set-off, all amounts so set-off shall be paid over immediately to the Administrative Agent for further application in accordance with the provisions of Section 2.21 and, pending such payment, shall be segregated by such Defaulting Lender from its other funds and deemed held in trust for the benefit of the Administrative Agent, the Issuing Banks and the Lenders. Each Lender and Issuing Bank agrees to notify the Administrative Agent promptly after any such set-off and application; provided that the failure to give such notice shall not affect the validity of such set-off and application.

**10.5. Amendments and Waivers**. Requisite Lenders' Consent. None of this Agreement, any other Credit Document or any provision hereof or thereof may be waived, amended or modified, and no consent to any departure by any Credit

Party therefrom may be made, except, subject to the additional requirements of Sections 10.5(b) and 10.5(c) and as otherwise provided in Sections 10.5(d) and 10.5(e), in the case of this Agreement, pursuant to an agreement or agreements in writing entered into by the Borrower and the Requisite Lenders and, in the case of any other Credit Document, pursuant to an agreement or agreements in writing entered into by the Administrative Agent or the Collateral Agent, as applicable, and the Credit Party or Credit Parties that are parties thereto, in each case with the consent of the Requisite Lenders.

(a) Affected Lenders' Consent. In addition to any consent required pursuant to Section 10.5(a), without the written consent of each Lender that would be directly affected thereby, no waiver, amendment or other modification of this Agreement or any other Credit Document, or any consent to any departure by any Credit Party therefrom, shall be effective if the effect thereof would be to:

(i) increase any Commitment or postpone the scheduled expiration date of any Commitment (it being understood that no waiver, amendment or other modification of any condition precedent, covenant, Default or Event of Default shall constitute an increase in any Commitment of any Lender);

(ii) extend the scheduled final maturity date of any Loan;

(iii) extend the scheduled expiration date of any Letter of Credit (other than any Backstopped Letter of Credit) beyond the Revolving Commitment Termination Date;

(iv) waive, reduce or postpone any scheduled amortization payment (but not any voluntary or mandatory prepayment) of any Loan or any reimbursement obligation in respect of any Letter of Credit;

(v) reduce the rate of interest on any Loan (other than any waiver of any increase in the interest rate applicable to any Loan pursuant to Section 2.9 or Section 2.23(b)(v)) or any fee or any premium payable hereunder (other than under Section 2.23(b)(v)), or waive or postpone the time for payment of any such interest, fee or premium;

(vi) reduce the principal amount of any Loan or any reimbursement obligation in respect of any Letter of Credit;

(vii) waive, amend or otherwise modify any provision of this Section 10.5(b), Section 10.5(c) or any other provision of this Agreement or any other Credit Document that expressly provides that the consent of all Lenders is required to waive, amend or otherwise modify any rights thereunder or to make any determination or grant any consent thereunder (including such provision set forth in Section 10.6(a));

(viii) amend the percentage specified in the definition of the term "Requisite Lenders" or "Majority in Interest" or amend the term "Pro Rata Share"; provided that additional extensions of credit made pursuant to Sections 2.23, 2.24 and 2.25 shall be included, and with the consent of the Requisite Lenders other additional extensions of credit pursuant hereto may be included, in the determination of "Requisite Lenders" or "Pro Rata Share" on substantially the same basis as the Term Loan Commitments, the Term Loans, the Revolving Commitments and the Revolving Exposures are included on the Closing Date;

(ix) amend Section 2.16 of this Agreement or Section 5.02 of the Collateral Agreement, in each case in a manner that would alter the pro rata sharing of payments required thereby; or

(x) release all or substantially all the Collateral from the Liens of the Collateral Documents, or all or substantially all the Guarantors from the Obligations Guarantee (or limit liability of all or substantially all the Guarantors in respect of the Obligations Guarantee), in each case except as expressly provided in the Credit Documents and except in connection with a "credit bid" undertaken by the Collateral Agent at the direction of the Requisite Lenders pursuant to section 363(k), section 1129(b)(2)(a)(ii) or any other section of the Bankruptcy Code or any other sale or other disposition of assets in connection with other Debtor Relief Laws or an enforcement action with respect to the Collateral permitted pursuant to the Credit Documents (in which case only the consent of the Requisite Lenders will be required for such release) (it being understood that (A) an amendment or other modification of the type of obligations secured by the Collateral Documents or Guaranteed hereunder or thereunder shall not be deemed to be a release of the Collateral from the Liens of the Collateral Documents or a release or limitation of the Obligations Guarantee and (B) an amendment or other modification of Section 6.8 shall only require the consent of the Requisite Lenders);

provided that, for the avoidance of doubt, all Lenders shall be deemed directly affected by any waiver, amendment or other modification, or any consent, described in the preceding clauses (vii), (viii) and (x).

(b) Other Consents. No waiver, amendment or other modification of this Agreement or any other Credit Document, or any consent to any departure by any Credit Party therefrom, shall:

(i) waive, amend or otherwise modify the rights or obligations of any Agent or any Issuing Bank (including any waiver, amendment or other modification of the obligation of Lenders to purchase participations in Letters of Credit as provided in Section 2.3(e)) without the prior written consent of such Agent or such Issuing Bank, as the case may be; or

(ii) waive, amend or otherwise modify this Agreement or the Pledge and Security Agreement so as to alter the ratable treatment of Obligations arising under the Credit Documents, on the one hand, and the Specified Hedge Obligations or Specified Cash Management Services Obligations, on the other, or amend or otherwise modify the definition of the term "Obligations", "Specified Hedge Obligations", "Specified Hedge Obligations", "Specified Cash Management Services Obligations" or "Secured Parties" (or any comparable term used in any Collateral Document), in each case in a manner adverse to any Secured Party holding Specified Hedge Obligations or Specified Cash Management Services Obligations then outstanding without the written consent of such Secured Party (it being understood that an amendment or other modification of the type of obligations secured by the Collateral Documents or Guaranteed hereunder or thereunder, so long as such amendment or other modification by its express terms does not alter the Specified Hedge Obligations or Specified Cash Management Services Obligations being so secured or Guaranteed, shall not be deemed to be adverse to any Secured Party holding Specified Hedge Obligations or Specified Cash Management Services Obligations, as applicable).

(c) Class Amendments. Notwithstanding anything to the contrary in Section 10.5(a), any waiver, amendment or modification of this Agreement or any other Credit Document, or any consent to any departure by any Credit Party therefrom, that by its terms affects the rights or duties under this Agreement of the Lenders of one or more Classes (but not Lenders of any other Class), may be effected by an agreement or agreements in writing entered into by the Borrower and the requisite number or percentage in interest of each affected Class of Lenders that would be required to consent thereto under this Section 10.5 if such Class of Lenders were the only Class of Lenders hereunder at the time.

(d) Certain Permitted Amendments. Notwithstanding anything herein or in any other Credit Document to the contrary:

(i) any provision of this Agreement or any other Credit Document may be amended by an agreement in writing entered into by the Borrower and the Administrative Agent (i) to cure any obvious error or any ambiguity, omission, defect or inconsistency of a technical nature or (ii) to better implement the intentions of this Agreement, so long as (A) such amendment does not adversely affect the rights of any Lender or (B) the Lenders shall have received at least five Business Days' prior written notice thereof and the Administrative Agent shall not have received, within five Business Days of the date of such notice to the Lenders, a written notice from the Requisite Lenders stating that the Requisite Lenders object to such amendment;

(ii) in connection with any transaction permitted by Section 2.23, 2.24 or 2.25, this Agreement and the other Credit Documents may be amended or modified as contemplated by Sections 2.23, 2.24 and 2.25, including to add any covenant applicable to the Borrower and/or the Restricted Subsidiaries (including any Previously Absent Financial Maintenance Covenant) or any other provisions for the benefit of the Lenders;

(iii) in connection with the incurrence of any Permitted Credit Agreement Refinancing Indebtedness or any Permitted Incremental Equivalent Indebtedness, this Agreement and the other Credit Documents may be amended by an agreement in writing entered into by the Borrower and the Administrative Agent to add any covenant applicable to the Borrower and/or the Restricted Subsidiaries (including any Previously Absent Financial Maintenance Covenant) or any other provisions for the benefit of the Lenders;

(iv) the Administrative Agent and the Collateral Agent may, without the consent of any Secured Party, (A) consent to a departure by any Credit Party from any covenant of such Credit Party set forth in this Agreement or any other Credit Document to the extent such departure is consistent with the authority of the Collateral Agent set forth in the definition of the term "Collateral and Guarantee Requirement" or (B) waive, amend or modify any provision in any Credit Document (other than this Agreement), or consent to a departure by any Credit Party therefrom, to the extent the Administrative Agent or the Collateral Agent determines that such waiver, amendment, modification or consent is necessary in order to eliminate any conflict between such provision and the terms of this Agreement;

(v) any waiver, amendment or modification of Section 6.7 (or the definition of "Secured Net Leverage Ratio" or any component definition thereof, in each case, as used solely for purposes of Section 6.7) may be effected solely by an agreement or agreements in writing entered into by the Borrower and a Majority in Interest of the Revolving Lenders (and no consent of the Requisite Lenders or any other Lender shall be required or effective with respect thereto);

(vi) no waiver or amendment of any condition set forth in Section 3.2 may be effected without the written consent of the Majority in Interest of the Revolving Lenders (it being understood and agreed that no such waiver or amendment shall be deemed to exist as a result of any waiver, amendment or modification with respect to (A) any provision of this Agreement that does not expressly refer to any condition set forth in Section 3.2 or (B) any other Credit Document,

including any amendment of any representation or warranty or any affirmative or negative covenant set forth herein or in any other Credit Document or any waiver of a Default or Event of Default);

(vii) any provision of this Agreement or any other Credit Document may be amended by an agreement in writing entered into by the Borrower, the Administrative Agent (and, if their rights or obligations are affected thereby or if their consent would be required under the preceding provisions of this paragraph, the Issuing Banks) and the Lenders that will remain parties hereto after giving effect to such amendment if (A) by the terms of such agreement the Commitments of each Lender not consenting to the amendment provided for therein shall be reduced to zero upon the effectiveness of such amendment and (B) at the time such amendment becomes effective, each Lender not consenting thereto receives payment in full of the principal of and interest accrued on each Loan made by it and all other amounts owing to it or accrued for its account under this Agreement; and

(viii) this Agreement and the other Credit Documents may be amended in the manner provided in Sections 2.17(a)(ii), 6.14 and 10.24.

Each Lender and Issuing Bank hereby expressly authorizes the Administrative Agent and/or the Collateral Agent to enter into any waiver, amendment or other modification of this Agreement and the other Credit Documents contemplated by this Section 10.5(e).

(e) Requisite Execution of Amendments, Etc. With the concurrence of any Lender, the Administrative Agent may, but shall have no obligation to, execute waivers, amendments, modifications or consents on behalf of such Lender. Any waiver or consent shall be effective only in the specific instance and for the specific purpose for which it is given. No notice to or demand on any Credit Party in any case shall entitle any Credit Party to any other or further notice or demand in similar or other circumstances. Any amendment, modification, waiver or consent effected in accordance with this Section 10.5 shall be binding upon each Person that is at the time thereof a Lender and each Person that subsequently becomes a Lender.

**10.6. Successors and Assigns; Participations**. Generally. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns permitted hereby. No Credit Party's rights or obligations under the Credit Documents, and no interest therein, may be assigned or delegated by any Credit Party (except, in the case of any Guarantor Subsidiary, any assignment or delegation by operation of law as a result of any merger or consolidation of such Guarantor Subsidiary permitted by Section 6.8) without the prior written consent of the Administrative Agent and each Lender, and any attempted assignment or delegation without such consent shall be null and void. Nothing in this Agreement, expressed or implied, shall be construed to confer upon any Person (other than the parties hereto, their respective successors and assigns permitted hereby, the participants referred to in Section 10.6(g) (to the extent provided in clause (iii) of such Section) and, to the extent expressly contemplated hereby, Affiliates of any Agent or any Lender, the other Indemnitees and other express third party beneficiaries hereof) any legal or equitable right, remedy or claim under or by reason of this Agreement.

(a) Register. The Borrower, the Administrative Agent, the Collateral Agent, the Lenders and the Issuing Banks shall deem and treat the Persons recorded as Lenders in the Register as the holders and owners of the corresponding Commitments and Loans recorded therein for all purposes hereof. No assignment or transfer of any Commitment or Loan shall be effective unless and until recorded in the Register, and following such recording, unless otherwise determined by the Administrative Agent (such determination to be made in the sole discretion of the Administrative Agent, which determination may be conditioned on the consent of the assigning Lender and the assignee), shall be effective notwithstanding any defect in the Assignment Agreement relating thereto. Each assignment and transfer shall be recorded in the Register following receipt by the Administrative Agent of the fully executed Assignment Agreement, together with the required forms and certificates regarding tax matters and any fees payable in connection therewith, in each case as provided in Section 10.6(d); provided that the Administrative Agent shall not be required to accept such Assignment Agreement or so record the information contained therein if the Administrative Agent reasonably believes that such Assignment Agreement lacks any written consent required by this Section 10.6 or is otherwise not in proper form, it being acknowledged that the Administrative Agent shall have no duty or obligation (and shall incur no liability) with respect to obtaining (or confirming the receipt) of any such written consent or with respect to the form of (or any defect in) such Assignment Agreement, any such duty and obligation being solely with the assigning Lender and the assignee. Each assigning Lender and the assignee, by its execution and delivery of an Assignment Agreement, shall be deemed to have represented to the Administrative Agent that all written consents required by this Section 10.6 with respect thereto (other than the consent of the Administrative Agent) have been obtained and that such Assignment Agreement is otherwise duly completed and in proper form. The date of such recordation of an assignment and transfer is referred to herein as the "**Assignment Effective Date**" with respect thereto. Any request, authority or consent of any Person that, at the time of making such request or giving such authority or consent, is recorded in the Register as a Lender shall be conclusive and binding on any subsequent holder, assignee or transferee of the corresponding Commitments or Loans.

(b) Right to Assign. Each Lender shall have the right at any time to sell, assign or transfer all or a portion of its rights and obligations under this Agreement, including all or a portion of its Commitment or Loans or other Obligations owing to it to:

(i) any Eligible Assignee of the type referred to in clause (a) of the definition of the term "Eligible Assignee" upon the giving of notice to the Borrower and the Administrative Agent; provided that, in the case of any assignment of a Revolving Commitment or any Revolving Exposure, such Eligible Assignee is a Revolving Lender or an Affiliate of a Revolving Lender; or

(ii) any Eligible Assignee of the type referred to in clause (b) of the definition of the term "Eligible Assignee" (or, in the case of any assignment of a Revolving Commitment or a Revolving Exposure, any Eligible Assignee that does not meet the requirements of clause (i) above), upon (A) the giving of notice to the Borrower, the Administrative Agent and, in the case of assignments of Revolving Commitments or participations in Letters of Credit, each Issuing Bank and (B) except in the case of assignments made by or to any Arranger or any Affiliate thereof during the primary syndication of any credit facilities established hereunder, receipt of prior written consent (each such consent not to be unreasonably withheld or delayed) of (1) the Borrower, provided that the consent of the Borrower to any assignment (x) shall not be required if an Event of Default under Section 8.1(a), 8.1(f) or 8.1(g) shall have occurred and is continuing and (y) shall be deemed to have been granted unless the Borrower shall have objected thereto by written notice to the Administrative Agent within 10 Business Days after having received notice thereof, (2) the Administrative Agent and (3) in the case of assignments of Revolving Commitments or a Revolving Lender's obligations in respect of its participation in Letters of Credit, each Issuing Bank;

provided that:

(A) in the case of any such assignment or transfer (other than to any Eligible Assignee meeting the requirements of clause (i) above), the amount of the Commitment or Loans of the assigning Lender subject thereto shall not be less than (A) $5,000,000 in the case of assignments of any Revolving Commitment or Revolving Loan or (B) $1,000,000 in the case of assignments of any Term Loan Commitment or Term Loan of any Class (with concurrent assignments to Eligible Assignees that are Affiliates or Related Funds thereof to be aggregated for purposes of the foregoing minimum assignment amount requirements) or, in each case, such lesser amount as shall be consented to by the Borrower and the Administrative Agent or as shall constitute the aggregate amount of the Commitments or Loans of the applicable Class of the assigning Lender; provided, that such consent of the Borrower (x) shall not be required if an Event of Default under Section 8.1(a), 8.1(f) or 8.1(g) shall have occurred and is continuing and (y) shall be deemed to have been granted unless the Borrower shall have objected thereto by written notice to the Administrative Agent within 10 Business Days after having received notice thereof;

(B) each partial assignment or transfer shall be of a uniform, and not varying, percentage of all rights and obligations of the assigning Lender hereunder; provided that a Lender may assign or transfer all or a portion of its Commitment or of the Loans owing to it of any Class without assigning or transferring any portion of its Commitment or of the Loans owing to it, as the case may be, of any other Class; and

(C) in connection with any assignment of rights and obligations of any Defaulting Lender hereunder, no such assignment shall be effective unless and until, in addition to the other conditions thereto set forth herein, the parties to the assignment shall make such additional payments to the Administrative Agent in an aggregate amount sufficient, upon distribution thereof as appropriate (which may be outright payment, purchases by the assignee of participations or subparticipations or other compensating actions, including funding, with the consent of the Borrower and the Administrative Agent, such Defaulting Lender's applicable Pro Rata Share of Revolving Loans previously requested but not funded by such Defaulting Lender, to each of which the applicable assignee and assignor hereby irrevocably consent), to (1) pay and satisfy in full all payment liabilities then owed by such Defaulting Lender to the Administrative Agent, each Issuing Bank and each Revolving Lender hereunder (and interest accrued thereon), and (2) acquire (and fund as appropriate) its applicable Pro Rata Share of all Revolving Loans and participations in Letters of Credit; provided that, notwithstanding the foregoing, in the event that any assignment of rights and obligations of any Defaulting Lender hereunder shall become effective under applicable law without compliance with the provisions of this clause (C), then the assignee of such interest shall be deemed to be a Defaulting Lender for all purposes of this Agreement until such compliance occurs.

(c) Mechanics. Assignments and transfers of Loans and Commitments by Lenders shall be effected by the execution and delivery to the Administrative Agent of an Assignment Agreement. In connection with all assignments, there shall be delivered to the Administrative Agent such forms, certificates or other evidence, if any, with respect to United States federal income tax withholding matters as the assignee thereunder may be required to deliver pursuant to Section 2.19(d), together with payment to the Administrative Agent by the assignor or the assignee of a registration and processing fee of $3,500 (except that no such registration and processing fee shall be payable (i~~) in connection with an assignment by or to Goldman Sachs during the primary syndication of any credit facilities established hereunder, (ii~~) in the case of an assignee that is already a Lender or is an Affiliate or Related Fund of a Lender or a Person under common management with a Lender or (~~iii~~**ii**) otherwise waived by the Administrative Agent in its sole discretion).

(d) Representations and Warranties of Assignee. Each Lender, upon execution and delivery hereof (or of any Incremental Facility Agreement or Refinancing Facility Agreement) or upon succeeding to an interest in the Commitments and Loans, as the case may be, represents and warrants as of the Closing Date (or, in the case of any Incremental Facility Agreement or Refinancing Facility Agreement, as of the date of the effectiveness thereof) or as of the applicable Assignment Effective Date, as applicable, that (i) it is an Eligible Assignee, (ii) it has experience and expertise in the making of or investing in commitments or loans such as the applicable Commitments or Loans, as the case may be, (iii) it will make or invest in, as the case may be, its Commitments or Loans for its own account in the ordinary course and without a view to distribution of such Commitments or Loans within the meaning of the Securities Act or the Exchange Act or other United States federal securities laws (it being understood that, subject to the provisions of this Section 10.6, the disposition of such Commitments or Loans or any interests therein shall at all times remain within its exclusive control) and (iv) it will not provide any information obtained by it in its capacity as a Lender to the Borrower or any Affiliate of the Borrower. It is understood and agreed that the Administrative Agent and each assignor Lender shall be entitled to rely, and shall incur no liability for relying, upon the representations and warranties of an assignee set forth in this Section 10.6(e) and in the applicable Assignment Agreement.

(e) Effect of Assignment. Subject to the terms and conditions of this Section 10.6, as of the Assignment Effective Date with respect to any assignment and transfer of any Commitment or Loan, (i) the assignee thereunder shall have the rights and obligations of a "Lender" hereunder to the extent of its interest in such Commitment or Loan as reflected in the Register and shall thereafter be a party hereto and a "Lender" for all purposes hereof, (ii) the assigning Lender thereunder shall, to the extent that rights and obligations hereunder have been assigned and transferred to the assignee, relinquish its rights (other than any rights that survive the termination hereof under Section 10.8) and be released from its obligations hereunder (and, in the case of an assignment covering all the remaining rights and obligations of an assigning Lender hereunder, such Lender shall cease to be a party hereto as a "Lender" (but not, if applicable, as an Issuing Bank or in any other capacity hereunder) on such Assignment Effective Date, provided that such assigning Lender shall continue to be entitled to the benefit of all rights that survive the termination hereof under Section 10.8, and provided further that except to the extent otherwise expressly agreed by the affected parties, no assignment by a Defaulting Lender will constitute a waiver or release of any claim of any party hereunder arising from such Lender's having been a Defaulting Lender, and (iii) the assigning Lender shall, upon the effectiveness thereof or as promptly thereafter as practicable, surrender its applicable Notes (if any) to the Administrative Agent for cancellation, and thereupon the Borrower shall issue and deliver new Notes, if so requested by the assignee and/or assigning Lender, to such assignee and/or to such assigning Lender, with appropriate insertions, to reflect the new Commitments and/or outstanding Loans of the assignee and/or the assigning Lender.

(f) Participations.

(i) Each Lender shall have the right at any time to sell one or more participations to any Eligible Assignee (provided that, for purposes of this Section 10.6(g), any Person that is a Disqualified Institution solely on account of having been (or having an Affiliate thereof having been) identified as such by name by the Borrower shall be a Disqualified Institution only if a list of Disqualified Institutions including the name of such Person has been made available to all Lenders by the Borrower or the Administrative Agent) in all or any part of its Commitments or Loans or in any other Obligation; provided that (A) such Lender's obligations under this Agreement shall remain unchanged, (B) such Lender shall remain solely responsible to the other parties hereto for the performance of such obligations and (C) the Credit Parties, the Administrative Agent, the Collateral Agent, the Issuing Banks and the other Lenders shall continue to deal solely and directly with such Lender in connection with such Lender's rights and obligations under this Agreement. Each Lender that sells a participation pursuant to this Section 10.6(g) shall, acting solely for United States federal income tax purposes as a non-fiduciary agent of the Borrower, maintain a register on which it records the name and address of each participant to which it has sold a participation and the principal amounts (and stated interest) of each such participant's interest in the Loans or other rights and obligations of such Lender under this Agreement (the "**Participant Register**"); provided that no Lender shall have any obligation to disclose all or any portion of the Participant Register to any Person (including the identity of any participant or any information relating to a participant's interest in any Commitments, Loans or other rights and obligations under any Credit Document), except to the extent that such disclosure is necessary to establish that such Commitment, Loan or other right or obligation is in registered form under Section 5f.103-1(c) of the United States Treasury Regulations or as required pursuant to other applicable law. The entries in the Participant Register shall be conclusive absent manifest error, and such Lender shall treat each Person whose name is recorded in the Participant Register as the owner of such participation for all purposes under this Agreement, notwithstanding any notice to the contrary. For the avoidance of doubt, the Administrative Agent (in its capacity as Administrative Agent) shall have no responsibility for maintaining a Participant Register.

(ii) The holder of any such participation, other than an Affiliate of the Lender granting such participation, shall not be entitled to require such Lender to take or omit to take any action hereunder, except that any participation agreement may provide that the participant's consent must be obtained with respect to the consent of such Lender to any waiver, amendment, modification or consent that is described in Section 10.5(b) that affects such participant or requires the approval of all the Lenders.

(iii) The Credit Parties agree that each participant shall be entitled to the benefits of Sections 2.17(c), 2.18 and 2.19 (subject to the requirements and limitations therein, including the requirements under Section 2.19(g) (it being understood that the documentation required under Section 2.19(g) shall be delivered to the participating Lender)) to the same extent as if it were a Lender and had acquired its interest by assignment pursuant to Section 10.6(c); provided that such participant (x) agrees to be subject to the provisions of Sections 2.20 and 2.22 as if it were an assignee under Section 10.6(c) and (y) such participant shall not be entitled to receive any greater payment under Section 2.18 or 2.19 with respect to any participation than the applicable Lender would have been entitled to receive with respect to such participation sold to such participant, except to the extent such entitlement to receive a greater payment results from a Change in Law that occurs after the participant acquired the applicable participation. To the extent permitted by law, each participant also shall be entitled to the benefits of Section 10.4 as though it were a Lender, provided that such participant agrees to be subject to Section 2.16 as though it were a Lender.

(g) Certain Other Assignments and Participations. In addition to any other assignment or participation permitted pursuant to this Section 10.6, any Lender may assign, pledge and/or grant a security interest in all or any portion of its Loans or the other Obligations owed to such Lender, and its Notes, if any, to secure obligations of such Lender, including to any Federal Reserve Bank as collateral security pursuant to Regulation A of the Board of Governors and any operating circular issued by any Federal Reserve Bank; provided that no Lender, as between the Borrower and such Lender, shall be relieved of any of its obligations hereunder as a result of any such assignment and pledge; and provided further that in no event shall the applicable Federal Reserve Bank, pledgee or trustee be considered to be a "Lender" or be entitled to require the assigning Lender to take or omit to take any action hereunder.

(h) Term Loan Repurchases. Notwithstanding anything to the contrary contained in this Section 10.6 or any other provision of this Agreement, the Borrower may repurchase outstanding Term Loans, and each Term Lender shall have the right at any time to sell, assign or transfer all or a portion of its Term Loans to the Borrower, on the following basis:

(A) Term Loan Repurchase Auctions. The Borrower may conduct one or more modified Dutch auctions (each, an "**Auction**") to repurchase all or any portion of the Term Loans of any Class, provided that (1) the Borrower delivers a notice of such Auction to the Auction Manager and the Administrative Agent (for distribution to the Term Lenders of such Class) no later than 1:00 p.m. (New York City time) at least five Business Days in advance of a proposed commencement date of such Auction (or such shorter period as may be acceptable to the Administrative Agent), which notice shall specify (x) the dates on which such Auction will commence and conclude, (y) the maximum principal amount of Term Loans and the Class thereof that the Borrower desires to repurchase in such Auction and (z) the range of discounts to par at which the Borrower would be willing to repurchase such Term Loans, (2) the maximum dollar amount of such Auction shall be no less than an aggregate $10,000,000 or an integral multiple of $1,000,000 in excess thereof, (3) such Auction shall be open for at least two Business Days after the date of the commencement thereof, (4) such Auction shall be open for participation by all the Term Lenders of such Class on a ratable basis, (5) a Term Lender of such Class that elects to participate in such Auction will be permitted to tender for repurchase all or a portion of such Term Lender's Loans of such Class, (6) each repurchase of Term Loans of any Class shall be of a uniform, and not varying, percentage of all rights of the assigning Term Lender hereunder with respect thereto (and shall be allocated among the Term Loans of such Class of such Term Lender in a manner that would result in such Term Lender's remaining Term Loans of such Class being included in each Term Borrowing in accordance with its applicable Pro Rata Share thereof), (7) at the time of the commencement and conclusion of such Auction, no Event of Default shall have occurred and be continuing, (8) the Borrower shall not use the proceeds of any Revolving Loans to make such repurchase and (9) such Auction shall be conducted pursuant to such procedures as the Auction Manager may establish, so long as such procedures are consistent with this Section 10.6(i) and are reasonably acceptable to the Administrative Agent and the Borrower. In connection with any Auction, the Auction Manager and the Administrative Agent may request one or more certificates of an Authorized Officer of the Borrower as to the satisfaction of the conditions set forth in clauses (7) and (8) above.

(B) Open Market Purchases. The Borrower may repurchase all or any portion of the Term Loans of any Class on a non pro rata basis through open market purchases (each, an "**Open Market Purchase**"), provided that (1) each repurchase of Term Loans of any Class shall be of a uniform, and not varying, percentage of all rights of the assigning Term Lender hereunder with respect thereto (and shall be allocated among the Term Loans of such Class of such Term Lender in a manner that would result in such Term Lender's remaining Term Loans of such Class being included in each Term Borrowing in accordance with its applicable Pro Rata Share thereof), (2) at the time of and immediately following such Open Market Purchase, no Event of Default shall have occurred and be continuing and (3) the Borrower shall not use the proceeds of Revolving Loans to make such repurchase.

(C) Concerning the Repurchased Loans. Repurchases by the Borrower of Term Loans pursuant to this Section 10.6(i) shall not constitute voluntary prepayments for purposes of Section 2.11 or 2.13. The aggregate principal amount of the Term Loans of any Class repurchased by the Borrower pursuant to this Section 10.6(i) shall

be applied to reduce the subsequent Installments to be paid pursuant to Section 2.11 with respect to Term Loans of such Class in an inverse order of maturity. Upon the repurchase by the Borrower pursuant to this Section 10.6(i) of any Term Loans, such Term Loans shall, without further action by any Person, automatically be deemed cancelled and no longer outstanding (and may not be resold by the Borrower) for all purposes of this Agreement and the other Credit Documents, including with respect to (1) the making of, or the application of, any payments to the Lenders under this Agreement or any other Credit Document, (2) the making of any request, demand, authorization, direction, notice, consent or waiver under this Agreement or any other Credit Document or (3) the determination of Requisite Lenders, or for any similar or related purpose, under this Agreement or any other Credit Document. The Administrative Agent is authorized to make appropriate entries in the Register to reflect any cancelation of the Term Loans repurchased and cancelled pursuant to this Section 10.6(i). Any payment made by the Borrower in connection with a repurchase permitted by this Section 10.6(i) shall not be subject to the provisions of Section 2.15, 2.16 or 2.17(c). Failure by the Borrower to make any payment to a Lender required to be made in consideration of a repurchase of Term Loans permitted by this Section 10.6(i) shall not constitute a Default or an Event of Default under Section 8.1(a). Each Term Lender shall, to the extent that its Term Loans shall have been repurchased and assigned to the Borrower pursuant to this Section 10.6(i), relinquish its rights in respect thereof. Except as otherwise set forth in this Section 10.6(i), the provisions of Section 10.6 shall not apply to any repurchase of Loans pursuant to this Section 10.6(i).

**10.7. Independence of Covenants**. All covenants hereunder shall be given independent effect so that if a particular action or condition is not permitted by any of such covenants, the fact that it would be permitted by an exception to, or would otherwise be within the limitations of, another covenant shall not avoid the occurrence of a Default or an Event of Default if such action is taken or condition exists.

**10.8. Survival of Representations, Warranties and Agreements**. All covenants, agreements, representations and warranties made by the Credit Parties in the Credit Documents and in the certificates or other documents delivered in connection with or pursuant to this Agreement or any other Credit Document shall be considered to have been relied upon by the other parties hereto and shall survive the execution and delivery of the Credit Documents and the making of any Loans and issuance of any Letters of Credit, regardless of any investigation made by any such other party or on its behalf and notwithstanding that any Agent, any Arranger, any Lender or any Issuing Bank may have had notice or knowledge of any Default or Event of Default or incorrect representation or warranty at the time any Credit Document is executed and delivered or any credit is extended hereunder, and shall continue in full force and effect as long as the principal of or any accrued interest on any Loan or any fee or any other amount payable under this Agreement is outstanding and unpaid or any Letter of Credit is outstanding and so long as the Commitments have not expired or terminated. Notwithstanding the foregoing or anything else to the contrary set forth in this Agreement or any other Credit Document, in the event that, in connection with the refinancing or repayment in full of the credit facilities provided for herein, any Issuing Bank at its option and in its sole discretion shall have provided to the Administrative Agent a written consent to the release of the Revolving Lenders from their obligations hereunder with respect to any Letter of Credit issued by such Issuing Bank (whether as a result of such Letter of Credit becoming a Backstopped Letter of Credit or otherwise), then from and after such time such Letter of Credit shall cease to be a "Letter of Credit" outstanding hereunder for all purposes of this Agreement and the other Credit Documents (other than Sections 2.18, 2.19, 10.2 and 10.3 (and the defined terms used in such Sections)), and the Revolving Lenders shall be deemed to have no participations in such Letter of Credit, and no obligations with respect thereto, under Section 2.3(e). In addition, notwithstanding anything to the contrary set forth in this Agreement or any other Credit Document, in the event that on the fifth Business Day prior to the Revolving Maturity Date any Letter of Credit shall be a Backstopped Letter of Credit, then, unless on such date any unreimbursed drawing shall have been outstanding thereunder, such Letter of Credit shall cease to be a "Letter of Credit" outstanding hereunder for all purposes of this Agreement and the other Credit Documents (other than for purposes of such Letter of Credit, Sections 2.18, 2.19, 10.2 and 10.3 (and the defined terms used in such Sections) and all obligations in respect thereof continuing to constitute Obligations that are secured and Guaranteed as provided in the Credit Documents) and the Revolving Lenders shall be deemed to have no participations in such Letter of Credit, and no obligations with respect thereto, under Section 2.3(e). The provisions of Sections 2.17(c), 2.18, 2.19, 9, 10.2, 10.3 and 10.4 shall survive and remain in full force and effect regardless of the consummation of the transactions contemplated hereby, the repayment of the Loans or the termination of this Agreement or any provision hereof.

**10.9. No Waiver; Remedies Cumulative**. No failure or delay on the part of any Agent, any Arranger, any Lender or any Issuing Bank in the exercise of any power, right or privilege hereunder or under any other Credit Document shall impair such power, right or privilege or be construed to be a waiver thereof or of any Default or Event of Default or acquiescence therein, nor shall any single or partial exercise of any such power, right or privilege, or any abandonment or discontinuance of steps to enforce such power, right or privilege, preclude any other or further exercise thereof or the exercise of any other power, right or privilege. The powers, rights, privileges and remedies of the Agents, the Arrangers, the Lenders and the Issuing Banks hereunder and under the other Credit Documents are cumulative and shall be in addition to and independent of all powers, rights, privileges and remedies they would otherwise have. Without limiting the generality of the foregoing, the execution and delivery of this Agreement or the making of any Loan hereunder shall not be construed as a waiver of any Default or Event of Default, regardless

of whether any Agent, any Arranger, any Lender or any Issuing Bank may have had notice or knowledge of such Default or Event of Default at the time.

**10.10. Marshalling; Payments Set Aside**. None of the Agents, the Arrangers, the Lenders or the Issuing Banks shall be under any obligation to marshal any assets in favor of any Credit Party or any other Person or against or in payment of any or all of the Obligations. To the extent that any Credit Party makes a payment or payments to any Agent, any Arranger, any Lender or any Issuing Bank (or to the Administrative Agent or the Collateral Agent, on behalf of any Agent, any Arranger, any Lender or any Issuing Bank), or any Agent, any Arranger, any Lender or any Issuing Bank enforces any security interests or exercises any right of set-off, and such payment or payments or the proceeds of such enforcement or set-off or any part thereof are subsequently invalidated, declared to be fraudulent or preferential, set aside and/or required to be repaid to a trustee, receiver or any other party under any Debtor Relief Law, any other state or federal law, common law or any equitable cause, then, to the extent of such recovery, the obligation or part thereof originally intended to be satisfied, and all Liens, rights and remedies therefor or related thereto, shall be revived and continued in full force and effect as if such payment or payments had not been made or such enforcement or set-off had not occurred.

**10.11. Severability**. In case any provision in or obligation hereunder or under any other Credit Document shall be invalid, illegal or unenforceable in any jurisdiction, the validity, legality and enforceability of the remaining provisions or obligations, or of such provision or obligation in any other jurisdiction, shall not in any way be affected or impaired thereby.

**10.12. Independent Nature of Lenders' Rights**. Nothing contained herein or in any other Credit Document, and no action taken by the Lenders pursuant hereto or thereto, shall be deemed to constitute the Lenders as a partnership, an association, a joint venture or any other kind of entity. The amounts payable at any time hereunder to each Lender shall be a separate and independent debt, and each Lender shall be entitled to protect and enforce its rights arising hereunder and it shall not be necessary for any other Lender to be joined as an additional party in any proceeding for such purpose.

**10.13. Headings**. Section headings herein are included herein for convenience of reference only and shall not constitute a part hereof for any other purpose or be given any substantive effect.

**10.14. APPLICABLE LAW. THIS AGREEMENT AND THE RIGHTS AND OBLIGATIONS OF THE PARTIES HEREUNDER (INCLUDING ANY CLAIMS SOUNDING IN CONTRACT LAW OR TORT LAW ARISING OUT OF THE SUBJECT MATTER HEREOF AND ANY DETERMINATIONS WITH RESPECT TO POST-JUDGMENT INTEREST) SHALL BE GOVERNED BY, AND SHALL BE CONSTRUED AND ENFORCED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK, WITHOUT REGARD TO CONFLICT OF LAWS PRINCIPLES THEREOF THAT WOULD RESULT IN THE APPLICATION OF ANY LAW OTHER THAN THE LAW OF THE STATE OF NEW YORK.**

**10.15. CONSENT TO JURISDICTION. SUBJECT TO CLAUSE (E) BELOW, ALL JUDICIAL PROCEEDINGS BROUGHT AGAINST ANY PARTY HERETO ARISING OUT OF OR RELATING HERETO OR ANY OTHER CREDIT DOCUMENT, OR ANY OF THE OBLIGATIONS, SHALL BE BROUGHT EXCLUSIVELY IN ANY FEDERAL COURT OF THE UNITED STATES OF AMERICA SITTING IN THE BOROUGH OF MANHATTAN OR, IF THAT COURT DOES NOT HAVE SUBJECT MATTER JURISDICTION, IN ANY STATE COURT LOCATED IN THE CITY AND COUNTY OF NEW YORK. BY EXECUTING AND DELIVERING THIS AGREEMENT, EACH PARTY HERETO, FOR ITSELF AND IN CONNECTION WITH ITS PROPERTIES, IRREVOCABLY (A) ACCEPTS GENERALLY AND UNCONDITIONALLY THE EXCLUSIVE JURISDICTION AND VENUE OF SUCH COURTS (SUBJECT TO CLAUSE (E) BELOW); (B) WAIVES ANY DEFENSE OF FORUM NON CONVENIENS; (C) AGREES THAT SERVICE OF ALL PROCESS IN ANY SUCH PROCEEDING IN ANY SUCH COURT MAY BE MADE BY REGISTERED OR CERTIFIED MAIL, RETURN RECEIPT REQUESTED, TO THE APPLICABLE PARTY AT ITS ADDRESS PROVIDED IN ACCORDANCE WITH SECTION** 10.1**; (D) AGREES THAT SERVICE AS PROVIDED IN CLAUSE (C) ABOVE IS SUFFICIENT TO CONFER PERSONAL JURISDICTION OVER THE APPLICABLE CREDIT PARTY IN ANY SUCH PROCEEDING IN ANY SUCH COURT, AND OTHERWISE CONSTITUTES EFFECTIVE AND BINDING SERVICE IN EVERY RESPECT; AND (E) AGREES THAT THE AGENTS, THE ARRANGERS, THE BORROWER, THE LENDERS AND THE ISSUING BANKS RETAIN THE RIGHT TO SERVE PROCESS IN ANY OTHER MANNER PERMITTED BY LAW OR, IN THE CASE OF THE AGENTS, THE ARRANGERS, THE LENDERS AND THE ISSUING BANKS, TO BRING PROCEEDINGS AGAINST ANY CREDIT PARTY IN THE COURTS OF ANY OTHER JURISDICTION IN CONNECTION WITH THE EXERCISE OF ANY RIGHTS UNDER ANY CREDIT DOCUMENT OR ANY EXERCISE OF REMEDIES IN RESPECT OF COLLATERAL OR THE ENFORCEMENT OF ANY JUDGMENT, AND HEREBY SUBMITS TO THE JURISDICTION OF, AND CONSENTS TO VENUE IN, ANY SUCH COURT.**

**10.16. WAIVER OF JURY TRIAL. EACH OF THE PARTIES HERETO HEREBY AGREES TO WAIVE ITS RIGHTS TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION BASED UPON OR ARISING HEREUNDER OR UNDER ANY OF THE OTHER CREDIT DOCUMENTS OR ANY DEALINGS BETWEEN THEM**

**RELATING TO THE SUBJECT MATTER OF THIS LOAN TRANSACTION OR THE LENDER/BORROWER RELATIONSHIP THAT IS BEING ESTABLISHED. THE SCOPE OF THIS WAIVER IS INTENDED TO BE ALL-ENCOMPASSING OF ANY AND ALL DISPUTES THAT MAY BE FILED IN ANY COURT AND THAT RELATE TO THE SUBJECT MATTER OF THIS TRANSACTION, INCLUDING CONTRACT CLAIMS, TORT CLAIMS, BREACH OF DUTY CLAIMS AND ALL OTHER COMMON LAW AND STATUTORY CLAIMS. EACH PARTY HERETO ACKNOWLEDGES THAT THIS WAIVER IS A MATERIAL INDUCEMENT TO ENTER INTO A BUSINESS RELATIONSHIP, THAT EACH HAS ALREADY RELIED ON THIS WAIVER IN ENTERING INTO THIS AGREEMENT AND THAT EACH WILL CONTINUE TO RELY ON THIS WAIVER IN ITS RELATED FUTURE DEALINGS. EACH PARTY HERETO FURTHER WARRANTS AND REPRESENTS THAT IT HAS REVIEWED THIS WAIVER WITH ITS LEGAL COUNSEL AND THAT IT KNOWINGLY AND VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS FOLLOWING CONSULTATION WITH LEGAL COUNSEL. THIS WAIVER IS IRREVOCABLE, MEANING THAT IT MAY NOT BE MODIFIED EITHER ORALLY OR IN WRITING (OTHER THAN BY A MUTUAL WRITTEN WAIVER SPECIFICALLY REFERRING TO THIS SECTION** 10.16 **AND EXECUTED BY EACH OF THE PARTIES HERETO), AND THIS WAIVER SHALL APPLY TO ANY SUBSEQUENT AMENDMENTS, RENEWALS, SUPPLEMENTS OR MODIFICATIONS HERETO OR ANY OF THE OTHER CREDIT DOCUMENTS OR TO ANY OTHER DOCUMENTS OR AGREEMENTS RELATING TO THE LOANS MADE HEREUNDER. IN THE EVENT OF LITIGATION, THIS AGREEMENT MAY BE FILED AS A WRITTEN CONSENT TO A TRIAL BY THE COURT.**

**10.17. Confidentiality**. Each Agent and each Lender (which term shall for the purposes of this Section 10.17 include each Issuing Bank) shall hold all Confidential Information (as defined below) obtained by such Agent or such Lender in accordance with such Agent's and such Lender's customary procedures for handling confidential information of such nature, it being understood and agreed by the Borrower that, in any event, the Administrative Agent and the Collateral Agent may disclose Confidential Information to the Lenders and the other Agents and that each Agent and each Lender may disclose Confidential Information (a) to Affiliates of such Agent or Lender and to its and their respective Related Parties, independent auditors and other advisors, experts or agents who need to know such Confidential Information (and to other Persons authorized by a Lender or Agent to organize, present or disseminate such information in connection with disclosures otherwise made in accordance with this Section 10.17) (it being understood that the Persons to whom such disclosure is made will be advised of the confidential nature of such Confidential Information or shall otherwise be subject to an obligation of confidentiality), (b) to any potential or prospective assignee, transferee or participant in connection with the contemplated assignment, transfer or participation of any Loans or other Obligations or any participations therein or to any direct or indirect contractual counterparties (or the advisors thereto) to any swap or derivative transaction relating to the Borrower, its Affiliates or its or their obligations (provided that such assignees, transferees, participants, counterparties and advisors are advised of and agree to be bound by either the provisions of this Section 10.17 or other provisions at least as restrictive as this Section 10.17 or otherwise reasonably acceptable to the Administrative Agent, the Collateral Agent or the applicable Lender, as the case may be, and the Borrower, including pursuant to the confidentiality terms set forth in the Confidential Information Memorandum or other marketing materials relating to the credit facilities governed by this Agreement), (c) to any rating agency, provided that, prior to any disclosure, such rating agency shall undertake in writing to preserve the confidentiality of any Confidential Information relating to the Credit Parties received by it from such Agent or such Lender, as the case may be, (d) customary information regarding the credit facilities governed by this Agreement to the CUSIP Service Bureau or any similar agency in connection with the issuance and monitoring of CUSIP numbers with respect to the Loans and to market data collectors, including league table providers, similar service providers to the lending industry and service providers to the Administrative Agent and the Lenders in connection with the syndication or administration of this Agreement, the other Loan Documents, the Loans and the Commitments, (e) for purposes of establishing a "due diligence" defense or in connection with the exercise of any remedies hereunder or under any other Credit Document, (f) in customary "tombstone" or similar advertisements, (g) pursuant to a subpoena or order issued by a court or by a judicial, administrative or legislative body or commission, or otherwise as required by applicable law or compulsory legal or judicial process (in which case such Agent or such Lender, as the case may be, agrees to inform the Borrower promptly thereof to the extent not prohibited by applicable law), (h) upon the request or demand of any Governmental Authority or any regulatory or quasi-regulatory authority (including any self-regulatory organization) purporting to have jurisdiction over such Agent or such Lender, as the case may be, or any of their respective Affiliates, (i) received by it on a non-confidential basis from a source (other than the Borrower or its Affiliates or Related Parties) not known by it to be prohibited from disclosing such information to such persons by a legal, contractual or fiduciary obligation, (j) to the extent that such information was already in possession of such Agent or such Lender, as the case may be, or any of its Affiliates or is independently developed by it or any of its Affiliates and (k) with the consent of the Borrower. For purposes of the foregoing, "**Confidential Information**" means, with respect to any Agent or any Lender, any non-public information regarding the business, assets, liabilities and operations of the Borrower and its Subsidiaries obtained by such Agent or Lender, as the case may be, under the terms of this Agreement. It is agreed that, notwithstanding the restrictions of any prior confidentiality agreement binding on any Arranger or any Agent, such parties may disclose Confidential Information as provided in this Section 10.17.

**10.18. Usury Savings Clause**. Notwithstanding any other provision herein, the aggregate interest rate charged with respect to any of the Obligations, including all charges or fees in connection therewith deemed in the nature of interest under applicable law shall not exceed the Highest Lawful Rate. If the rate of interest (determined without regard to the preceding

sentence) under this Agreement at any time exceeds the Highest Lawful Rate, the outstanding amount of the Loans made hereunder shall bear interest at the Highest Lawful Rate until the total amount of interest due hereunder equals the amount of interest that would have been due hereunder if the stated rates of interest set forth in this Agreement had at all times been in effect. In addition, if when the Loans made hereunder are repaid in full the total interest due hereunder (taking into account the increase provided for above) is less than the total amount of interest that would have been due hereunder if the stated rates of interest set forth in this Agreement had at all times been in effect, then to the extent permitted by law, the Borrower shall pay to the Administrative Agent an amount equal to the difference between the amount of interest paid and the amount of interest that would have been paid if the Highest Lawful Rate had at all times been in effect. Notwithstanding the foregoing, it is the intention of the Lenders and the Borrower to conform strictly to any applicable usury laws. Accordingly, if any Lender contracts for, charges or receives any consideration that constitutes interest in excess of the Highest Lawful Rate, then any such excess shall be cancelled automatically and, if previously paid, shall at such Lender's option be applied to the outstanding amount of the Loans made hereunder or be refunded to the Borrower.

**10.19. Counterparts**. This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, but all such counterparts together shall constitute but one and the same instrument. Delivery of an executed counterpart of a signature page of this Agreement by facsimile or in electronic format (i.e., "pdf" or "tif") shall be effective as delivery of a manually executed counterpart of this Agreement.

**10.20. Effectiveness; Entire Agreement**. Subject to Section 3.1, this Agreement shall become effective when it shall have been executed by the Administrative Agent and there shall have been delivered to the Administrative Agent counterparts hereof that, when taken together, bear the signatures of each of the other parties hereto. This Agreement and the other Credit Documents constitute the entire contract among the parties relating to the subject matter hereof and supersede any and all previous agreements and understandings, oral or written, relating to the subject matter hereof (but do not supersede any provisions of any commitment letter, engagement letter or fee letter between or among any Credit Parties and any Agent or the Arranger or any Affiliate of any of the foregoing that by the terms of such documents are stated to survive the effectiveness of this Agreement, all of which provisions shall remain in full force and effect), and the Agents, the Arranger and their respective Related Parties are hereby released from all liability in connection therewith, including any claim for injury or damages, whether consequential, special, direct, indirect, punitive or otherwise.

**10.21. PATRIOT Act**. Each Lender and the Administrative Agent (for itself and not on behalf of any Lender) hereby notifies each Credit Party that pursuant to the requirements of the PATRIOT Act it is required to obtain, verify and record information that identifies each Credit Party, which information includes the name and address of each Credit Party and other information that will allow such Lender or the Administrative Agent, as applicable, to identify such Credit Party in accordance with the PATRIOT Act.

**10.22. Electronic Execution of Assignments**. The words "execution", "signed", "signature" and words of like import in any Assignment Agreement shall be deemed to include electronic signatures or the keeping of records in electronic form, each of which shall be of the same legal effect, validity or enforceability as a manually executed signature or the use of a paper-based recordkeeping system, as the case may be, to the extent and as provided for in any applicable law, including the Federal Electronic Signatures in Global and National Commerce Act, the New York State Electronic Signatures and Records Act or any other similar state laws based on the Uniform Electronic Transactions Act.

**10.23. No Fiduciary Duty**. Each Agent, each Arranger, each Lender, each Issuing Bank and their respective Affiliates (collectively, solely for purposes of this paragraph, the "**Lenders**") may have economic interests that conflict with those of the Credit Parties, their equityholders and/or their Affiliates. Each Credit Party agrees that nothing in the Credit Documents or otherwise will be deemed to create an advisory, fiduciary or agency relationship or fiduciary or other implied duty between any Lender, on the one hand, and such Credit Party, its equityholders or its Affiliates, on the other. The Credit Parties acknowledge and agree that (a) the transactions contemplated by the Credit Documents (including the exercise of rights and remedies hereunder and thereunder) are arm's-length commercial transactions between the Lenders, on the one hand, and the Credit Parties, on the other, and (b) in connection therewith and with the process leading thereto, (i) no Lender has assumed an advisory or fiduciary responsibility in favor of any Credit Party, its equityholders or its Affiliates with respect to the transactions contemplated hereby (or the exercise of rights or remedies with respect thereto) or the process leading thereto (irrespective of whether any Lender has advised, is currently advising or will advise any Credit Party, its equityholders or its Affiliates on other matters) or any other obligation to any Credit Party except the obligations expressly set forth in the Credit Documents and (ii) each Lender is acting solely as principal and not as the agent or fiduciary of any Credit Party, its management, equityholders or creditors or any other Person. Each Credit Party acknowledges and agrees that it has consulted its own legal and financial advisors to the extent it has deemed appropriate and that it is responsible for making its own independent judgment with respect to such transactions and the process leading thereto. Each Credit Party agrees that it will not assert, and hereby waives to the maximum extent permitted by applicable law, any claim that any Lender has rendered advisory services of any nature or respect, or owes a fiduciary or similar duty to such Credit Party, in connection with any such transaction or the process leading thereto.

**10.24. Permitted Intercreditor Agreements**. Each of the Lenders and the other Secured Parties acknowledges that obligations of the Borrower and the Guarantor Subsidiaries under any Permitted Credit Agreement Refinancing Indebtedness or any Permitted Incremental Equivalent Indebtedness may be secured by Liens on assets of the Borrower and the Guarantor Subsidiaries that constitute Collateral and that the relative Lien priority and other creditor rights of the Secured Parties and the secured parties under any Permitted Credit Agreement Refinancing Indebtedness or any Permitted Incremental Equivalent Indebtedness will be set forth in the applicable Permitted Intercreditor Agreement. Each of the Lenders and the other Secured Parties hereby irrevocably authorizes and directs the Administrative Agent and the Collateral Agent to execute and deliver, in each case on behalf of such Secured Party and without any further consent, authorization or other action by such Secured Party, from time to time upon the request of the Borrower, in connection with the establishment, incurrence, amendment, refinancing or replacement of any Permitted Credit Agreement Refinancing Indebtedness or any Permitted Incremental Equivalent Indebtedness ~~(including any Permitted Versum Existing Credit Agreement Indebtedness)~~, any Permitted Intercreditor Agreement (it being understood that the Administrative Agent and the Collateral Agent are hereby authorized and directed to determine the terms and conditions of any such Permitted Intercreditor Agreement as contemplated by the definition of the terms "Junior Lien Intercreditor Agreement" and "Pari Passu Intercreditor Agreement") and any documents relating thereto.

(a) Each of the Lenders and the other Secured Parties hereby irrevocably (i) consents to the treatment of Liens to be provided for under any Permitted Intercreditor Agreement, (ii) agrees that, upon the execution and delivery thereof, such Secured Party will be bound by the provisions of any Permitted Intercreditor Agreement as if it were a signatory thereto and will take no actions contrary to the provisions of any Permitted Intercreditor Agreement, (iii) agrees that no Secured Party shall have any right of action whatsoever against the Administrative Agent or any Collateral Agent as a result of any action taken by the Administrative Agent or the Collateral Agent pursuant to this Section 10.24 or in accordance with the terms of any Permitted Intercreditor Agreement, (iv) authorizes and directs the Administrative Agent and the Collateral Agent to carry out the provisions and intent of each such document and (v) authorizes and directs the Administrative Agent and the Collateral Agent to take such actions as shall be required to release Liens on the Collateral in accordance with the terms of any Permitted Intercreditor Agreement.

(b) Each of the Lenders and the other Secured Parties hereby irrevocably further authorizes and directs the Administrative Agent and the Collateral Agent to execute and deliver, in each case on behalf of such Secured Party and without any further consent, authorization or other action by such Secured Party, any amendments, supplements or other modifications of any Permitted Intercreditor Agreement that the Borrower may from time to time request and that are reasonably acceptable to the Administrative Agent (i) to give effect to any establishment, incurrence, amendment, extension, renewal, refinancing or replacement of any Obligations, any Permitted Credit Agreement Refinancing Indebtedness or any Permitted Incremental Equivalent Indebtedness, (ii) to confirm for any party that such Permitted Intercreditor Agreement is effective and binding upon the Administrative Agent and the Collateral Agent on behalf of the Secured Parties or (iii) to effect any other amendment, supplement or modification so long as the resulting agreement would constitute a Permitted Intercreditor Agreement if executed at such time as a new agreement.

(c) Each of the Lenders and the other Secured Parties hereby irrevocably further authorizes and directs the Administrative Agent and the Collateral Agent to execute and deliver, in each case on behalf of such Secured Party and without any further consent, authorization or other action by such Secured Party, any amendments, supplements or other modifications of any Collateral Document to add or remove any legend that may be required pursuant to any Permitted Intercreditor Agreement.

(d) Each of the Administrative Agent and the Collateral Agent shall have the benefit of the provisions of Sections 9, 10.2 and 10.3 with respect to all actions taken by it pursuant to this Section 10.24 or in accordance with the terms of any Permitted Intercreditor Agreement to the full extent thereof.

(e) The provisions of this Section 10.24 are intended as an inducement to the secured parties under any Permitted Credit Agreement Refinancing Indebtedness or Permitted Incremental Equivalent Indebtedness to extend credit to the Borrower thereunder and such secured parties are intended third party beneficiaries of such provisions.

**10.25. Acknowledgement and Consent to Bail-In of EEA Financial Institutions.** Notwithstanding anything to the contrary in any Credit Document or in any other agreement, arrangement or understanding among the parties hereto, each party hereto acknowledges that any liability of any EEA Financial Institution arising under any Credit Document, to the extent such liability is unsecured, may be subject to the Write-Down and Conversion Powers of an EEA Resolution Authority and agrees and consents to, and acknowledges and agrees to be bound by:

(a) the application of any Write-Down and Conversion Powers by an EEA Resolution Authority to any such liabilities arising hereunder which may be payable to it by any party hereto that is an EEA Financial Institution; and

(b) the effects of any Bail-In Action on any such liability, including, if applicable:

(i) a reduction in full or in part or cancellation of any such liability;

(ii) a conversion of all, or a portion of, such liability into shares or other instruments of ownership in such EEA Financial Institution, its parent undertaking or a bridge institution that may be issued to it or otherwise conferred on it, and that such shares or other instruments of ownership will be accepted by it in lieu of any rights with respect to any such liability under this Agreement or any other Credit Document; or

(iii) the variation of the terms of such liability in connection with the exercise of the Write-Down and Conversion Powers of any EEA Resolution Authority.

**10.1.** **Acknowledgment Regarding any Supported QFCs. To the extent that the Credit Documents provide support, through a guarantee or otherwise, for Hedge Agreements or any other agreement or instrument that is a QFC (such support, "QFC Credit Support" and each such QFC, a "Supported QFC"), the parties hereto acknowledge and agree as follows with respect to the resolution power of the Federal Deposit Insurance Corporation under the Federal Deposit Insurance Act and Title II of the Dodd-Frank Wall Street Reform and Consumer Protection Act (together with the regulations promulgated thereunder, the "US Special Resolution Regimes") in respect of such Supported QFC and QFC Credit Support (with the provisions below applicable notwithstanding that the Credit Documents and any Supported QFC may in fact be stated to be governed by the laws of the State of New York and/or of the United States or any other state of the United States).**

**(a)** **In the event a Covered Entity that is party to a Supported QFC (each, a "Covered Party") becomes subject to a proceeding under a US Special Resolution Regime, the transfer of such Supported QFC and the benefit of such QFC Credit Support (and any interest and obligation in or under such Supported QFC and such QFC Credit Support, and any rights in property securing such Supported QFC or such QFC Credit Support) from such Covered Party will be effective to the same extent as the transfer would be effective under the US Special Resolution Regime if the Supported QFC and such QFC Credit Support (and any such interest, obligation and rights in property) were governed by the laws of the United States or a state of the United States. In the event a Covered Party or a BHC Act Affiliate of a Covered Party becomes subject to a proceeding under a US Special Resolution Regime, Default Rights under the Credit Documents that might otherwise apply to such Supported QFC or any QFC Credit Support that may be exercised against such Covered Party are permitted to be exercised to no greater extent than such Default Rights could be exercised under the US Special Resolution Regime if the Supported QFC and the Credit Documents were governed by the laws of the United States or a state of the United States. Without limitation of the foregoing, it is understood and agreed that rights and remedies of the parties with respect to a Defaulting Lender shall in no event affect the rights of any Covered Party with respect to a Supported QFC or any QFC Credit Support.**

[Remainder of page intentionally left blank]

SCHEDULE 2.1

Revolving Commitments

| Revolving Lender | Revolving Commitment |
|---|---|
| Morgan Stanley Bank, N.A. | $39,290,000.00 |
| Bank of America, N.A. | $39,285,000.00 |
| Barclays Bank PLC | $39,285,000.00 |
| Citibank, N.A. | $39,285,000.00 |
| Goldman Sachs Bank USA | $39,285,000.00 |
| PNC Bank, National Association | $39,285,000.00 |
| SunTrust Bank | $39,285,000.00 |
| Wells Fargo Bank, National Association | $25,000,000.00 |
| **TOTAL** | **$300,000,000.00** |

SCHEDULE 2.3B

Issuing Banks; Letter of Credit Issuing Commitments

| Issuing Bank | Letter of Credit Issuing Commitment |
|---|---|
| Morgan Stanley Bank, N.A. | $5,274,000.00 |

| | |
|---|---|
| Bank of America, N.A. | $5,274,000.00 |
| Barclays Bank PLC | $5,274,000.00 |
| Citibank, N.A. | $5,274,000.00 |
| PNC Bank, National Association | $5,274,000.00 |
| SunTrust Bank | $5,274,000.00 |
| Wells Fargo Bank, National Association | $3,356,000.00 |
| **TOTAL** | **$35,000,000.00** |

SCHEDULE 10.1

Notices

To any Credit Party:

Entegris, Inc.
117 Jonathan Blvd N
Chaska, Minnesota 55318 USA
Attention: Gregory B. Graves
Phone: (952) 556-4580
Fax: (952) 556-4480
Email: greg.graves@entegris.com

Entegris, Inc.
129 Concord Road
Billerica, Massachusetts 01821
Attention: Law Department
Email: joseph.colella@entegris.com

To the Administrative Agent:

Morgan Stanley Senior Funding, Inc.
1300 Thames Street, 4th Floor
Thames Street Wharf
Baltimore, MD 21231
Phone: (917) 260-0588

Email for Borrowers: AGENCY.BORROWERS@morganstanley.com

Email for Lenders: MSAGENCY@morganstanley.com

For all data site postings, please send to: Borrower.Documents@morganstanley.com

To the Collateral Agent:

Morgan Stanley Senior Funding, Inc.
1300 Thames Street, 4th Floor
Thames Street Wharf
Baltimore, MD 21231
Email: DOCS4LOANS@morganstanley.com

To Morgan Stanley, as an Issuing Bank:

Morgan Stanley Senior Funding, Inc.
1300 Thames Street, 4th Floor
Thames Street Wharf
Baltimore, MD 21231
Phone: (443) 627-4555
Fax: (212) 507-5010
Email: MSB.LOC@morganstanley.com

**Exhibit 10.6**

AMENDMENT NO. 1 dated as of October 31, 2019 (this "Amendment"), to the Pledge and Security Agreement dated as of November 6, 2018 (as amended, restated, supplemented or otherwise modified from time to time, the "Security Agreement"), among ENTEGRIS, INC., a Delaware corporation (the "Borrower"), GOLDMAN SACHS BANK USA, as the Predecessor Agent, and MORGAN STANLEY SENIOR FUNDING, INC., as the Successor Agent.

Reference is made to (a) the Credit and Guaranty Agreement dated as of November 6, 2018 as amended by Amendment No. 1 dated as of February 8, 2019 and Amendment No. 2 dated as of the date hereof (as it may be further amended, restated, supplemented or otherwise modified from time to time, the "Credit Agreement"), among the Borrower, certain subsidiaries of the Borrower party thereto, the lenders party thereto and Goldman Sachs Bank USA ("Goldman Sachs"), as Administrative Agent and Collateral Agent, and (b) the Agency Transfer Agreement dated as of the date hereof (the "Agency Transfer Agreement"), among the Borrower, the other Credit Parties thereto, Goldman Sachs, as Predecessor Agent, and Morgan Stanley Senior Funding, Inc. ("Morgan Stanley"), as Successor Agent, pursuant to which Goldman Sachs shall resign as, and Morgan Stanley shall succeed to and become, the Administrative Agent and the Collateral Agent (Goldman Sachs, in its capacity as Administrative Agent and Collateral Agent immediately prior to the effectiveness of the resignation and appointment provided for therein, being referred to as the "Predecessor Agent", and Morgan Stanley, in its capacity as Administrative Agent and Collateral Agent immediately after the effectiveness of the resignation and appointment provided for therein, being referred to as the "Successor Agent").

The parties are entering into this Amendment to amend the Security Agreement to reflect the substitution of Morgan Stanley for the Predecessor Agent.

NOW, THEREFORE, in consideration of the premises and for other good and valuable consideration (the receipt and sufficiency of which is hereby acknowledged), the parties hereto hereby agree as follows:

Section 1.01. Defined Terms. Capitalized terms used but not otherwise defined herein have the meanings assigned to them in the Credit Agreement.

Section 1.02. Amendment to Security Agreement. Effective as of the date hereof:

(a) The Security Agreement is hereby amended by inserting the language indicated in single underlined text (indicated textually in the same manner as the following example: single-underlined text) in Annex I hereto and by deleting the language indicated by strikethrough text (indicated textually in the same manner as the following example: ~~stricken text~~) in Annex I hereto; provided that the amendments replacing references to "Goldman Sachs Bank USA" with "Morgan Stanley Senior Funding, Inc." shall only be

effective as of the Agency Transfer Effective Date (as defined in the Agency Transfer Agreement).

(b) Each of Schedules and Exhibits to the Security Agreement is hereby amended and restated to be in the form of the correspondingly numbered Schedule or Exhibit hereto.

Section 1.03. Effect of Amendment. The Security Agreement, as amended by this Amendment, is and shall continue to be in full force and effect and is hereby in all respects ratified and confirmed. Except as expressly set forth herein, this Amendment shall not by implication or otherwise limit, impair, constitute a waiver of or otherwise affect the rights and remedies of any Agent, any Arranger, any Lender or any Issuing Bank under the Credit Agreement, the Security Agreement or any other Credit Document, and shall not alter, modify, amend or in any way affect any of the terms, conditions, obligations, covenants or agreements contained in the Credit Agreement, Security Agreement or any other Credit Document, all of which, as amended, supplemented or otherwise modified hereby, are ratified and affirmed in all respects and shall continue in full force and effect. Nothing herein shall be deemed to entitle any Credit Party to a consent to, or a waiver, amendment, modification or other change of, any of the terms, conditions, obligations, covenants or agreements contained in the Credit Agreement, Security Agreement or any other Credit Document in similar or different circumstances. This Amendment shall constitute a Credit Document and Collateral Document for all purposes of the Credit Agreement, Security Agreement and the other Credit Documents. On and after the date hereof, each reference in the Security Agreement to "this Agreement", "hereunder", "hereof", "herein" or words of like import, and each reference in any other Credit Document to the "Security Agreement", shall be deemed to be a reference to the Security Agreement as amended hereby.

Section 1.04. Headings. Section headings herein are included for convenience of reference only and shall not constitute a part hereof for any other purpose or be given any substantive effect.

Section 1.05. Applicable Law. THIS AMENDMENT AND THE RIGHTS AND OBLIGATIONS OF THE PARTIES HEREUNDER (INCLUDING ANY CLAIMS SOUNDING IN CONTRACT LAW OR TORT LAW ARISING OUT OF THE SUBJECT MATTER HEREOF AND ANY DETERMINATIONS WITH RESPECT TO POST-JUDGMENT INTEREST) SHALL BE GOVERNED BY, AND SHALL BE CONSTRUED AND ENFORCED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK WITHOUT REGARD TO CONFLICT OF LAWS PRINCIPLES THEREOF THAT WOULD RESULT IN THE APPLICATION OF ANY LAW OTHER THAN THE LAW OF THE STATE OF NEW YORK.

Section 1.06. Consent to Jurisdiction; Waiver of Jury Trial. The provisions of Sections 6.09 and 6.10 of the Security Agreement are hereby incorporated by reference, *mutatis mutandis*, as if set forth in full herein.

Section 1.07. Counterparts. This Amendment may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, but all such counterparts together shall constitute but one and the same instrument. Delivery of an executed

counterpart of a signature page of this Amendment by facsimile or in electronic format (i.e., “pdf” or “tif”) shall be effective as delivery of a manually executed counterpart of this Amendment.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties hereto have caused this Amendment to be executed by their respective officers thereunto duly authorized, as of the date first above written.

ENTEGRIS, INC.,

By: /s/ Gregory B. Graves

Name: Gregory B. Graves

Title: Executive Vice President, Chief Financial Officer & Treasurer

[*Signature Page to Amendment to Security Agreement*]

B5085890.2

GOLDMAN SACHS BANK USA, as
Predecessor Agent,

by

/s/ Douglas Tansey

Name: Douglas Tansey

Title: Authorized Signatory

[*Signature Page to Amendment to Security Agreement*]

MORGAN STANLEY SENIOR FUNDING, INC., as Successor Agent,

by

/s/ Lisa Hanson

Name: Lisa Hanson

Title: Vice President

[*Signature Page to Amendment to Security Agreement*]

**ANNEX I**

See attached.

PLEDGE AND SECURITY AGREEMENT

dated as of

November 6, 2018,

among

ENTEGRIS, INC.,

THE GUARANTORS PARTY HERETO

and

~~GOLDMAN SACHS BANK USA~~**MORGAN STANLEY SENIOR FUNDING, INC.**,
as Collateral Agent

[*Signature Page to Amendment to Security Agreement*]

Table of Contents

Page

PLEDGE AND SECURITY AGREEMENT~~,~~ dated as of November 6, 2018, **as amended by Amendment No. 1 dated as of October 31, 2019,** among ENTEGRIS, INC., a Delaware corporation (the "**Borrower**"), the other GRANTORS party hereto from time to time and ~~GOLDMAN SACHS BANK USA~~**MORGAN STANLEY SENIOR FUNDING, INC.**, as Collateral Agent for the Secured Parties (as defined below).

Reference is made to the Credit and Guaranty Agreement dated as of November 6, 2018**, as amended by Amendment No. 1 dated as of February 8, 2019 and Amendment No. 2 dated as of October 31, 2019** (as it may be amended, restated, supplemented or otherwise modified from time to time, the "**Credit Agreement**"), among the Borrower, certain Subsidiaries of the Borrower party thereto, the Lenders party thereto and ~~Goldman Sachs Bank USA~~**Morgan Stanley Senior Funding, Inc.**, as Administrative Agent and Collateral Agent.

The Lenders have agreed to extend credit to the Borrower, the Issuing Banks have agreed to issue Letters of Credit, the Hedge Counterparties have agreed to enter into and/or maintain one or more Specified Hedge Agreements and the Cash Management Service Providers have agreed to provide the Cash Management Services, in each case on the terms and conditions set forth in the Credit Agreement, the Specified Hedge Agreements or the Specified Cash Management Services Agreements, as applicable. The obligations of the Lenders to extend such credit, the obligations of the Issuing Banks to issue Letters of Credit, the obligations of the Hedge Counterparties to enter into and/or maintain Specified Hedge Agreements and the obligation of the Cash Management Service Providers to provide Cash Management Services are, in each case, conditioned upon, among other things, the execution and delivery of this Agreement by each Grantor. The Grantors are Affiliates of one another, will derive substantial direct and indirect benefits from (a) the extensions of credit to the Borrower and the issuance of Letters of Credit pursuant to the Credit Agreement, (b) the entering into and/or maintaining by the Hedge Counterparties of Specified Hedge Agreements with the Borrower and/or one or more of its Restricted Subsidiaries and (c) the provision of Cash Management Services by the Cash Management Service Providers pursuant to Specified Cash Management Services Agreements, and are willing to execute and deliver this Agreement in order to induce the Lenders to extend such credit, to induce the Issuing Banks to issue such Letters of Credit, to induce the Hedge Counterparties to enter into and/or maintain such Specified Hedge Agreements and to induce the Cash Management Service Providers to provide such Cash Management Services.

Accordingly, the parties hereto agree as follows:

ARTICLE II

Definitions

Section 2.01. Credit Agreement and UCC. Capitalized terms used in this Agreement, including the preamble and the introductory paragraphs hereto, and not otherwise defined herein have the meanings specified in the Credit Agreement.

(a) As used herein, each of the following terms has the meaning specified in the UCC (as defined herein):

| Term | UCC Section |
|---|---|
| Certificated Security | 8-102 |
| Chattel Paper | 9-102 |
| Commercial Tort Claim | 9-102 |
| Deposit Account | 9-102 |
| Document | 9-102 |
| Fixtures | 9-102 |
| Goods | 9-102 |
| Instrument | 9-102 |
| Inventory | 9-102 |
| Investment Property | 9-102 |
| Letter-of-Credit Right | 9-102 |
| Money | 1-201 |
| Payment Intangible | 9-102 |
| Proceeds | 9-102 |
| Promissory Note | 9-102 |
| Securities Account | 8-501 |
| Security Entitlement | 8-102 |
| Supporting Obligations | 9-102 |
| Uncertificated Security | 8-102 |

(b) The rules of construction specified in Section 1.3 of the Credit Agreement also apply to this Agreement, *mutatis mutandis*.

(c) As used in this Agreement, the following terms have the meanings specified below:

"Account(s)" means "accounts" as defined in Section 9-102 of the UCC, and also means a right to payment of a monetary obligation, whether or not earned by performance, (a) for property that has been or is to be sold, leased, licensed, assigned, or otherwise disposed of, (b) for services rendered or to be rendered or (c) arising out of the use of a credit or charge card or information contained on or for use with the card.

"Account Debtor" means any Person that is or that may become obligated to any Grantor under, with respect to or on account of an Account or a Payment Intangible.

"After-Acquired Intellectual Property" has the meaning assigned to such term in Section 4.02(d).

"Agreement" means this Pledge and Security Agreement.

"Article 9 Collateral" has the meaning assigned to such term in Section 3.01(a).

"Bankruptcy Event of Default" means any Event of Default under Section 8.1(f) or 8.1(g) of the Credit Agreement.

"Blue Sky Laws" has the meaning assigned to such term in Section 5.01.

"Closing Date Grantor" means any Grantor that is a party hereto as of the Closing Date.

"Collateral" means the Article 9 Collateral and the Pledged Collateral; provided that all references to "Collateral" in Section 5.02 shall, unless the context requires otherwise, also refer to all Material Real Estate Assets subject to a Mortgage.

"Collateral Questionnaire" means the Collateral Questionnaire delivered on the Closing Date pursuant to Section 3.1 of the Credit Agreement, together with all Supplemental Collateral Questionnaires delivered after the Closing Date pursuant to the

Credit Agreement.

"Commercial Software License(s)" means any non-exclusive license of commercially available (on non-discriminatory pricing terms) computer software to a Grantor from a commercial software provider (e.g., "shrink-wrap", "browse-wrap" or "click-wrap" software licenses) or a license of freely available computer software from a licensor of free or open source software.

"Copyright License" means any written agreement, now or hereafter in effect, granting any right to any third party under any Copyright now or hereafter owned by any Grantor or that such Grantor otherwise has the right to license, or granting any right to any Grantor under any Copyright now or hereafter owned by any third party, and all rights of such Grantor under any such agreement.

"Copyrights" means all of the following now owned or hereafter acquired by or assigned to any Grantor: (a) all copyright rights in any work subject to the copyright laws of the United States or any other country, whether as author, assignee, transferee or otherwise, whether registered or unregistered and whether published or unpublished, (b) all registrations and applications for registration of any such copyright in the United States or any other country, including registrations, recordings, supplemental registrations, pending applications for registration and renewals in the United States Copyright Office, including those listed on Schedule III, (c) all rights and privileges arising under applicable law with respect to such Grantor's use of such copyrights, (d) all reissues, renewals, continuations and extensions thereof and amendments thereto, (e) all income, fees, royalties, damages, claims and payments now or hereafter due and/or payable with respect to the foregoing, including damages and payments for past, present or future infringements thereof, (f) all rights corresponding thereto throughout the world, and (g) all rights to sue for past, present or future infringements thereof.

"Credit Agreement" has the meaning assigned to such term in the preliminary statement of this Agreement.

"Domain Names" means all Internet domain names and associated URL addresses in or to which any Grantor now or hereafter has any right, title or interest.

"Equipment" means (a) any "equipment" as such term is defined in Article 9 of the UCC and shall also include, but shall not be limited to, all machinery, equipment, furnishings, appliances, furniture, fixtures, tools, and vehicles now or hereafter owned by any Grantor, in each case, regardless of whether characterized as equipment under the UCC and (b) and any and all additions, substitutions and replacements of any of the foregoing and all accessions thereto, wherever located, whether or not at any time of determination incorporated or installed therein or attached thereto, and all replacements therefore, together with all attachments, components, parts, equipment and accessories installed thereon or affixed thereto.

"Excluded Equity Interests" has the meaning set forth in Section 2.01.

"Excluded Property" has the meaning assigned to such term in the Credit Agreement and also includes the Excluded Equity Interests.

"General Intangibles" has the meaning provided in Article 9 of the UCC and shall in any event include all choses in action and causes of action and all other intangible personal property of every kind and nature (other than Accounts) now owned or hereafter acquired by any Grantor, as the case may be, including corporate or other business records, indemnification claims, contract rights (including rights under leases, whether entered into as lessor or lessee, Hedge Agreements and other agreements), goodwill, registrations, franchises, tax refund claims and any letter of credit, guarantee, claim, security interest or other security held by or granted to any Grantor.

"Grantor" means each of the Borrower and each Restricted Subsidiary party hereto (including any such Restricted Subsidiary becoming a party hereto after the Closing Date pursuant to a Pledge and Security Agreement Supplement).

"Hedge Counterparties" means each Secured Party that is a party to a Specified Hedge Agreement.

"Intellectual Property" means all intellectual and similar property of every kind and nature now owned or hereafter acquired by any Grantor, including inventions, designs, utility models, Patents, Copyrights, Licenses, Trademarks, trade secrets, confidential or proprietary technical and business information, know how, show how or other data or information, software, databases, all other proprietary information, including but not limited to Domain Names, and all embodiments or fixations thereof and applications therefor, and related documentation, registrations and franchises, and all additions, improvements and accessions to, and books and records describing or used in connection with, any of the foregoing.

"Intellectual Property Collateral" means Collateral consisting of Intellectual Property.

"Intellectual Property Security Agreements" means each Patent and Trademark Security Agreement in the form of Exhibit II attached hereto and each Copyright Security Agreement in the form of Exhibit III attached hereto.

"License" means any Patent License, Trademark License, Copyright License, Commercial Software License or other license or sublicense agreement granting rights under Intellectual Property to which any Grantor is a party, including those listed on Schedule III.

"Patent License" means any written agreement, now or hereafter in effect, granting to any third party any right to develop, commercialize, import, make, have made, offer for sale, use or sell any invention on which a Patent, now or hereafter owned by any Grantor or that any Grantor otherwise has the right to license, is in existence, or granting to any Grantor any such right with respect to any invention on which a Patent, now or hereafter owned by any third party, is in existence, and all rights of any Grantor under any such agreement.

"Patents" means all of the following now owned or hereafter acquired by any Grantor: (a) all letters patent of the United States or the equivalent thereof in any other country, all registrations and recordings thereof, and all applications for letters patent of the United States or the equivalent thereof in any other country, including registrations, recordings and pending applications in the United States Patent and Trademark Office or any similar offices in any other country, including those listed on Schedule III, (b) all rights and privileges arising under applicable law with respect to such Grantor's use of any patents, (c) all inventions and improvements described and claimed therein, (d) all reissues, divisions, continuations, renewals, extensions, reexaminations, supplemental examinations, *inter partes* reviews, adjustments and continuations-in-part thereof and amendments thereto, (e) all income, fees, royalties, damages, claims and payments now or hereafter due and/or payable with respect to any of the foregoing including damages and payments for past, present or future infringements thereof, (f) all rights corresponding thereto throughout the world, including the right to make, have made, use, sell, offer to sell, import or export the inventions disclosed or claimed therein, and (g) rights to sue for past, present or future infringements thereof.

"Pledge and Security Agreement Supplement" means an instrument substantially in the form of Exhibit I hereto.

"Pledged Collateral" has the meaning assigned to such term in Section 2.01.

"Pledged Debt" has the meaning assigned to such term in Section 2.01.

"Pledged Equity" has the meaning assigned to such term in Section 2.01.

"Pledged Securities" means any Promissory Notes, stock certificates, limited liability membership interests or other Securities, certificates or Instruments now or hereafter included in the Pledged Collateral, including all Pledged Equity, Pledged Debt and all other certificates, instruments or other documents representing or evidencing any Pledged Collateral.

"Secured Obligations" means the "Obligations" as defined in the Credit Agreement.

"Secured Parties" means (a) the Administrative Agent, (b) the Collateral Agent, (c) the Arrangers and the Syndication Agent, (d) the Lenders, (e) the Issuing Banks, (f) each counterparty to any Specified Hedge Agreement, (g) each Cash Management Services Provider that holds any Specified Cash Management Services Obligations, (h) the beneficiaries of each indemnification obligation undertaken by any Credit Party under any Credit Document and (i) the other holders from time to time of the Secured Obligations.

"Securities Act" has the meaning assigned to such term in Section 5.01.

"Security" means a "security" as such term is defined in Article 8 of the UCC and, in any event, shall include any stock, shares, partnership interests, voting trust certificates, certificates of interest or participation in any profit sharing agreement or arrangement, options, warrants, bonds, debentures, notes, or other evidences of indebtedness, secured or unsecured, convertible, subordinated or otherwise, or in general any instruments commonly known as "securities" or any certificates of interest, shares or participations in temporary or interim certificates for the purchase or acquisition of, or any right to subscribe to, purchase or acquire, any of the foregoing.

"Security Interest" has the meaning assigned to such term in Section 3.01(a).

"Trademark License" means any written agreement, now or hereafter in effect, granting to any third party any right to use any Trademark now or hereafter owned by any Grantor or that any Grantor otherwise has the right to license, or granting to any Grantor any right to use any Trademark now or hereafter owned by any third party, and all rights of any Grantor under any such agreement.

"Trademarks" means all of the following now owned or hereafter acquired by any Grantor: (a) all trademarks, service marks, trade names, corporate names, company names, business names, fictitious business names, trade styles, trade dress, logos, other source or business identifiers, designs and general intangibles of like nature, the goodwill of the business symbolized thereby or associated therewith, all registrations and recordings thereof, and all registration and recording applications filed in connection therewith, including registrations and registration applications in the United States Patent and Trademark Office or any similar offices in any State of the United States or any other country or any political subdivision thereof, and all extensions or

renewals thereof, including those listed on Schedule III, (b) all rights and privileges arising under applicable law with respect to such Grantor's use of any trademarks, (c) all reissues, continuations, extensions and renewals thereof and amendments thereto, (d) all income, fees, royalties, damages and payments now and hereafter due and/or payable with respect to any of the foregoing, including damages, claims and payments for past, present or future infringements thereof, (e) all the goodwill of the business with which any of the foregoing is associated, (f) all rights corresponding thereto throughout the world and (g) rights to sue for past, present and future infringements or dilutions thereof or other injuries thereto.

"UCC" means the Uniform Commercial Code as the same may from time to time be in effect in the State of New York; provided that, if by reason of mandatory provisions of law, perfection, or the effect of perfection or non-perfection, of a security interest in any Collateral or the availability of any remedy hereunder is governed by the Uniform Commercial Code as in effect in a jurisdiction other than the State of New York, "UCC" means the Uniform Commercial Code as in effect in such other jurisdiction for purposes of the provisions hereof relating to such perfection or effect of perfection or non-perfection or availability of such remedy, as the case may be.

## ARTICLE III

## Pledge of Securities

Section 3.01. Pledge. As security for the payment or performance, as the case may be, in full of the Secured Obligations, each Grantor hereby assigns and pledges to the Collateral Agent, its successors and assigns, for the benefit of the Secured Parties, and hereby grants to the Collateral Agent, its successors and assigns, for the benefit of the Secured Parties, a continuing security interest in, all of such Grantor's right, title and interest in, to and under (a) all Equity Interests owned by it (including those Equity Interests listed opposite the name of such Grantor on Schedule I) and any other Equity Interests obtained in the future by such Grantor and all certificates and other instruments representing all such Equity Interests (the "Pledged Equity"); provided that the Pledged Equity shall not include (i) more than 65% of the outstanding voting Equity Interests in any CFC or CFC Holding Company (the Equity Interests so excluded under this clause (i) being collectively referred to herein as the "Excluded Equity Interests") or (ii) any Equity Interests to the extent and for so long as such Equity Interests constitute Excluded Property; (b) (i) all Promissory Notes and all Instruments evidencing Indebtedness owned by it (including those listed opposite the name of such Grantor on Schedule I) and (ii) all Promissory Notes and all other Instruments evidencing Indebtedness obtained in the future by such Grantor (the "Pledged Debt"), provided that the Pledged Debt shall not include any of the foregoing to the extent and for so long as it constitutes Excluded Property; (c) all other property that may be delivered to and held by the Collateral Agent pursuant to the terms of this Section 2.01 or Section 2.02; (d) subject to Section 2.06, all payments of principal or interest, dividends, cash, instruments and other property from time to time received, receivable or otherwise distributed in respect of, in exchange for or upon the conversion of, and all other Proceeds received in respect of, the securities referred to in clauses (a) and (b) above; (e) subject to Section 2.06, all rights and privileges of such Grantor with respect to the securities and other property referred to in clauses (a), (b), (c) and (d) above; and (f) all Proceeds of, and Security Entitlements in respect of, any of the foregoing (the items referred to in clauses (a) through (f) above being collectively referred to as the "Pledged Collateral"):

TO HAVE AND TO HOLD the Pledged Collateral, together with all right, title, interest, powers, privileges and preferences pertaining or incidental thereto, unto the Collateral Agent, its successors and assigns, for the benefit of the Secured Parties, forever; subject, however, to the terms, covenants and conditions hereinafter set forth.

Section 3.02. Delivery of the Pledged Collateral. On the Closing Date (in the case of any Closing Date Grantor) or on the date on which it signs and delivers its Pledge and Security Agreement Supplement (in the case of any other Grantor), each Grantor shall deliver or cause to be delivered to the Collateral Agent, for the benefit of the Secured Parties, any and all Pledged Securities (other than (i) any Uncertificated Securities, but only for so long as such Pledged Securities remain Uncertificated Securities, and (ii) certificates or instruments representing or evidencing Equity Interests in any Subsidiary that is not a Material Subsidiary) to the extent such Pledged Securities, in the case of Promissory Notes and other Instruments evidencing Indebtedness, are required to be delivered in order to satisfy the Collateral and Guarantee Requirement. Thereafter, whenever such Grantor acquires any other Pledged Security (other than (i) any Uncertificated Securities, but only for so long as such Pledged Securities remain Uncertificated Securities and (ii) certificates or instruments representing or evidencing Equity Interests in any Subsidiary that is not a Material Subsidiary), such Grantor shall promptly, and in any event no later than the later to occur of (A) within 60 days and (B) together with the next Compliance Certificate required to be delivered pursuant to Section 5.1(d) of the Credit Agreement (or such longer period as the Collateral Agent may agree to in writing), deliver or cause to be delivered to the Collateral Agent such Pledged Security as Collateral hereunder to the extent such Pledged Securities, in the case of Promissory Notes and other Instruments evidencing Indebtedness, are required to be delivered in order to satisfy the Collateral and Guarantee Requirement.

(a) Upon delivery to the Collateral Agent, (i) any Pledged Securities shall be accompanied by undated stock or note powers duly executed by the applicable Grantor in blank or other instruments of transfer reasonably satisfactory to the Collateral Agent and by such other instruments and documents as the Collateral Agent may reasonably request and (ii) all other property comprising part of the Pledged Collateral shall be accompanied by undated proper instruments of assignment duly

executed by the applicable Grantor and such other instruments or documents as the Collateral Agent may reasonably request. Each delivery of Pledged Securities shall be accompanied by a schedule describing such Pledged Securities, which schedule shall be deemed to supplement Schedule I and be made a part hereof; provided that failure to attach any such schedule hereto shall not affect the validity of such pledge of such Pledged Securities. Each schedule so delivered shall supplement any prior schedules so delivered.

(b) Notwithstanding the foregoing, to the extent that any Closing Date Grantor does not or cannot deliver any Pledged Collateral (other than Pledged Collateral consisting of the Equity Interests of any Designated Subsidiary) on the Closing Date notwithstanding its use of commercially reasonable efforts to do so, such Closing Date Grantor shall not be required to deliver such Pledged Collateral on the Closing Date and shall instead be required to deliver such Pledged Collateral after the Closing Date pursuant to the terms of the Post-Closing Letter Agreement.

(c) The assignment, pledge and security interest granted in Section 2.01 are granted as security only and shall not subject the Collateral Agent or any other Secured Party to, or in any way alter or modify, any obligation or liability of any Grantor with respect to or arising out of the Pledged Collateral.

Section 3.03. Representations, Warranties and Covenants. Each Grantor represents, warrants and covenants, as to itself and the other Grantors, to and with the Collateral Agent, for the benefit of the Secured Parties, that:

(a) Schedule I correctly sets forth, as of the Closing Date and as of each date on which a supplement to Schedule I is delivered pursuant to Section 2.02(c), the percentage of the issued and outstanding units of each class of the Equity Interests of the issuer thereof represented by the Pledged Equity and includes all Equity Interests, Promissory Notes and Instruments required to be pledged hereunder in order to satisfy the Collateral and Guarantee Requirement;

(b) the Pledged Equity issued by a wholly owned Restricted Subsidiary and the Pledged Debt (solely with respect to Pledged Debt issued by a Person other than the Borrower or a Subsidiary of the Borrower, to the best of the Borrower's knowledge) have been duly and validly authorized and issued by the issuers thereof and (i) in the case of Pledged Equity (other than Pledged Equity consisting of limited liability company interests or partnership interests which, pursuant to the relevant Organizational Documents, cannot be fully paid and non-assessable), are fully paid and non-assessable and (ii) in the case of Pledged Debt (solely with respect to Pledged Debt issued by a Person other than the Borrower or a Subsidiary of the Borrower, to the best of the Borrower's knowledge), are legal, valid and binding obligations of the issuers thereof, subject to applicable Debtor Relief Laws and general principles of equity;

(c) each Grantor (i) holds the Pledged Securities indicated on Schedule I as owned by such Grantor free and clear of all Liens, other than (A) Liens created by the Collateral Documents and (B) Liens expressly permitted pursuant to Section 6.2 of the Credit Agreement, and (ii) will defend its title or interest thereto or therein against any and all Liens (other than the Liens permitted pursuant to this Section 2.03(c)), however, arising, of all Persons whomsoever;

(d) (i) except for (x) restrictions and limitations imposed by the Credit Documents or securities laws generally or Liens expressly permitted pursuant to Section 6.2 of the Credit Agreement and (y) in the case of Pledged Equity of Persons that are not Designated Subsidiaries, transfer restrictions that exist in respect of Equity Interests in such Persons, and (ii) except as described in the Collateral Questionnaire, the Pledged Collateral is and will continue to be freely transferable and assignable, and none of the Pledged Collateral is or will be subject to any option, right of first refusal, shareholders agreement, charter or by-law provisions or contractual restriction of any nature that would prohibit, impair, delay or otherwise affect in any manner material and adverse to the Secured Parties the pledge of such Pledged Collateral hereunder, the sale or disposition thereof pursuant hereto or the exercise by the Collateral Agent of rights and remedies hereunder;

(e) each of the Grantors has the power and authority to pledge the Pledged Collateral pledged by it hereunder in the manner hereby done or contemplated;

(f) no consent or approval of any Governmental Authority, any securities exchange or any other Person is or will be necessary to the validity and perfection of the pledge of the Pledged Collateral effected hereby (other than such as have been obtained and are in full force and effect as of the date of the applicable pledge);

(g) subject to applicable local laws in the case of Equity Interests in any Foreign Subsidiaries, by virtue of the execution and delivery by the Grantors of this Agreement, when any Pledged Securities are delivered to the Collateral Agent in accordance with this Agreement, the Collateral Agent will obtain a legal, valid and, to the extent governed by the UCC, first-priority (subject to any Liens permitted pursuant by Section 6.2 of the Credit Agreement) perfected lien upon and security interest in such Pledged Securities as security for the payment and performance of the Secured Obligations; and

(h) subject to applicable local laws in the case of Equity Interests in any Foreign Subsidiaries, the pledge effected hereby is effective to vest in the Collateral Agent, for the benefit of the Secured Parties, the rights of the Collateral Agent in the Pledged Collateral as set forth herein.

Notwithstanding the foregoing, (a) except to the extent required to satisfy the Collateral and Guarantee Requirement, perfection by possession or "control" shall not be required with respect to any Promissory Notes or other evidences of Indebtedness owned by a Grantor and constituting Collateral, (b) no actions in any jurisdiction outside of the United States or that are necessary to create or perfect any security interest in assets located or titled outside of the United States shall be required and (c) no Grantor shall be required to deliver to the Collateral Agent any certificates or instruments representing or evidencing, or any stock powers or other instruments of transfer in respect of, Equity Interests in any Subsidiary that is not a Material Subsidiary.

Section 3.04. Certification of Limited Liability Company and Limited Partnership Interests. Each Grantor acknowledges and agrees that, to the extent any interest in any limited liability company or limited partnership controlled by any Grantor and pledged under Section 2.01 is a "security" within the meaning of Article 8 of the UCC and is governed by Article 8 of the UCC, such interest shall be represented by a certificate. Each Grantor further acknowledges and agrees that with respect to any interest in any limited liability company or limited partnership controlled on or after the date hereof by such Grantor and pledged hereunder that is not a "security" within the meaning of Article 8 of the UCC, such Grantor shall at no time elect to treat any such interest as a "security" within the meaning of Article 8 of the UCC, nor shall such interest be represented by a certificate, unless such election and such interest is thereafter represented by a certificate that is promptly delivered to the Collateral Agent pursuant to the terms hereof.

Section 3.05. Registration in Nominee Name; Denominations. If an Event of Default shall occur and be continuing and the Collateral Agent shall give the Borrower notice of its intent to exercise such rights, (a) the Collateral Agent, on behalf of the Secured Parties, shall have the right (in its sole and absolute discretion) to cause each of the Pledged Securities to be transferred of record into the name of the Collateral Agent or into the name of its nominee (as pledgee or as sub-agent) and (b) the Collateral Agent shall have the right to exchange the certificates representing Pledged Securities for certificates of smaller or larger denominations for any purpose consistent with this Agreement; provided that, notwithstanding the foregoing, if a Bankruptcy Event of Default shall have occurred and be continuing, the Collateral Agent shall not be required to give the notice referred to above in order to exercise the rights described above. Each Grantor will take any and all actions reasonably requested by the Collateral Agent to facilitate compliance with this Section.

Section 3.06. Voting Rights; Dividends and Interest. Unless and until an Event of Default shall have occurred and be continuing and the Collateral Agent shall have notified the Borrower that the rights of the Grantors under this Section 2.06 are being suspended:

(i) Each Grantor shall be entitled to exercise any and all voting and/or other consensual rights and powers inuring to an owner of Pledged Securities or any part thereof for any purpose consistent with the terms of this Agreement, the Credit Agreement and the other Credit Documents; provided that such rights and powers shall not be exercised in any manner that could materially and adversely affect the rights inuring to a holder of any Pledged Securities or the rights and remedies of any of the Collateral Agent or the other Secured Parties under this Agreement, the Credit Agreement or any other Credit Document or the ability of the Secured Parties to exercise the same.

(ii) The Collateral Agent shall promptly execute and deliver to each Grantor, or cause to be executed and delivered to such Grantor, all such proxies, powers of attorney and other instruments as such Grantor may reasonably request in writing for the purpose of enabling such Grantor to exercise the voting and/or consensual rights and powers it is entitled to exercise pursuant to Section 2.06(a)(i), in each case as shall be specified in such request and be in form and substance reasonably satisfactory to the Collateral Agent.

(iii) Each Grantor shall be entitled to receive and retain any and all dividends, interest, principal and other distributions paid on or distributed in respect of the Pledged Securities, to the extent (and only to the extent) that such dividends, interest, principal and other distributions are permitted by, and otherwise paid or distributed in accordance with, the terms and conditions of the Credit Agreement, the other Credit Documents and applicable laws; provided that any noncash dividends, interest, principal or other distributions that would constitute Pledged Equity or Pledged Debt, whether resulting from a subdivision, combination or reclassification of the outstanding Equity Interests of the issuer of any Pledged Securities or received in exchange for Pledged Securities or any part thereof, or in redemption thereof, or as a result of any merger, consolidation, acquisition or other exchange of assets to which such issuer may be a party or otherwise, shall be and become part of the Pledged Collateral, and, if received by any Grantor, shall not be commingled by such Grantor with any of its other funds or property but shall be held separate and apart therefrom, shall be held in trust for the benefit of the Collateral Agent and the Secured Parties and shall, if certificated and to the extent required by Section 2.02, be forthwith delivered to the Collateral Agent in the same form as so received (with any necessary endorsement reasonably requested by the Collateral Agent). So long as no Event of Default has occurred and is continuing, the Collateral Agent shall promptly deliver to each Grantor any Pledged Securities in its possession if requested to be delivered to the issuer thereof in connection with any exchange or redemption of such Pledged Securities.

(b) Upon the occurrence and during the continuance of an Event of Default, after the Collateral Agent shall have notified the Borrower of the suspension of the rights of the Grantors under Section 2.06(a)(iii), then all rights of any Grantor to dividends, interest, principal or other distributions that such Grantor is authorized to receive pursuant to Section 2.06(a)(iii) shall cease, and all such rights shall thereupon become vested in the Collateral Agent, which shall have the sole and exclusive right and authority to receive and retain such dividends, interest, principal or other distributions, subject to Section 2.07 and the last sentence of this Section 2.06(b). All dividends, interest, principal or other distributions received by any Grantor contrary to the provisions of this Section 2.06 shall be held in trust for the benefit of the Collateral Agent and the other Secured Parties, shall be segregated from other property or funds of such Grantor and shall be forthwith delivered to the Collateral Agent upon demand in the same form as so received (with any necessary endorsement reasonably requested by the Collateral Agent). Any and all money and other property paid over to or received by the Collateral Agent pursuant to the provisions of this Section 2.06(b) shall be retained by the Collateral Agent in an account to be established by the Collateral Agent upon receipt of such money or other property, shall be held as security for the payment and performance of the Secured Obligations and shall be applied in accordance with the provisions of Section 5.02. After all Events of Default have been cured or waived and, other than in the case of a waiver of which the Collateral Agent is aware, the Borrower has delivered to the Collateral Agent a certificate to such effect, the Collateral Agent shall promptly repay to each Grantor (without interest) all dividends, interest, principal or other distributions that such Grantor would otherwise be permitted to retain pursuant to the terms of Section 2.06(a)(iii) in the absence of an Event of Default and that remain in such account.

(c) Upon the occurrence and during the continuance of an Event of Default, after the Collateral Agent shall have notified the Borrower of the suspension of the rights of the Grantors under Section 2.06(a)(i), then all rights of any Grantor to exercise the voting and consensual rights and powers it is entitled to exercise pursuant to Section 2.06(a)(i), and the obligations of the Collateral Agent under Section 2.06(a)(ii), shall cease, and all such rights shall thereupon become vested in the Collateral Agent, which shall have the sole and exclusive right and authority to exercise such voting and consensual rights and powers, subject to Section 2.07 and the last sentence of this Section 2.06(c); provided that, unless otherwise directed by the Requisite Lenders in writing, the Collateral Agent shall have the right from time to time following and during the continuance of an Event of Default to permit the Grantors to exercise such rights. After all Events of Default have been cured or waived and, other than in the case of a waiver of which the Collateral Agent is aware, the Borrower has delivered to the Collateral Agent a certificate to such effect, each Grantor shall have the exclusive right to exercise the voting and/or consensual rights and powers that such Grantor would otherwise be entitled to exercise pursuant to the terms of Section 2.06(a)(i), and the obligations of the Collateral Agent under Section 2.06(a)(ii) shall be reinstated.

(d) Any notice given by the Collateral Agent to the Borrower suspending the rights of the Grantors under Section 2.06(a)(i) shall be given in writing, (ii) may be given with respect to one or more of the Grantors at the same or different times and (iii) may suspend the rights of the Grantors under Section 2.06(a)(i) or 2.06(a)(iii) in part without suspending all such rights (as specified by the Collateral Agent in its sole and absolute discretion) and without waiving or otherwise affecting the Collateral Agent's rights to give additional notices from time to time suspending other rights so long as an Event of Default has occurred and is continuing. Notwithstanding anything to the contrary contained in Section 2.06(a), 2.06(b) or 2.06(c), if a Bankruptcy Event of Default shall have occurred and be continuing, the Collateral Agent shall not be required to give any notice referred to in such Section in order to exercise any of its rights described in such Section, and the suspension of the rights of each of the Grantors under each such Section shall be automatic upon the occurrence of such Bankruptcy Event of Default.

Section 3.07. Collateral Agent Not a Partner or Limited Liability Company Member. Nothing contained in this Agreement shall be construed to make the Collateral Agent or any other Secured Party liable as a member of any limited liability company or as a partner of any partnership, and neither the Collateral Agent nor any other Secured Party by virtue of this Agreement or otherwise (except as referred to in the following sentence) shall have any of the duties, obligations or liabilities of a member of any limited liability company or as a partner in any partnership. The parties hereto expressly agree that, unless the Collateral Agent shall become the absolute owner of Pledged Equity consisting of a limited liability company interest or a partnership interest pursuant hereto, this Agreement shall not be construed as creating a partnership or joint venture among the Collateral Agent, any other Secured Party, any Grantor and/or any other Person.

## ARTICLE IV

## Security Interests in Personal Property

Section 4.01. Security Interest. As security for the payment or performance, as the case may be, in full of the Secured Obligations, each Grantor hereby assigns and pledges to the Collateral Agent, its successors and assigns, for the benefit of the Secured Parties, and hereby grants to the Collateral Agent, its successors and assigns, for the benefit of the Secured Parties, a security interest (the "Security Interest") in, all right, title and interest in, to and under any and all of the following assets and properties now owned or at any time hereafter acquired by such Grantor or in which such Grantor now has or at any time in the future may acquire any right, title or interest (collectively, the "Article 9 Collateral"):

(i) all Accounts;

(ii) all Chattel Paper;

(iii) all Documents;

(iv) all Equipment;

(v) all General Intangibles;

(vi) all Instruments;

(vii) all Inventory;

(viii) all Investment Property;

(ix) all books and records pertaining to the Article 9 Collateral;

(x) all Goods and Fixtures;

(xi) all Money, cash, cash equivalents and Deposit Accounts;

(xii) all Letter-of-Credit Rights;

(xiii) all Commercial Tort Claims described on Schedule II from time to time, as such Schedule may be supplemented from time to time pursuant to Section 3.02;

(xiv) all Supporting Obligations;

(xv) all Security Entitlements in any or all of the foregoing;

(xvi) all Intellectual Property; and

(xvii) to the extent not otherwise included above, all Proceeds and products of any and all of the foregoing (including proceeds of all insurance policies) and all collateral security and guarantees given by any Person with respect to any of the foregoing.

(b) Notwithstanding anything herein to the contrary, to the extent and for so long as any asset constitutes Excluded Property, the Security Interest granted under this Section 3.01 shall not attach to, and Article 9 Collateral shall not include, such asset; provided, however, that the Security Interest shall immediately attach to, and Article 9 Collateral shall immediately include, any such asset (or portion thereof) upon such asset (or such portion) ceasing to be Excluded Property.

(c) Each Grantor hereby irrevocably authorizes the Collateral Agent (or its designee) for the benefit of the Secured Parties at any time and from time to time to file in any relevant jurisdiction any financing statements or continuation statements (including fixture filings) with respect to the Article 9 Collateral or any part thereof and amendments thereto that (i) indicate the Collateral as "all assets" or "all personal property" of such Grantor or words of similar effect and (ii) contain the information required by Article 9 of the UCC of each applicable jurisdiction for the filing of any financing statement or amendment, including (A) whether such Grantor is an organization, the type of organization and any organizational identification number issued to such Grantor and (B) in the case of a financing statement filed as a fixture filing, a sufficient description of the real property to which such Article 9 Collateral relates. Each Grantor agrees to provide such information to the Collateral Agent promptly upon request. Each Grantor hereby ratifies its authorization for the Collateral Agent (or its designee) to file in any relevant jurisdiction any initial financing statements or amendments thereto if filed prior to the date hereof.

(d) The Security Interest and the security interest granted pursuant to Article II are granted as security only and shall not subject the Collateral Agent or any other Secured Party to, or in any way alter or modify, any obligation or liability of any Grantor with respect to or arising out of the Article 9 Collateral.

(e) Each Grantor hereby further authorizes the Collateral Agent (or its designee) to file one or more Intellectual Property Security Agreements concerning Intellectual Property Collateral with the United States Patent and Trademark Office or United States Copyright Office (or any successor office), as applicable, and such other documents as may be necessary or advisable for the purpose of perfecting, confirming, continuing, enforcing or protecting the Security Interest granted by such Grantor hereunder, without the signature of such Grantor, and naming such Grantor, as debtor, and the Collateral Agent, as secured party.

Section 4.02. Representations and Warranties. Each Grantor represents and warrants, as to itself and the other Grantors, to the Collateral Agent, for the benefit of the Secured Parties, that:

(a) Each Grantor has good and valid rights in (not subject to any Liens other than Liens permitted by Section 6.2 of the Credit Agreement) and/or good and marketable title in the Article 9 Collateral with respect to which it has purported to grant a Security Interest hereunder (which rights and/or title are, in any event, sufficient under Section 9-203 of the UCC), and has full power and authority to grant to the Collateral Agent the Security Interest in such Article 9 Collateral pursuant hereto and to execute, deliver and perform its obligations in accordance with the terms of this Agreement, without the consent or approval of any other Person other than any consent or approval that has been obtained.

(b) The Collateral Questionnaire has been duly executed and delivered to the Collateral Agent and the information set forth therein, including the exact legal name of each Grantor and its jurisdiction of organization, is correct and complete in all material respects as of the Closing Date. The UCC financing statements (including fixture filings, as applicable) prepared by the Collateral Agent based upon the information provided to the Collateral Agent in the Collateral Questionnaire (or specified by notice from the applicable Grantor to the Collateral Agent after the Closing Date in the case of filings, recordings or registrations required by Section 5.10 or 5.11 of the Credit Agreement) are all the filings, recordings and registrations (other than any filings required to be made in the United States Patent and Trademark Office or the United States Copyright Office in order to perfect the Security Interest in Article 9 Collateral consisting of United States registered patents (and Patents for which United States applications for registration are pending), United States registered Trademarks (and Trademarks for which United States applications for registration are pending), United States registered Copyrights (and Copyrights for which United States applications for registration are pending) and United States exclusive registered Copyright Licenses) that are necessary to establish a legal, valid and perfected security interest in favor of the Collateral Agent (for the benefit of the Secured Parties) in respect of all Article 9 Collateral in which the Security Interest may be perfected by filing, recording or registration in the United States (or any political subdivision thereof) and its territories and possessions, and no further or subsequent filing, refiling, recording, rerecording, registration or reregistration with respect to such Article 9 Collateral is necessary in any such jurisdiction, except as provided under applicable law with respect to the filing of continuation statements. Each Grantor represents and warrants that, as of the Closing Date, fully executed Intellectual Property Security Agreements containing a description of all Intellectual Property Collateral consisting of Patents (and Patents for which registration applications are pending), registered Trademarks (and Trademarks for which registration applications are pending), registered Copyrights (and Copyrights for which registration applications are pending) and exclusive Copyright Licenses (where a Grantor is a licensee), as applicable, have been delivered to the Collateral Agent for recording by the United States Patent and Trademark Office or the United States Copyright Office, as applicable, pursuant to 35 U.S.C. § 261, 15 U.S.C. § 1060 or 17 U.S.C. § 205 and the regulations thereunder.

(c) The Security Interest constitutes (i) a legal and valid security interest in all the Article 9 Collateral securing the payment and performance of the Secured Obligations, (ii) subject to the filings described in Section 3.02(b), a perfected security interest in all Article 9 Collateral in which a security interest may be perfected by filing, recording or registering a financing statement in the United States (or any political subdivision thereof) and its territories and possessions pursuant to the UCC and (iii) a security interest that shall be perfected in all Article 9 Collateral in which a security interest may be perfected upon the receipt and recording of the relevant Intellectual Property Security Agreements with the United States Patent and Trademark Office and the United States Copyright Office, as applicable, within the three month period (commencing as of the date hereof) pursuant to 35 U.S.C. § 261 or 15 U.S.C. § 1060 or the one month period (commencing as of the date hereof) pursuant to 17 U.S.C. § 205. The Security Interest is and shall be prior to any other Lien on any of the Article 9 Collateral, other than (i) any nonconsensual Lien that is expressly permitted pursuant to Section 6.2 of the Credit Agreement and has priority as a matter of law and (ii) Liens expressly permitted pursuant to Section 6.2 of the Credit Agreement (other than Liens securing Permitted Junior Lien Secured Indebtedness).

(d) The Article 9 Collateral is owned by the Grantors free and clear of any Lien, except for Liens expressly permitted pursuant to Section 6.2 of the Credit Agreement. None of the Grantors has filed or consented to the filing of (i) any financing statement or analogous document under the UCC or any other applicable laws covering any Article 9 Collateral, (ii) any assignment in which any Grantor assigns any Article 9 Collateral or any security agreement or similar instrument covering any Article 9 Collateral with the United States Patent and Trademark Office or the United States Copyright Office, (iii) any notice under the Assignment of Claims Act or (iv) any assignment in which any Grantor assigns any Article 9 Collateral or any security agreement or similar instrument covering any Article 9 Collateral with any foreign governmental, municipal or other office, which financing statement or analogous document, assignment, security agreement or similar instrument is still in effect, except, in each case, for Liens expressly permitted pursuant to Section 6.2 of the Credit Agreement.

(e) All Commercial Tort Claims of each Grantor where the amount of damages claimed by such Grantor is in excess of $6,000,000 in existence on the date of this Agreement (or on the date upon which such Grantor becomes a party to this Agreement) are described on Schedule II hereto. In the event any Supplemental Collateral Questionnaire or any Pledge and Security Agreement Supplement shall set forth any Commercial Tort Claim, Schedule II shall be deemed to be supplemented to include the reference to such Commercial Tort Claim (and the description thereof), in the same form as such reference and description are set forth on such Supplemental Collateral Questionnaire or such Pledge and Security Agreement Supplement.

Section 4.03. Covenants. [Reserved.]

(a) Subject to Section 3.03(h), each Grantor shall, at its own expense, take any and all commercially reasonable actions necessary to defend title to the Article 9 Collateral against all Persons and to defend the Security Interest of the Collateral Agent in the Article 9 Collateral and the priority thereof against any Lien not expressly permitted pursuant to Section 6.2 of the Credit Agreement.

(b) [Reserved.]

(c) Subject to Section 3.03(h), each Grantor agrees, at its own expense, to execute, acknowledge, deliver and cause to be duly filed all such further instruments and documents and take all such actions as the Collateral Agent may from time to time reasonably request to better assure, preserve, protect and perfect the Security Interest and the rights and remedies created hereby, including the payment of any fees and taxes required in connection with the execution and delivery of this Agreement, the granting of the Security Interest and the filing of any financing statements (including fixture filings) or other documents in connection herewith or therewith.

(d) At its option, the Collateral Agent may discharge past due taxes, assessments, charges, fees, Liens, security interests or other encumbrances at any time levied or placed on the Article 9 Collateral and not permitted pursuant to Section 6.2 of the Credit Agreement, and may pay for the maintenance and preservation of the Article 9 Collateral to the extent any Grantor fails to do so as required by the Credit Agreement or this Agreement and within a reasonable period of time after the Collateral Agent has requested that it do so, and each Grantor jointly and severally agrees to reimburse the Collateral Agent within 10 days after demand for any payment made or any reasonable expense incurred by the Collateral Agent pursuant to the foregoing authorization (and any such payment made or expense incurred shall be additional Secured Obligations secured hereby). Nothing in this paragraph shall be interpreted as excusing any Grantor from the performance of, or imposing any obligation on the Collateral Agent or any Secured Party to cure or perform, any covenants or other promises of any Grantor with respect to taxes, assessments, charges, fees, Liens, security interests or other encumbrances and maintenance as set forth herein or in the other Credit Documents.

(e) If any Grantor shall at any time after the date of this Agreement acquire a Commercial Tort Claim in an amount (taking the greater of the aggregate claimed damages thereunder or the reasonably estimated value thereof) of $6,000,000 or more, such Grantor shall promptly, and in any event no later than the later to occur of (A) within 60 days and (B) together with the next Compliance Certificate required to be delivered pursuant to Section 5.1(d) of the Credit Agreement (or such longer period as the Collateral Agent may agree to in writing), notify the Collateral Agent thereof in a writing signed by such Grantor and provide supplements to Schedule II describing the details thereof and shall grant to the Collateral Agent a security interest therein and in the proceeds thereof, all upon the terms of this Agreement.

(f) Each Grantor (rather than the Collateral Agent or any other Secured Party) shall remain liable (as between itself and any relevant counterparty) to observe and perform all the conditions and obligations to be observed and performed by it under each contract, agreement or instrument relating to the Article 9 Collateral, all in accordance with the terms and conditions thereof, and each Grantor jointly and severally agrees to indemnify and hold harmless the Collateral Agent and the other Secured Parties from and against any and all liability for such performance.

(g) Notwithstanding anything herein to the contrary, (a) except with respect to Indebtedness represented or evidenced by certificates or instruments to the extent required in order to satisfy the Collateral and Guarantee Requirement, perfection by possession or "control" shall not be required with respect to any Promissory Notes or other evidences of Indebtedness owned by a Grantor and constituting Collateral, (b) no actions in any jurisdiction outside of the United States or that are necessary to create or perfect any security interest in assets located or titled outside of the United States shall be required, (c) no Grantor shall be required to obtain any landlord waivers, estoppels, collateral access agreements or similar third party agreements, and (d) no Grantor shall be required to deliver to the Collateral Agent any certificates or instruments representing or evidencing, or any stock powers or other instruments of transfer in respect of, Equity Interests in any Subsidiary that is not a Material Subsidiary.

## ARTICLE V

## Special Provisions Concerning Intellectual Property Collateral

Section 5.01. Grant of License to Use Intellectual Property. Without limiting the provisions of Section 3.01 or any other rights of the Collateral Agent as the holder of a Security Interest in any Intellectual Property Collateral, for the purpose of enabling the Collateral Agent to exercise rights and remedies under this Agreement at such time as the Collateral Agent shall be lawfully entitled to exercise such rights and remedies, each Grantor hereby grants to the Collateral Agent an irrevocable, nonexclusive license (exercisable without payment of rent, royalty or other compensation to the Grantors) to use, license or sublicense any of the Intellectual Property Collateral now owned or hereafter acquired by such Grantor, and wherever the same may be located (whether or not any license agreement by and between any Grantor and any other Person relating to the use of such Intellectual Property Collateral may be terminated hereafter), and including in such license reasonable access to all media in which any of the licensed items may be recorded or stored and to all computer software and programs used for the compilation or printout thereof, provided, however, that any license granted by the Collateral Agent to a third party shall include reasonable and customary

terms necessary to preserve the existence, validity, and value of the affected Intellectual Property Collateral, including, without limitation, provisions requiring the continuing confidential handling of trade secrets, requiring the use of appropriate notices and prohibiting the use of false notices, protecting Trademarks in the manner set forth below (it being understood and agreed that, without limiting any other rights and remedies of the Collateral Agent under this Agreement, any other Credit Document or applicable law, nothing in the foregoing license grant shall be construed as granting the Collateral Agent rights in and to such Intellectual Property Collateral above and beyond (x) the rights to such Intellectual Property Collateral that each Grantor has reserved for itself and (y) in the case of Intellectual Property Collateral that is licensed to any such Grantor by a third party, the extent to which such Grantor has the right to grant a sublicense to such Intellectual Property Collateral hereunder). The use of such license by the Collateral Agent may only be exercised, at the option of the Collateral Agent, during the continuation of an Event of Default; provided that any license, sublicense or other transaction entered into by the Collateral Agent in accordance herewith shall be binding upon the Grantors notwithstanding any subsequent cure of an Event of Default. In the event the license set forth in this Section 4.01 is exercised with regard to any Trademarks, then the following shall apply: (i) all goodwill arising from any licensed or sublicensed use of any Trademark shall inure to the benefit of the Grantor; (ii) the licensed or sublicensed Trademarks shall only be used in association with goods or services of a quality and nature consistent with the quality and reputation with which such Trademarks were associated when used by Grantor prior to the exercise of the license rights set forth herein; and (iii) at the Grantor's request and expense, licensees and sublicensees shall provide reasonable cooperation in any effort by the Grantor to maintain the registration or otherwise secure the ongoing validity and effectiveness of such licensed Trademarks, including, without limitation the actions and conduct described in Section 4.02. The license granted to the Collateral Agent herein shall be inapplicable to any Commercial Software License that constitutes Intellectual Property Collateral to the extent the applicable Grantor is prohibited by written agreement from granting a license in such Commercial Software License to the Collateral Agent, except to the extent such prohibition is ineffective (or deemed ineffective) under the UCC or other applicable law. Each Grantor irrevocably agrees that, in connection with any enforcement of the Collateral Agent's rights under this Security Agreement, the Collateral Agent may sell any of such Grantor's Inventory directly to any Person, including Persons that have previously purchased the Grantor's Inventory from such Grantor, and in connection with any such sale or other enforcement of the Collateral Agent's rights under this Security Agreement, may sell Inventory that bears any Trademark owned by or licensed to such Grantor and any Inventory that is covered by any Copyright owned by or licensed to such Grantor, and the Collateral Agent may finish any work in process and affix any Trademark owned by or licensed to such Grantor and sell such Inventory as provided herein.

Section 5.02. Protection of Collateral Agent's Security. Except to the extent permitted by Section 4.02(e), or to the extent that failure to act could not reasonably be expected to have a Material Adverse Effect, with respect to registration or pending application of each item of its Intellectual Property Collateral for which such Grantor has standing to do so, each Grantor agrees to take, at its expense, all steps, including, without limitation, in the U.S. Patent and Trademark Office, the U.S. Copyright Office and any other Governmental Authority located in the United States to (i) maintain the validity and enforceability of any registered Intellectual Property Collateral and maintain such Intellectual Property Collateral in full force and effect, and (ii) pursue the registration and maintenance of each Patent, Trademark or Copyright registration or application, now or hereafter included in such Intellectual Property Collateral of such Grantor, including, without limitation, the payment of required fees and taxes, the filing of responses to office actions issued by the U.S. Patent and Trademark Office, the U.S. Copyright Office or other Governmental Authorities, the filing of applications for renewal or extension, the filing of affidavits under Sections 8 and 15 of the U.S. Trademark Act, the filing of divisional, continuation, continuation-in-part, reissue and renewal applications or extensions, the payment of maintenance fees and the participation in interference, reexamination, opposition, cancellation, infringement and misappropriation proceedings.

(a) Except to the extent permitted by Section 4.02(e), or to the extent that failure to act could not reasonably be expected to have a Material Adverse Effect, no Grantor shall do or permit any act or knowingly omit to do any act whereby any of its Intellectual Property Collateral may lapse, be terminated, or become invalid or unenforceable or placed in the public domain (or, in case of a trade secret, lose its competitive value).

(b) Except to the extent permitted by Section 4.02(e), or to the extent that failure to act could not reasonably be expected to have a Material Adverse Effect, each Grantor shall take all steps to preserve and protect each item of its Intellectual Property Collateral, including, without limitation, maintaining the quality of any and all products or services used or provided in connection with any of the Trademarks, consistent with the quality of the products and services as of the date hereof, and taking all steps necessary to ensure that all licensed users of any of the Trademarks abide by the applicable license's terms with respect to the standards of quality.

(c) Each Grantor agrees that, should it obtain an ownership or other interest in any Intellectual Property Collateral after the Closing Date (the "After-Acquired Intellectual Property") (i) the provisions of this Agreement shall automatically apply thereto, and (ii) any such After-Acquired Intellectual Property and, in the case of Trademarks, the goodwill symbolized thereby, shall automatically become part of the Intellectual Property Collateral subject to the terms and conditions of this Agreement with respect thereto.

(d) Notwithstanding the foregoing provisions of this Section 4.02 or elsewhere in this Agreement, nothing in this Agreement shall prevent any Grantor from discontinuing the use or maintenance of any of its Intellectual Property Collateral, the

enforcement of license agreements or the pursuit of actions against infringers, to the extent permitted by the Credit Agreement if such Grantor determines in its reasonable business judgment that such discontinuance is desirable in the conduct of its business.

(e) Upon and during the continuance of an Event of Default, each Grantor shall, if requested by the Collateral Agent, use its commercially reasonable efforts to obtain all requisite consents or approvals by the licensor of each License to effect the assignment of all such Grantor's right, title and interest thereunder to the Collateral Agent or its designee.

## ARTICLE VI

## Remedies

Section 6.01. Remedies Upon Default. Upon the occurrence and during the continuance of an Event of Default, it is agreed that the Collateral Agent shall have the right to exercise any and all rights afforded to a secured party under this Agreement, the UCC or other applicable law, and also may (i) require each Grantor to, and each Grantor agrees that it will at its expense and upon request of the Collateral Agent forthwith, assemble all or part of the Collateral as directed by the Collateral Agent and make it available to the Collateral Agent at a place and time to be designated by the Collateral Agent that is reasonably convenient to both parties; (ii) occupy any premises owned or, to the extent lawful and permitted, leased by any of the Grantors where the Collateral or any part thereof is assembled or located for a reasonable period in order to effectuate its rights and remedies hereunder or under law, without obligation to such Grantor in respect of such occupation; provided that the Collateral Agent shall provide the applicable Grantor with notice thereof prior to or promptly after such occupancy; (iii) exercise any and all rights and remedies of any of the Grantors under or in connection with the Collateral, or otherwise in respect of the Collateral; provided that the Collateral Agent shall provide the applicable Grantor with notice thereof prior to or promptly after such exercise; (iv) subject to the mandatory requirements of applicable law and the notice requirements described below, sell or otherwise dispose of all or any part of the Collateral securing the Secured Obligations at a public or private sale or at any broker's board or on any securities exchange, for cash, upon credit or for future delivery as the Collateral Agent shall deem appropriate; and (v) with respect to any Intellectual Property Collateral, on demand, cause the Security Interest to become an assignment, transfer and conveyance of any of or all such Intellectual Property Collateral by the applicable Grantors to the Collateral Agent, or license or sublicense, whether general, special or otherwise, and whether on an exclusive or nonexclusive basis, any such Intellectual Property Collateral throughout the world on such terms and conditions and in such manner as the Collateral Agent shall determine, provided, however, that such terms shall include all terms and restrictions that are customarily required to ensure the continuing validity and effectiveness of the Intellectual Property Collateral at issue, such as, without limitation, notice, quality control and inurement provisions with regard to Trademarks, patent designation provisions with regard to patents, copyright notices and restrictions or decompilation and reverse engineering of copyrighted software, and confidentiality protections for trade secrets. Each Grantor acknowledges and recognizes that (a) the Collateral Agent may be unable to effect a public sale of all or a part of the Collateral consisting of securities by reason of certain prohibitions contained in the Securities Act of 1933, 15 U.S.C. §77, (as amended and in effect, the "Securities Act") or the securities laws of various states (the "Blue Sky Laws"), but may be compelled to resort to one or more private sales to a restricted group of purchasers who will be obliged to agree, among other things, to acquire such securities for their own account, for investment and not with a view to the distribution or resale thereof, (b) private sales so made may be at prices and upon other terms less favorable to the seller than if such securities were sold at public sales, (c) neither the Collateral Agent nor any other Secured Party has any obligation to delay sale of any of the Collateral for the period of time necessary to permit such securities to be registered for public sale under the Securities Act or the Blue Sky Laws and (d) private sales made under the foregoing circumstances shall be deemed to have been made in a commercially reasonable manner. To the maximum extent permitted by applicable law, each Grantor hereby waives any claim against any Secured Party arising because the price at which any Collateral may have been sold at a private sale was less than the price that might have been obtained at a public sale, even if the Collateral Agent accepts the first offer received and does not offer such Collateral to more than one offeree. Upon consummation of any such sale the Collateral Agent shall have the right to assign, transfer and deliver to the purchaser or purchasers thereof the Collateral so sold. Each such purchaser at any sale of Collateral shall hold the property sold absolutely, free from any claim or right on the part of any Grantor, and each Grantor hereby waives (to the extent permitted by applicable law) all rights of redemption, stay and appraisal which such Grantor now has or may at any time in the future have under any rule of law or statute now existing or hereafter enacted.

The Collateral Agent shall give the applicable Grantors 10 days' written notice (which each Grantor agrees is reasonable notice within the meaning of Section 9-611 of the UCC or its equivalent in other jurisdictions) of the Collateral Agent's intention to make any sale of Collateral. Such notice, in the case of a public sale, shall state the time and place for such sale and, in the case of a sale at a broker's board or on a securities exchange, shall state the board or exchange at which such sale is to be made and the day on which the Collateral, or portion thereof, will first be offered for sale at such board or exchange. Any such public sale shall be held at such time or times within ordinary business hours and at such place or places as the Collateral Agent may fix and state in the notice (if any) of such sale. The Collateral Agent may conduct one or more going out of business sales, in the Collateral Agent's own right or by one or more agents and contractors. Such sale(s) may be conducted upon any premises owned, leased, or occupied by any Grantor. The Collateral Agent and any such agent or contractor, in conjunction with any such sale, may augment the Inventory with other goods (all of which other goods shall remain the sole property of the Collateral Agent or such agent or contractor). Any amounts realized from the sale of such goods which constitute augmentations to the Inventory (net of an allocable

share of the costs and expenses incurred in their disposition) shall be the sole property of the Collateral Agent or such agent or contractor and neither any Grantor nor any Person claiming under or in right of any Grantor shall have any interest therein. At any such sale, the Collateral, or portion thereof, to be sold may be sold in one lot as an entirety or in separate parcels, as the Collateral Agent may (in its sole and absolute discretion) determine. The Collateral Agent shall not be obligated to make any sale of any Collateral if it shall determine not to do so, regardless of the fact that notice of sale of such Collateral shall have been given. The Collateral Agent may, without notice or publication, adjourn any public or private sale or cause the same to be adjourned from time to time by announcement at the time and place fixed for sale, and such sale may, without further notice, be made at the time and place to which the same was so adjourned. In case any sale of all or any part of the Collateral is made on credit or for future delivery, the Collateral so sold may be retained by the Collateral Agent until the sale price is paid by the purchaser or purchasers thereof, but the Collateral Agent shall not incur any liability in case any such purchaser or purchasers shall fail to take up and pay for the Collateral so sold and, in case of any such failure, such Collateral may be sold again upon like notice. In the event of a foreclosure, exercise of a power of sale or similar enforcement action by the Collateral Agent on any of the Collateral pursuant to a public or private sale or other disposition (including pursuant to Section 363(k), Section 1129(b)(2)(a)(ii) or any other applicable section of the Bankruptcy Code, any analogous Debtor Relief Laws or any law relating to the granting or perfection of security interests), the Collateral Agent (or any Lender, except with respect to a "credit bid" pursuant to Section 363(k), Section 1129(b)(2)(a)(ii) or any other applicable section of the Bankruptcy Code) may be the purchaser or licensor of any or all of such Collateral at any such sale or other disposition and the Collateral Agent, as agent for and representative of the Secured Parties (but not any Lender or Lenders in its or their respective individual capacities) shall be entitled, upon instructions from the Requisite Lenders and in accordance with Section 9.8(b) of the Credit Agreement, for the purpose of bidding and making settlement or payment of the purchase price for all or any portion of the Collateral sold or licensed at any such sale or other disposition, to use and apply any of the Secured Obligations as a credit on account of the purchase price for any Collateral payable by the Collateral Agent at such sale or other disposition. For purposes of determining the Grantors' rights in the Collateral, a written agreement to purchase the Collateral or any portion thereof shall be treated as a sale thereof, the Collateral Agent shall be free to carry out such sale pursuant to such agreement and no Grantor shall be entitled to the return of the Collateral or any portion thereof subject thereto, notwithstanding the fact that after the Collateral Agent shall have entered into such an agreement all Events of Default shall have been remedied and the Secured Obligations paid in full, provided, however, that such terms shall include terms and restrictions that are customarily required to ensure the continuing validity and effectiveness of the Intellectual Property Collateral at issue, such as, without limitation, quality control and inurement provisions with regard to Trademarks, patent designation provisions with regard to patents, copyright notices and restrictions or decompilation and reverse engineering of copyrighted software, and protecting the confidentiality of trade secrets. As an alternative to exercising the power of sale herein conferred upon it, the Collateral Agent may proceed by a suit or suits at law or in equity to foreclose this Agreement and to sell the Collateral or any portion thereof pursuant to a judgment or decree of a court or courts having competent jurisdiction or pursuant to a proceeding by a court appointed receiver. Any sale pursuant to the provisions of this Section 5.01 shall be deemed to conform to the commercially reasonable standards as provided in Section 9-610(b) of the UCC or its equivalent in other jurisdictions.

Each Grantor irrevocably makes, constitutes and appoints the Collateral Agent (and all officers, employees or agents designated by the Collateral Agent) as such Grantor's true and lawful agent (and attorney-in-fact) during the continuance of an Event of Default and after notice to the Borrower of its intent to exercise such rights (except in the case of a Bankruptcy Event of Default, in which case no such notice shall be required), for the purpose of (i) making, settling and adjusting claims in respect of Article 9 Collateral under policies of insurance, endorsing the name of such Grantor on any check, draft, instrument or other item of payment for the proceeds of such policies of insurance, (ii) making all determinations and decisions with respect thereto and (iii) obtaining or maintaining the policies of insurance required by Section 5.5 of the Credit Agreement or to pay any premium in whole or in part relating thereto. All sums disbursed by the Collateral Agent in connection with this paragraph, including reasonable attorneys' fees, court costs, expenses and other charges relating thereto, shall be payable, within 30 days of written demand, by the Grantors to the Collateral Agent and shall be additional Secured Obligations secured hereby.

By accepting the benefits of this Agreement and each other Collateral Document, the Secured Parties expressly acknowledge and agree that except with respect to the exercise of setoff rights of any Lender or with respect to a Secured Party's right to file a proof of claim in any proceeding under the Debtor Relief Laws, no Secured Party shall have any right individually to realize upon any of the Collateral or to enforce any Obligations Guarantee, it being understood and agreed that all powers, rights and remedies under the Credit Documents may be exercised solely by the Administrative Agent or the Collateral Agent, as applicable, for the benefit of the Secured Parties in accordance with the terms thereof and that all powers, rights and remedies under the Collateral Documents may be exercised solely by the Collateral Agent for the benefit of the Secured Parties in accordance with the terms of this Agreement and the other Collateral Documents.

Section 6.02. Application of Proceeds. Subject to any Permitted Intercreditor Agreement then in effect, the Collateral Agent shall apply the proceeds of any collection or sale of Collateral, including any Collateral consisting of cash, as follows:

FIRST, to the payment of all costs and expenses incurred by the Collateral Agent or the Administrative Agent in connection with such collection or sale or otherwise in connection with this Agreement, any other Credit Document or any of the Secured Obligations, including all court costs and the fees and expenses of its agents and legal counsel (to the extent

required to be reimbursed pursuant to the terms of the Credit Documents), the repayment of all advances made by the Collateral Agent or the Administrative Agent hereunder or under any other Credit Document on behalf of any Grantor and any other costs or expenses incurred in connection with the exercise of any right or remedy hereunder or under any other Credit Document;

SECOND, to the payment in full of the Secured Obligations (the amounts so applied to be distributed among the Secured Parties pro rata in accordance with the amounts of the Secured Obligations owed to them on the date of any such distribution); and

THIRD, to the Grantors, their successors or assigns, or as a court of competent jurisdiction may otherwise direct.

The Collateral Agent shall have absolute discretion as to the time of application of any such proceeds in accordance with this Agreement. Upon any sale of Collateral by the Collateral Agent (including pursuant to a power of sale granted by statute or under a judicial proceeding), the receipt of the Collateral Agent or of the officer making the sale shall be a sufficient discharge to the purchaser or purchasers of the Collateral so sold and such purchaser or purchasers shall not be obligated to see to the application of any part of the purchase money paid over to the Collateral Agent or such officer or be answerable in any way for the misapplication thereof. It is understood and agreed that the Grantors shall remain jointly and severally liable to the extent of any deficiency between the amount of the proceeds of the Collateral and the aggregate amount of the Secured Obligations, including any attorneys' fees and other expenses incurred by the Collateral Agent or any other Secured Party to collect such deficiencies (to the extent required to be reimbursed pursuant to the terms of the Credit Documents).

## ARTICLE VII

## Miscellaneous

Section 7.01. Notices. All communications and notices hereunder shall (except as otherwise expressly permitted herein) be in writing and given as provided in Section 10.1 of the Credit Agreement. All communications and notices hereunder to a Grantor other than the Borrower shall be given to it in care of the Borrower.

Section 7.02. Waivers; Amendment. No failure or delay on the part of any Agent, any Arranger, any Lender or any Issuing Bank in exercising any power, right or privilege hereunder or under any other Credit Document shall impair such power, right or privilege or be construed to be a waiver thereof or of any Default or Event of Default or acquiescence therein, nor shall any single or partial exercise of any such power, right or privilege, or any abandonment or discontinuance of steps to enforce such power, right or privilege, preclude any other or further exercise thereof or the exercise of any other power, right or privilege. The powers, rights, privileges and remedies of the Agents, the Arrangers, the Lenders and the Issuing Banks hereunder and under the other Credit Documents are cumulative and shall be in addition to and independent of all powers, rights, privileges and remedies they would otherwise have. No waiver of any provision of this Agreement or consent to any departure by any Grantor therefrom shall in any event be effective unless the same shall be permitted by Section 6.02(b), and then such waiver or consent shall be effective only in the specific instance and for the purpose for which given. Without limiting the generality of the foregoing, the execution and delivery of this Agreement or the making of any Loan or issuance of any Letter of Credit shall not be construed as a waiver of any Default or Event of Default, regardless of whether any Agent, any Arranger, any Lender or any Issuing Bank may have had notice or knowledge of such Default or Event of Default at the time.

(a) Neither this Agreement nor any provision hereof may be waived, amended or modified except pursuant to an agreement or agreements in writing entered into by the Collateral Agent and the Grantor or Grantors with respect to which such waiver, amendment or modification is to apply, subject to any consent required in accordance with Section 10.5 of the Credit Agreement.

(b) This Agreement shall be construed as a separate agreement with respect to each Grantor and may be amended, restated, modified, supplemented, waived or released with respect to any Grantor without the approval of any other Grantor and without affecting the obligations of any other Credit Party hereunder.

Section 7.03. Collateral Agent's Fees and Expenses; Indemnification.

The parties hereto agree that the Collateral Agent shall be entitled to reimbursement of its expenses incurred hereunder as provided in Section 10.2 of the Credit Agreement.

(a) Without limitation of its indemnification obligations under the other Credit Documents, each Grantor, jointly and severally, agrees to indemnify the Collateral Agent and the other Indemnitees (as defined in Section 10.3 of the Credit Agreement) against, and hold each Indemnitee harmless from any and all Indemnified Liabilities (as defined in the Credit Agreement) incurred by or asserted against any such Indemnitee, to the extent such Grantor would be required to do so pursuant to Section 10.3 of the Credit Agreement.

(b) Any such amounts payable as provided hereunder shall be additional Secured Obligations secured hereby and by the other Collateral Documents. All amounts due under this Section 6.03 shall be payable within 30 days of written demand therefor.

(c) To the extent permitted by applicable law, (i) no Grantor shall assert, and each Grantor hereby waives, any claim against any Agent, any Arranger, any Lender, any Issuing Bank or any Related Party of any of the foregoing and (ii) no Indemnitee shall assert, and each Indemnitee hereby waives, any claim against any Grantor or any Related Party of any Grantor, in each case, on any theory of liability, for special, indirect, consequential or punitive damages (as opposed to direct or actual damages) (whether or not the claim therefor is based on contract, tort or any duty imposed by any applicable legal requirement) arising out of, in connection with, as a result of, or in any way related to this Agreement or any other Credit Document or any agreement or instrument contemplated hereby or thereby or referred to herein or therein, the transactions contemplated hereby or thereby, any Loan or the use of the proceeds thereof or any act or omission or event occurring in connection therewith, and each Indemnitee and each Grantor hereby waives, releases and agrees not to sue upon any such claim for any such damages, whether or not accrued and whether or not known or suspected to exist in its favor; provided that nothing in this Section 6.03(d) shall diminish obligations of the Grantors under Section 6.03(a) or 6.03(b).

(d) Each Grantor agrees that none of any Agent, any Arranger, any Lender, any Issuing Bank or any Related Party of any of the foregoing will have any liability to any Grantor or any Person asserting claims on behalf of or in right of any Grantor or any other Person in connection with or as a result of this Agreement or any other Credit Document or any agreement or instrument contemplated hereby or thereby or referred to herein or therein, the transactions contemplated hereby or thereby, any Loan or the use of the proceeds thereof or any act or omission or event occurring in connection therewith except (but subject to Section 6.03(d)), in the case of any Grantor, to the extent that any losses, claims, damages, liabilities or expenses have been found by a final, non-appealable judgment of a court of competent jurisdiction to have resulted from the gross negligence, bad faith or willful misconduct of such Agent, such Arranger, such Lender or such Issuing Bank in performing its express obligations under this Agreement or any other Credit Document.

Section 7.04. Successors and Assigns. Whenever in this Agreement any of the parties hereto is referred to, such reference shall be deemed to include the permitted successors and assigns of such party; and all covenants, promises and agreements by or on behalf of any Grantor or the Collateral Agent that are contained in this Agreement shall bind and inure to the benefit of their respective permitted successors and assigns.

Section 7.05. Survival of Agreement. All covenants, agreements, representations and warranties made by the Credit Parties in the Credit Documents and in the certificates or other documents delivered in connection with or pursuant to this Agreement or any other Credit Document shall be considered to have been relied upon by the Agents, the Arrangers, the Lenders and the Issuing Banks and shall survive the execution and delivery of the Credit Documents and the making of any Loans and issuance of any Letters of Credit, regardless of any investigation made by any Agent, any Arranger, any Lender or any Issuing Bank or on its behalf and notwithstanding that any Agent, any Arranger, any Lender or any Issuing Bank may have had notice or knowledge of any Default or Event of Default or incorrect representation or warranty at the time any Credit Document is executed and delivered or any credit is extended under the Credit Agreement, and shall continue in full force and effect as long as the principal of or any accrued interest on any Loan or any fee or any other amount payable under this Agreement is outstanding and unpaid or any Letter of Credit is outstanding and so long as the Commitments have not expired or terminated. The provisions of Section 6.03 shall survive and remain in full force and effect regardless of the consummation of the transactions contemplated by the Credit Documents, the repayment of the Loans, the expiration or termination of the Commitments, the expiration or termination of the Letters of Credit or the termination of this Agreement or any provision hereof.

Section 7.06. Counterparts; Effectiveness; Several Agreement. This Agreement may be executed by facsimile and in counterparts (and by different parties hereto on different counterparts), each of which shall constitute an original but all of which when taken together shall constitute a single contract. Delivery of an executed signature page to this Agreement by facsimile or other electronic imaging transmission shall be as effective as delivery of a manually signed counterpart of this Agreement. This Agreement shall become effective as to any Grantor when a counterpart hereof executed on behalf of such Grantor shall have been delivered to the Collateral Agent and a counterpart hereof shall have been executed on behalf of the Collateral Agent, and thereafter shall be binding upon such Grantor and the Collateral Agent and their respective permitted successors and assigns, and shall inure to the benefit of such Grantor, the Collateral Agent and the other Secured Parties and their respective permitted successors and assigns, except that no Grantor shall have the right to assign or transfer its rights or obligations hereunder or any interest herein or in the Collateral (and any such assignment or transfer shall be void) except as expressly contemplated by this Agreement or the Credit Agreement. This Agreement shall be construed as a separate agreement with respect to each Grantor and may be amended, modified, supplemented, waived or released with respect to any Grantor without the approval of any other Grantor and without affecting the obligations of any other Grantor hereunder.

Section 7.07. Severability. In the event any one or more of the provisions contained in this Agreement should be held invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained herein and therein shall not in any way be affected or impaired thereby (it being understood that the invalidity of a particular

provision in a particular jurisdiction shall not in and of itself affect the validity of such provision in any other jurisdiction). The parties shall endeavor in good-faith negotiations to replace the invalid, illegal or unenforceable provisions with valid provisions the economic effect of which comes as close as possible to that of the invalid, illegal or unenforceable provisions.

Section 7.08. **APPLICABLE LAW. THIS AGREEMENT AND THE RIGHTS AND OBLIGATIONS OF THE PARTIES HEREUNDER (INCLUDING ANY CLAIMS SOUNDING IN CONTRACT LAW OR TORT LAW ARISING OUT OF THE SUBJECT MATTER HEREOF AND ANY DETERMINATIONS WITH RESPECT TO POST-JUDGMENT INTEREST) SHALL BE GOVERNED BY, AND SHALL BE CONSTRUED AND ENFORCED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK WITHOUT REGARD TO CONFLICT OF LAWS PRINCIPLES THEREOF THAT WOULD RESULT IN THE APPLICATION OF ANY LAW OTHER THAN THE LAW OF THE STATE OF NEW YORK.**

Section 7.09. **CONSENT TO JURISDICTION. SUBJECT TO CLAUSE (E) BELOW, ALL JUDICIAL PROCEEDINGS BROUGHT AGAINST ANY PARTY HERETO ARISING OUT OF OR RELATING HERETO OR ANY OTHER COLLATERAL DOCUMENT, OR ANY OF THE SECURED OBLIGATIONS, SHALL BE BROUGHT EXCLUSIVELY IN ANY FEDERAL COURT OF THE UNITED STATES OF AMERICA SITTING IN THE BOROUGH OF MANHATTAN OR, IF THAT COURT DOES NOT HAVE SUBJECT MATTER JURISDICTION, IN ANY STATE COURT LOCATED IN THE CITY AND COUNTY OF NEW YORK. BY EXECUTING AND DELIVERING THIS AGREEMENT, EACH GRANTOR, FOR ITSELF AND IN CONNECTION WITH ITS PROPERTIES, IRREVOCABLY (A) ACCEPTS GENERALLY AND UNCONDITIONALLY THE EXCLUSIVE JURISDICTION AND VENUE OF SUCH COURTS (SUBJECT TO CLAUSE (E) BELOW); (B) WAIVES ANY DEFENSE OF FORUM NON CONVENIENS; (C) AGREES THAT SERVICE OF ALL PROCESS IN ANY SUCH PROCEEDING IN ANY SUCH COURT MAY BE MADE BY REGISTERED OR CERTIFIED MAIL, RETURN RECEIPT REQUESTED, TO THE APPLICABLE GRANTOR AT ITS ADDRESS PROVIDED IN ACCORDANCE WITH SECTION 10.1 OF THE CREDIT AGREEMENT; (D) AGREES THAT SERVICE AS PROVIDED IN CLAUSE (C) ABOVE IS SUFFICIENT TO CONFER PERSONAL JURISDICTION OVER THE APPLICABLE GRANTOR IN ANY SUCH PROCEEDING IN ANY SUCH COURT, AND OTHERWISE CONSTITUTES EFFECTIVE AND BINDING SERVICE IN EVERY RESPECT; AND (E) AGREES THAT THE AGENTS, THE ARRANGERS, THE LENDERS AND THE ISSUING BANKS RETAIN THE RIGHT TO SERVE PROCESS IN ANY OTHER MANNER PERMITTED BY LAW OR TO BRING PROCEEDINGS AGAINST ANY GRANTOR IN THE COURTS OF ANY OTHER JURISDICTION IN CONNECTION WITH THE EXERCISE OF ANY RIGHTS UNDER ANY CREDIT DOCUMENT OR ANY EXERCISE OF REMEDIES IN RESPECT OF COLLATERAL OR THE ENFORCEMENT OF ANY JUDGMENT, AND HEREBY SUBMITS TO THE JURISDICTION OF, AND CONSENTS TO VENUE IN, ANY SUCH COURT.**

Section 7.10. **WAIVER OF RIGHT TO TRIAL BY JURY. EACH OF THE PARTIES HERETO HEREBY AGREES TO WAIVE ITS RIGHTS TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION BASED UPON OR ARISING HEREUNDER OR UNDER ANY OF THE OTHER CREDIT DOCUMENTS OR ANY DEALINGS BETWEEN THEM RELATING TO THE SUBJECT MATTER OF THIS TRANSACTION OR THE RELATIONSHIP THAT IS BEING ESTABLISHED. THE SCOPE OF THIS WAIVER IS INTENDED TO BE ALL-ENCOMPASSING OF ANY AND ALL DISPUTES THAT MAY BE FILED IN ANY COURT AND THAT RELATE TO THE SUBJECT MATTER OF THIS TRANSACTION, INCLUDING CONTRACT CLAIMS, TORT CLAIMS, BREACH OF DUTY CLAIMS AND ALL OTHER COMMON LAW AND STATUTORY CLAIMS. EACH PARTY HERETO ACKNOWLEDGES THAT THIS WAIVER IS A MATERIAL INDUCEMENT TO ENTER INTO A BUSINESS RELATIONSHIP, THAT EACH HAS ALREADY RELIED ON THIS WAIVER IN ENTERING INTO THIS AGREEMENT, AND THAT EACH WILL CONTINUE TO RELY ON THIS WAIVER IN ITS RELATED FUTURE DEALINGS. EACH PARTY HERETO FURTHER WARRANTS AND REPRESENTS THAT IT HAS REVIEWED THIS WAIVER WITH ITS LEGAL COUNSEL AND THAT IT KNOWINGLY AND VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS FOLLOWING CONSULTATION WITH LEGAL COUNSEL. THIS WAIVER IS IRREVOCABLE, MEANING THAT IT MAY NOT BE MODIFIED EITHER ORALLY OR IN WRITING (OTHER THAN BY A MUTUAL WRITTEN WAIVER SPECIFICALLY REFERRING TO THIS SECTION 6.11 AND EXECUTED BY EACH OF THE PARTIES HERETO), AND THIS WAIVER SHALL APPLY TO ANY SUBSEQUENT AMENDMENTS, RENEWALS, SUPPLEMENTS OR MODIFICATIONS HERETO OR ANY OF THE OTHER CREDIT DOCUMENTS OR TO ANY OTHER DOCUMENTS OR AGREEMENTS RELATING TO THE LOANS MADE HEREUNDER. IN THE EVENT OF LITIGATION, THIS AGREEMENT MAY BE FILED AS A WRITTEN CONSENT TO A TRIAL BY THE COURT.**

Section 7.11. Headings. Article and Section headings and the Table of Contents used herein are for convenience of reference only, are not part of this Agreement and are not to affect the construction of, or to be taken into consideration in interpreting, this Agreement.

Section 7.12. Security Interest Absolute. All rights of the Collateral Agent hereunder, the Security Interest, the grant of a security interest in the Pledged Collateral and all obligations of each Grantor hereunder shall be absolute and unconditional irrespective of (a) any lack of validity or enforceability of the Credit Agreement, any other Credit Document, any

Specified Hedge Agreement, any Specified Cash Management Services Agreement, any other agreement with respect to any of the Secured Obligations or any other agreement or instrument relating to any of the foregoing, (b) any change in the time, manner or place of payment of, or in any other term of, all or any of the Secured Obligations, or any other amendment or waiver of or any consent to any departure from the Credit Agreement, any Specified Hedge Agreement, any Specified Cash Management Services Agreement, any other Credit Document or any other agreement or instrument, (c) any exchange, release or non-perfection of any Lien on other collateral, or any release or amendment or waiver of or consent under or departure from any guarantee, securing or guaranteeing all or any of the Secured Obligations or (d) subject only to termination of a Guarantor's obligations hereunder in accordance with the terms of Section 9.8 of the Credit Agreement, but without prejudice to reinstatement rights under Section 7.9 of the Credit Agreement, any other circumstance that might otherwise constitute a defense available to, or a discharge of, any Grantor in respect of the Secured Obligations or this Agreement.

Section 7.13. Termination or Release. This Agreement, the Security Interest and all other security interests granted hereby shall terminate with respect to all Secured Obligations when all Secured Obligations (excluding contingent obligations as to which no claim has been made, the Specified Hedge Obligations and the Specified Cash Management Obligations) have been paid in full, all Commitments have terminated and no Letter of Credit shall be outstanding.

(a) A Guarantor Subsidiary shall automatically be released from its obligations hereunder and the Security Interest in the Collateral of such Guarantor Subsidiary shall be automatically released in the circumstances set forth in Section 9.8(d) of the Credit Agreement.

(b) The Security Interest in any Collateral shall be automatically released in the circumstances set forth in Section 9.8(d) of the Credit Agreement.

(c) In connection with any termination or release pursuant to Section 6.13(a), 6.13(b) or 6.13(c), the Collateral Agent shall promptly execute and deliver to any Grantor, at such Grantor's expense, all documents that such Grantor shall reasonably request to evidence such termination or release. Any execution and delivery of documents pursuant to this Section 6.13 shall be without recourse to or warranty by the Collateral Agent.

(d) At any time that any Grantor desires that the Collateral Agent take any action described in Section 6.13(d), such Grantor shall, upon request of the Collateral Agent, deliver to the Collateral Agent a certificate of an Authorized Officer of the Borrower certifying that the release of the applicable Collateral is permitted pursuant to Section 6.13(a), 6.13(b) or 6.13(c). The Collateral Agent shall have no liability whatsoever to any Secured Party as the result of any release of any Collateral by it as permitted (or which the Collateral Agent in good faith believes to be permitted) by this Section 6.13.

Section 7.14. Additional Grantors. Pursuant to Section 5.10 of the Credit Agreement, certain Restricted Subsidiaries of the Borrower may or are required to enter in this Agreement as Grantors. Upon execution and delivery by the Collateral Agent and a Restricted Subsidiary of a Pledge and Security Agreement Supplement, such Restricted Subsidiary shall become a Grantor hereunder with the same force and effect as if originally named as a Grantor herein. The execution and delivery of any Pledge and Security Agreement Supplement shall not require the consent of any other Grantor hereunder. The rights and obligations of each Grantor hereunder shall remain in full force and effect notwithstanding the addition of any new Grantor as a party to this Agreement.

Section 7.15. Collateral Agent Appointed Attorney-in-Fact. Each Grantor hereby appoints the Collateral Agent the true and lawful attorney-in-fact of such Grantor for the purpose of carrying out the provisions of this Agreement and taking any action and executing any instrument that the Collateral Agent may deem necessary or advisable to accomplish the purposes hereof at any time after the occurrence and during the continuance of an Event of Default, which appointment is irrevocable and coupled with an interest. Without limiting the generality of the foregoing, the Collateral Agent shall have the right, upon the occurrence and during the continuance of an Event of Default and upon and after delivery of notice by the Collateral Agent to the Borrower of its intent to exercise such rights (unless a Bankruptcy Event of Default has occurred and is continuing, in which case no such notice shall be required), with full power of substitution either in the Collateral Agent's name or in the name of such Grantor: (a) to receive, endorse, assign and/or deliver any and all notes, acceptances, checks, drafts, money orders or other evidences of payment relating to the Collateral or any part thereof; (b) to demand, collect, receive payment of, give receipt for and give discharges and releases of all or any of the Collateral; (c) to sign the name of any Grantor on any invoice or bill of lading relating to any of the Collateral; (d) to send verifications of Accounts or Payment Intangibles to any Account Debtor; (e) to commence and prosecute any and all suits, actions or proceedings at law or in equity in any court of competent jurisdiction to collect or otherwise realize on all or any of the Collateral or to enforce any rights in respect of any Collateral; (f) to settle, compromise, compound, adjust or defend any actions, suits or proceedings relating to all or any of the Collateral; (g) to notify, or to require any Grantor to notify, Account Debtors to make payment directly to the Collateral Agent and adjust, settle or compromise the amount of payment of any Account or Payment Intangible; (h) to make, settle and adjust claims in respect of Collateral under policies of insurance and to endorse the name of such Grantor on any check, draft, instrument or any other item of payment with respect to the proceeds of such policies of insurance and for making all determinations and decisions with respect thereto; and (i) to use, sell, assign, transfer, pledge, make any agreement with respect to or otherwise deal with all or any of the Collateral, and to do all other acts and things necessary to

carry out the purposes of this Agreement, as fully and completely as though the Collateral Agent were the absolute owner of the Collateral for all purposes; provided that nothing herein contained shall be construed as requiring or obligating the Collateral Agent to make any commitment or to make any inquiry as to the nature or sufficiency of any payment received by the Collateral Agent, or to present or file any claim or notice, or to take any action with respect to the Collateral or any part thereof or the moneys due or to become due in respect thereof or any property covered thereby. The Collateral Agent and the other Secured Parties shall be accountable only for amounts actually received as a result of the exercise of the powers granted to them herein, and none of the Collateral Agent, any other Secured Party or any Related Party of any of the foregoing shall be responsible to any Grantor for any act or failure to act hereunder, except for its own gross negligence, bad faith or willful misconduct or that of any of its Related Parties or a material breach by it or any of its Related Parties of its express obligations under this Agreement (in each case, as determined by the final non-appealable judgment of a court of competent jurisdiction).

Section 7.16. General Authority of the Collateral Agent. By acceptance of the benefits of this Agreement and any other Collateral Documents, each Secured Party (whether or not a signatory hereto) shall be deemed irrevocably (a) to consent to the appointment of the Collateral Agent as its agent hereunder and under such other Collateral Documents, (b) to confirm that the Collateral Agent shall have the authority to act as the exclusive agent of such Secured Party for the enforcement of any provisions of this Agreement and such other Collateral Documents against any Grantor, the exercise of remedies hereunder or thereunder and the giving or withholding of any consent or approval hereunder or thereunder relating to any Collateral or any Grantor's obligations with respect thereto, (c) to agree that it shall not take any action to enforce any provisions of this Agreement or any other Collateral Document against any Grantor, to exercise any remedy hereunder or thereunder or to give any consents or approvals hereunder or thereunder except as expressly provided in this Agreement or any other Collateral Document and (d) to agree to be bound by the terms of this Agreement, any other Collateral Documents and any Permitted Intercreditor Agreement then in effect.

Section 7.17. Recourse. This Agreement is made with full recourse to each Grantor and pursuant to and upon all the warranties, representations, covenants and agreements on the part of such Grantor contained herein, in the Credit Agreement and the other Credit Documents and otherwise in writing in connection herewith or therewith, with respect to the Secured Obligations of each Secured Party. It is the desire and intent of each Grantor and each Secured Party that this Agreement shall be enforced against each Grantor to the fullest extent permissible under the laws applied in each jurisdiction in which enforcement is sought.

Section 7.18. Mortgages. In the event that any of the Collateral hereunder is also subject to a valid and enforceable Lien under the terms of a Mortgage and the terms thereof are inconsistent with the terms of this Agreement, then with respect to such Collateral, the terms of such Mortgage shall control in the case of Fixtures and real estate asset leases, letting and licenses of, and contracts, and agreements relating to the lease of, real estate asset, and the terms of this Agreement shall control in the case of all other Collateral.

[*Signature Pages Follow*]

# Subsidiaries of Entegris, Inc.

| Name of Subsidiary | Jurisdiction |
|---|---|
| ATMI International Trading Co. Ltd. | China |
| ATMI Semiconductor New Materials Xi'an Co., Ltd. | China |
| Digital Specialty Chemicals Limited | Canada |
| Digital Specialty Chemicals, Inc. | New Hampshire |
| Digital Specialty Chemicals UK Limited | United Kingdom |
| Digital Specialty Chemicals LTD | Korea |
| Entegris Asia LLC | Delaware |
| Entegris Asia Pte. Ltd. | Singapore |
| Entegris Ecosys LLC | Delaware |
| Entegris GmbH | Germany |
| Entegris GP, Inc. | Delaware |
| Entegris International Holdings B.V. | The Netherlands |
| Entegris International Holdings II B.V. | The Netherlands |
| Entegris International Holdings III B.V. | The Netherlands |
| Entegris International Holdings IV LLC | Delaware |
| Entegris International Holdings V LLC | Delaware |
| Entegris International Holdings VI LLC | Delaware |
| Entegris International Holdings VII LLC | The Netherlands |
| Entegris International Holdings, Inc. | Delaware |
| Entegris Ireland Unlimited Company | Ireland |
| Entegris Israel Ltd. | Israel |
| Entegris Japan Co. Ltd. | Japan |
| Entegris Korea II Ltd. | South Korea |
| Entegris Korea Ltd. | South Korea |
| Entegris Malaysia Sdn. Bhd. | Malaysia |
| Entegris (Shanghai) Microelectronics Trading Company Ltd. | China |
| Entegris Pacific Ltd. | Delaware |
| Entegris Professional Solutions, Inc. | Delaware |
| Entegris Sarl | Luxembourg |
| Entegris SAS | France |
| Entegris Singapore Pte. Ltd. | Singapore |
| Entegris Specialty Materials, LLC | Delaware |
| Entegris Taiwan Enterprises Partnership | Taiwan |
| Entegris Taiwan Holdings, Inc. | Delaware |
| Entegris Taiwan Technologies Co. Ltd. | Taiwan |
| Hangzhou Anow Microfiltration Co., Ltd. | China |
| Hangzhou AiNuo Microfiltration Co., Ltd. | China |
| Nihon Entegris G.K. | Japan |
| Poco Graphite, Inc. | Delaware |
| Pureline Co., Ltd. | South Korea |

**EXHIBIT 23**

**Consent of Independent Registered Public Accounting Firm**

The Board of Directors
Entegris, Inc.:

We consent to the incorporation by reference in the registration statement (No. 333-160212 and 333-105962) on Form S-3 and registration statements (Nos. 333-167178, 333-127599, 333-53382, 333-203789, 333-203790 and 333-211444) on Form S-8 of Entegris, Inc. of our reports dated February 7, 2020, with respect to the consolidated balance sheets of Entegris, Inc. as of December 31, 2019 and 2018, and the related consolidated statements of operations, comprehensive income, equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes (collectively, the "consolidated financial statements"), and the effectiveness of internal control over financial reporting as of December 31, 2019, which reports appear in the December 31, 2019 annual report on Form 10-K of Entegris, Inc.

Our report refers to a change in the method of accounting for leases.

Our report dated February 7, 2020 on the effectiveness of internal control over financial reporting as of December 31, 2019, contains an explanatory paragraph that states management excluded from its assessment of the effectiveness of internal control over financial reporting as of December 31, 2019, the 2019 acquisitions of Digital Specialty Chemicals Limited, MPD Chemicals and Hangzhou Anow Microfiltration Co. Ltd.'s internal control over financial reporting associated with total assets of $324 million of Entegris Inc.'s total assets and revenues of $33 million of Entegris Inc.'s total revenues included in the consolidated financial statements of Entegris Inc. as of and for the year ended December 31, 2019. Our audit of the effectiveness of internal control over financial reporting of Entegris Inc. also excluded an evaluation of the internal control over financial reporting of Digital Specialty Chemicals Limited, MPD Chemicals and Hangzhou Anow Microfiltration Co. Ltd..

/s/ KPMG LLP

Minneapolis, Minnesota
February 7, 2020

**Exhibit 24**

**POWER OF ATTORNEY**

KNOW ALL PERSONS BY THESE PRESENTS, that the undersigned Directors and Officers of **Entegris, Inc.** (the "Corporation"), do hereby constitute and appoint Bertrand Loy and Gregory B. Graves and each of them individually, their true and lawful attorneys and agents to execute on behalf of the Corporation the Form 10-K Annual Report of the Corporation for the fiscal year ended December 31, 2019, together with all such amendments thereto on Form 10-K/A as well as additional instruments related thereto which such attorneys and agents may deem to be necessary and desirable to enable the Corporation to comply with the requirements of the Securities Exchange Act of 1934, as amended, and any regulations, orders, or other requirements of the United States Securities and Exchange Commission thereunder in connection with the preparation and filing of said documents, including specifically, but without limitation of the foregoing, power and authority to sign the names of each of such Directors and Officers on his behalf, as such Director or Officer, as indicated below to the said Form 10-K Annual Report or documents filed or to be filed as a part of or in connection with such Form 10-K Annual Report; and each of the undersigned hereby ratifies and confirms all that said attorneys and agents shall do or cause to be done by virtue thereof.

| SIGNATURE | TITLE | DATE |
|---|---|---|
| /s/ Bertrand Loy | President, Chief Executive Officer | February 7, 2020 |
| Bertrand Loy | and Director | |
| /s/ Paul L. H. Olson | Chairman of the Board, Director | February 7, 2020 |
| Paul L. H. Olson | | |
| /s/ Michael A. Bradley | Director | February 7, 2020 |
| Michael A. Bradley | | |
| /s/ R. Nicholas Burns | Director | February 7, 2020 |
| Nicholas Burns | | |
| /s/ James F. Gentilcore | Director | February 7, 2020 |
| James F. Gentilcore | | |
| /s/ James P. Lederer | Director | February 7, 2020 |
| James P. Lederer | | |
| /s/ Azita Saleki-Gerhardt | Director | February 7, 2020 |
| Azita Saleki-Gerhardt | | |
| /s/ Brian F. Sullivan | Director | February 7, 2020 |
| Brian F. Sullivan | | |

**Exhibit 31.1**

**CERTIFICATIONS**

I, Bertrand Loy, certify that:

1. I have reviewed this Annual Report on Form 10-K of Entegris, Inc.;

2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this annual report, fairly present in all material respects, the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 7, 2020

/s/ Bertrand Loy

Bertrand Loy

Chief Executive Officer

(Principal Executive Officer)

**Exhibit 31.2**

**CERTIFICATIONS**

I, Gregory B. Graves, certify that:

1. I have reviewed this Annual Report on Form 10-K of Entegris, Inc.;

2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this annual report, fairly present in all material respects, the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 7, 2020

/s/ Gregory B. Graves

Gregory B. Graves

Chief Financial Officer

(Principal Financial Officer)

EXHIBIT 32.1

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906
OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K (the "Report") of Entegris, Inc, a Delaware corporation (the "Company"), for the period ended December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof, I, Bertrand Loy, President and Chief Executive Officer of the Company, hereby certify pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 7, 2020

/s/ Bertrand Loy

Bertrand Loy

Chief Executive Officer

EXHIBIT 32.2

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906
OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K (the "Report") of Entegris, Inc, a Delaware corporation (the "Company"), for the period ended December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof, I, Gregory B. Graves, Chief Financial Officer of the Company, hereby certify pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 7, 2020

/s/ Gregory B. Graves

Gregory B. Graves

Chief Financial Officer