Filed by Entegris, Inc.
Pursuant to Rule 425 Under the Securities Act of 1933
And Deemed Filed Pursuant to Rule 14a-12
Under the Securities Exchange Act of 1934
Subject Company: Mykrolis Corporation
Commission File No. 001-16611

This filing relates to the proposed merger of equals transaction pursuant to the terms of that certain Agreement and Plan of Merger, dated as of March 21, 2005 (the "Merger Agreement"), by and among Entegris, Inc., a Minnesota corporation ("Entegris"), Mykrolis Corporation, a Delaware corporation ("Mykrolis"), and Eagle DE, Inc., a Delaware corporation and a wholly-owned subsidiary of Entegris ("Eagle Delaware"). The Merger Agreement is on file with the Securities and Exchange Commission (the "SEC") as an exhibit to the Current Report on Form 8-K filed by each of Entegris and Mykrolis on March 21, 2005, and is incorporated by reference into this filing.

The following is the text of a memorandum to be sent by Entegris' President and Chief Executive Officer to Entegris' employees.

March 21, 2005

Dear Entegris Employee:

This morning, we announced that Entegris and Mykrolis Corporation, of Billerica, Massachusetts, have agreed to unite in a merger-of-equals transaction that creates a combined company valued at about \$1.3 billion.

The combined company will be known as Entegris. It will have combined trailing annual sales of more than \$650 million. It will be well-positioned for growth, long-term strength and solid financial performance.

Most important, the merger combines two strong, successful companies to create the clear industry leader in materials integrity management—a company focused on purifying, protecting and transporting critical materials, such as gases, liquids, wafers and components, used in the semiconductor, microelectronics and other high-technology industries. As such, we will be an even better partner to our customers, as we help them manufacture their products as quickly, cost-effectively and profitably as possible.

And, the new Entegris will continue to be a great place to work—an exciting, dynamic, growth-oriented environment with many opportunities for personal and professional growth.

The attached press release, which we are also sending this morning to our customers, suppliers and other business partners, contains more information about the transaction from a strategic, operational and financial point of view. Employee meetings will be scheduled to provide additional information about the announcement. If you have any questions, please discuss them with your manager.

We expect to complete the merger during the third calendar quarter. Until then, nothing will change in the way we do business, and you should continue to focus on your responsibilities exactly as before. As a reminder, please do not discuss the transaction with customers, suppliers, reporters or other outsiders unless you are specifically authorized to do so.

This is a great deal, and a great day, for Entegris—a day made possible by you and the thousands of other Entegris employees over the years who have contributed to our current strength and success.

On behalf of all of us on the Entegris Board of Directors and management team, thank you for your continuing loyalty, dedication and support.

Jim

Additional Information and Where to Find It

In connection with the proposed transaction, Entegris, Mykrolis and Eagle DE, Inc. (a newly formed corporation that will merge with Entegris to effect the reincorporation of Entegris in the State of Delaware in connection with the proposed transaction) will file a joint proxy statement/prospectus with the Securities and Exchange Commission. A registration statement on Form S-4 also will be filed with the SEC. Security holders of each company and other investors are urged to read the registration statement and the joint proxy statement/prospectus (including any amendments or supplements to the joint proxy statement/prospectus) regarding the proposed transaction when they become available because they will contain important information about Entegris, Mykrolis and the proposed transaction. Stockholders will be able to obtain a free copy of the registration statement and the joint proxy statement/prospectus, as well as other filings containing information about Entegris and Mykrolis, without charge, at the SEC's Internet site (http://www.sec.gov). Copies of the registration statement and the joint proxy statement/prospectus and the filings with the SEC that will be incorporated by reference in the joint proxy statement/prospectus can also be obtained, without charge, by directing a request to Entegris, 3500 Lyman Blvd, Chaska, MN 55318, Attention: Investor Relations Dept., telephone: (952) 556-8080, or at investor relations@mykrolis.com. In addition, investors and security holders may access copies of the documents filed with the SEC by Entegris on Entegris' website at www.mykrolis.com. In addition, investors and security holders may access copies of the documents filed with the SEC by Mykrolis on Mykrolis' website at www.mykrolis.com.

Participants in Solicitation

Entegris, Mykrolis and their respective directors and executive officers and other persons may be deemed to be participants in the solicitation of proxies in respect of the proposed transaction. Information regarding Entegris' directors and executive officers is available in its Form DEF 14A filed with the SEC by Entegris on December 15, 2004 and in its Form DEF 14A filed with the SEC on November 12, 2004, and information regarding Mykrolis' directors and executive officers is available in its Form DEF 14A filed with the SEC by Mykrolis on March 26, 2004 and in its Form 10-K filed with the SEC on March 11, 2005. Other information regarding the participants in the proxy solicitation and a description of their direct and indirect interests, by security holdings or otherwise, will be contained the joint proxy statement/prospectus and other relevant materials to be filed with the SEC when they become available.

Forward-Looking Statements

Certain statements in this filing regarding Entegris, Inc., Mykrolis Corporation, the proposed transaction and the combined company after completion of the proposed transaction constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as "expect", "feel", "believe", "may", "anticipate", "plan", "estimate", "intend", "should" and similar expressions are intended to identify forward-looking statements. These statements include, but are not limited to, financial projections and estimates and their underlying assumptions; statements regarding plans, objectives and expectations with respect to future operations, products and services; and statements regarding future performance. Such forward-looking statements involve known and unknown risks, uncertainties and other important factors that could cause the actual results, performance or achievements of Entegris, Mykrolis, and their respective subsidiaries or industry results, to differ materially from any

future results, performance or achievements expressed or implied by such forward-looking statements. Such risks, uncertainties and other factors include, among others: the risks and factors described in the publicly filed documents of Entegris and Mykrolis, including their most recently filed Forms 10-K; general economic and business conditions and industry trends in the countries in which we operate; currency exchange risks; the continued strength of the industries in which we operate; uncertainties inherent in proposed business strategies and development plans; rapid technological changes; future financial performance, including availability, terms and deployment of capital; availability of qualified personnel; changes in, or the failure or the inability to comply with, government regulation in the countries in which we operate, and adverse outcomes from regulatory proceedings; changes in the nature of key strategic relationships with partners and joint venturers; competitor responses to the products and services of Entegris and Mykrolis, and the overall market acceptance of such products and services, including acceptance of the pricing of such products and services; the ability to achieve the cost savings and synergies contemplated by the proposed merger; the ability to promptly and effectively integrate the businesses of Entegris and Mykrolis; and the diversion of management time on merger-related issues. These forward-looking statements speak only as of the date of this filing. Entegris and Mykrolis expressly disclaim any obligation or undertaking to disseminate any updates or revisions to any forward-looking statement contained herein to reflect any change in the respective expectations of Entegris and Mykrolis with regard thereto or any change in events, conditions or circumstances on which any such statement is based. The transaction is subject to customary closing conditions, including regulatory, stockholder and other third-party consents and approvals.