ENTEGRIS INC
Form 10-K
March 02, 2009

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

(Mark One)

x Annual report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934
For the fiscal year ended December 31, 2008

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 000-30789

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.)

3500 Lyman Boulevard, Chaska, MN 55318

(Address of principal executive offices and zip code)

(952) 556-3131

(Registrant s telephone number, including area code)

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

Title of Class

Common Stock, $0.01 Par Value

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. x 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 x 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. x Yes ¨ No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein and will not be contained, to the best of registrant s knowledge, in definitive proxy or information statements incorporated by reference in Part III of Form 10-K or any amendment to this Form 10-K. ¨

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, or a non-accelerated filer (Check one):

Large Accelerated Filer x Accelerated Filer ¨ Non-Accelerated Filer ¨
Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). ¨ Yes x 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 30, 2008, the last business day of registrant s most recently completed second fiscal quarter, was $712,989,102. Shares held by each officer and director of the registrant and by each person who owned 10 percent or more of the outstanding Common Shares 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 January 31, 2009, 113,408,201 shares of the registrant s Common Stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Document	Incorporated into Form 10-K
Portions of the Definitive Proxy Statement, to be filed subsequently	Part III

PART I

Item 1. Business.

THE COMPANY

Entegris is a leading provider of a wide range of products and materials used in processing and manufacturing in the semiconductor and other high-technology industries. For the semiconductor industry, our products assure the integrity of critical materials and components throughout the semiconductor manufacturing process, from raw silicon wafer manufacturing to packaging of completed integrated circuits. For other high-technology applications, our products and materials are used to manufacture flat panel displays, high-purity chemicals, photoresists, solar cells, gas lasers, optical and magnetic storage devices, fiber optic cables, fuel cells and critical components for aerospace, glass manufacturing and biomedical applications. We sell our products worldwide through a direct sales force and through distributors in selected regions.

The Company was incorporated in Delaware in March 2005 in connection with a strategic merger of equals transaction between Entegris, Inc., a Minnesota corporation (Entegris Minnesota), and Mykrolis Corporation, a Delaware corporation (Mykrolis). Effective August 6, 2005, Entegris Minnesota and Mykrolis were each merged into the Company with the Company as the surviving corporation to carry on the combined businesses. Unless the context otherwise requires, the terms Entegris , we , our , or the Company mean Entegris, Inc., a Delaware corporation, and its subsidiaries; the term Mykrolis means Mykrolis Corporation and its subsidiaries when referring to periods prior to August 6, 2005; Entegris Minnesota means Entegris, Inc., a Minnesota corporation and its subsidiaries other than Entegris when referring to periods prior to August 6, 2005; and the term Merger refers to the transactions effected on August 6, 2005 described above. On August 11, 2008 we acquired Poco Graphite (POCO), a privately held company based in Decatur, Texas. The addition of POCO both augmented our base of business in the semiconductor industry and provided growth opportunities in an array of other high-performance markets. The acquisition of POCO also expanded our materials science capabilities to include graphite and silicon carbide and added a consumable product line made from those materials to our portfolio of products.

We offer a diverse product portfolio that includes more than 16,000 standard and customized products that we believe provide the most comprehensive offering of products and services to maintain the purity and integrity of critical materials used by the semiconductor and other high-technology industries. Our products include both unit driven and capital expense driven products. Unit-driven and consumable products are consumed or exhausted during the manufacturing process and rely on the level of semiconductor and other manufacturing activity to drive growth. Capital expense driven products rely on the expansion of manufacturing capacity to drive growth. Our unit-driven and consumable product class includes membrane-based liquid filters and housings, metal-based gas filters, resin-based gas purifiers, wafer shippers, disk-shipping containers and test assembly and packaging products and consumable graphite and silicon carbide components used in plasma etch, ion implant and chemical vapor deposition processes in semiconductor manufacturing. Our capital expense-driven products include our components, systems and subsystems that use electro-mechanical, pressure differential and related technologies, to permit semiconductor and other electronics manufacturers to monitor and control the flow and condition of process liquids used in these manufacturing processes, and our process carriers that protect the integrity of in-process wafers. Unit-driven and consumable products, including service revenue, accounted for approximately 65%, 60% and 59% of our net sales for fiscal years 2008, 2007 and 2006, respectively, and capital expense-driven products accounted for approximately 35%, 40% and 41% of our net sales for the fiscal years 2008, 2007 and 2006, respectively.

Our Internet address is *www.entegris.com*. On this web site, under the Investor Relations 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; and any amendments to those reports or statements. 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 web site as referred to in this Form 10-K is not incorporated by reference into this Form 10-K unless expressly noted.

SEMICONDUCTOR INDUSTRY BACKGROUND

Semiconductors, or integrated circuits, are the building blocks of today s electronics and the backbone of the information age. The market for semiconductors has grown significantly over the past decade. This trend is expected to continue due to increased Internet usage and the continuing demand for applications in data processing, wireless communications, broadband infrastructure, personal computers, handheld electronic devices and other consumer electronics.

The semiconductor materials industry is comprised of a wide variety of materials and consumables that are used throughout the semiconductor production process. The extensive and complex process of turning bare silicon wafers into finished integrated circuits is dependent upon a variety of materials used repeatedly throughout the manufacturing process, such as silicon, chemicals, gases and metals. The handling and purification of these materials during the integrated circuit manufacturing process requires the use of a variety of products, such as liquid and gas filters and purifiers, fluid and gas handling components and wafer shippers and process carriers.

The manufacture of semiconductors is a highly complex process that consists of two principal segments: front-end processes and back-end processes. The front-end process begins with the delivery of raw silicon wafers from wafer manufacturers to semiconductor manufacturers and requires hundreds of highly complex and sensitive manufacturing steps, during which a variety of materials, including chemicals and gases, are applied to the silicon wafer to build the integrated circuits on the wafer surface. We offer products for each of the primary front-end process steps, which are listed below, as well as products to transport in-process wafers between each of these steps.

Deposition. Deposition refers to placing layers of insulating or conductive materials on a wafer surface in thin films that make up the circuit elements of semiconductor devices. The two main deposition processes are physical vapor deposition, where a thin film is deposited on a wafer surface in a low-pressure gas environment, and chemical vapor deposition (CVD), where a thin film is deposited on a wafer surface using a gas medium and a chemical bonding process. In addition, electro-plating technology is utilized for the deposition of low resistance conductive materials such as copper. The control of uniformity and thickness of these films through filtration and purification of the fluids and materials used during the process is critical to the performance of the semiconductor circuit and, consequently, the manufacturing yield. In addition, our graphite chamber liners and shower heads are critical expendable components used in the CVD chamber.

Chemical Mechanical Planarization (CMP). CMP flattens, or planarizes, the topography of the surface of the wafer after deposition to permit the patterning of small features on the resulting smooth surface by the photolithography process. Semiconductor manufacturers need our filtration and purification systems to maintain acceptable manufacturing yields through the chemical mechanical planarization process by filtering the liquid slurries, which are solutions containing abrasive particles in a chemical mixture, to remove oversized particles and contaminants that can cause defects on a wafer s surface, while not affecting the functioning of the abrasive particles in the liquid slurries. In addition, manufacturers use our consumable polyvinyl alcohol (PVA) roller brushes to clean the wafer after completion of the CMP process to prepare the wafer for subsequent operations.

Photolithography. Photolithography is the process step that defines the patterns of the circuits to be built on the chip. Before photolithography, a wafer is pre-coated with photoresist, a light-sensitive film composed of ultra-high purity chemicals in liquid form. The photoresist is exposed to specific forms of radiation, such as ultraviolet light, electrons or x-rays, to form patterns that eventually become the circuitry on the chip. This process is repeated many times, using different patterns and interconnects between layers to form the complex, multi-layer circuitry on a semiconductor chip. As device geometries decrease and wafer sizes increase, it is even more

critical that these photoresists are dispensed on to the chip with accurate thickness and uniformity, as well as with low levels of contamination, and that the process gases are free of micro-contamination so that manufacturers can achieve acceptable yields in the manufacturing process. Our liquid filtration and liquid dispense systems play a critical role in assuring the pure, accurate and uniform dispense of photoresists on to the wafer. In addition, our gas micro-contamination systems eliminate airborne amine contaminants that can disrupt effective photolithography processes.

Etch and Resist Strip. Etch is the process of selectively removing precise areas of thin films that have been deposited on the surface of a wafer. The hardened photoresist protects the remaining material that makes up the circuits. During etch, specific areas of the film not covered by photoresist are removed to leave a desired circuit pattern. Similarly, resist strip is a process of removing the photoresist material from the wafer after the desired pattern has been placed on the wafer. Emerging advanced etch and resist strip applications require precisely controlled gas chemistries and flow rates in order to achieve precise etch and resist strip characteristics. Our gas filters and purifiers help assure the purity of these process gas streams, and our consumable graphite components deliver, baffle and confine these process gases during the etch process.

Ion Implant. Ion implantation provides a means for introducing impurities into the silicon crystal, typically into selected areas defined by the photolithographic process. This selective implanting of ions into defined areas creates electrically conductive areas that form the transistors of the integrated circuits. Ion implanters have the ability to implant selected elements into the silicon wafers at precise locations and depths by bombarding the silicon surface with a precisely controlled beam of electrically charged ions of specific atomic mass and energy. These ions are embedded into the silicon crystal structure, changing the electrical properties of the silicon. The precision of ion implantation techniques permits customers to achieve the necessary control of this doping process to construct up to 500 billion transistors of uniform characteristics on a 300mm wafer. Since these transistors are the starting point of all subsequent process steps, repeatability, uniformity and yield are extremely important. Our consumable graphite components as well as our proprietary low temperature plasma coating process for core components are critical elements of ion implantation equipment.

Wet Cleaning. Ultra-high purity chemicals and photoresists of precise composition are used to clean the wafers, to pattern circuit images and to remove photoresists after etch. Before processes such as photoresist coating, thin film deposition, ion implantation, diffusion and oxidation, and after processes such as ion implantation and etch, the photoresists must be stripped off, and the wafer cleaned in multiple steps of chemical processes. To maintain manufacturing yields and avoid defective products, these chemicals must be maintained at very high purity levels without the presence of foreign material such as particles, ions or organic contaminants. Our liquid filters and purifiers are used to assure the purity of these chemicals.

Our wafer and reticle carriers are high-purity mini-environments which carry wafers between each of the above process steps, protecting them from damage and contamination during these transport operations. Our fluid handling components assure the delivery of pure liquid chemicals to each of these process steps. Front-end wafer processing can involve hundreds of steps and take several weeks. As a result, a batch of 25 fully processed wafers, the maximum number of wafers that can be transported in one of our products, can be worth several million dollars. Since significant value is added to the wafer during each successive manufacturing step, it is essential that the wafer be handled carefully and precisely to minimize damage. Thus, in the case of wafer carriers, precise wafer positioning, highly reliable and predictable cassette interface dimensions and advanced materials are crucial. The failure to prevent damage to wafers can severely impact integrated circuit performance, render an integrated circuit inoperable or disrupt manufacturing operations. Our products enable semiconductor manufacturers to: minimize contamination (semiconductor processing is now so sensitive that ionic contamination in certain processing chemicals is measured in parts per trillion); protect semiconductor devices from electrostatic discharge and shock; avoid process interruptions; prevent damage or abrasion to wafers and materials during automated processing caused by contact with other materials or equipment; prevent damage due to abrasion or vibration of work-in-process and finished goods during transportation to and from customer and supplier facilities; and eliminate the dangers associated with handling toxic chemicals.

Once the front-end manufacturing process is completed, finished wafers are transferred to back-end manufacturers or assemblers. The back-end semiconductor manufacturing process consists of test, assembly and packaging of finished wafers into integrated circuits. Our wafer shippers, wafer and reticle carriers and integrated circuit trays facilitate the storage, transport, processing and protection of wafers through these front-end and back-end manufacturing steps.

Semiconductor manufacturing has become increasingly complex in recent years as new technologies have been introduced to enhance device performance and as larger wafer sizes have been introduced to increase production efficiencies. This increasing complexity of semiconductor devices has resulted in a number of challenges including the need for more complex, higher-precision liquid and gas delivery, measurement, control and purification systems and subsystems in the front-end manufacturing processes and to improve time-to-market, reduce manufacturing costs, improve production quality and enhance product reliability and long-term service and support. To address these challenges, semiconductor equipment companies and device manufacturers are outsourcing the design and manufacture of liquid delivery, measurement, control and purification systems, subsystems, components, and consumables to us and to other well-established subsystem and component companies that have worldwide presence and leading technologies. The design and performance of those liquid delivery systems, subsystems, components and consumables are critical to the front-end semiconductor manufacturing process because they directly affect cost of ownership and manufacturing yields. We continually seek opportunities to work with our customers to address these challenges.

Also in response to these challenges and to achieve continued productivity gains, semiconductor manufacturers have become increasingly focused on materials management 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. The need for efficient and reliable materials management is particularly important as new materials are introduced and as 300 mm semiconductor wafer manufacturing becomes the more prevalent manufacturing technology. Processing 300 mm wafers, currently the largest wafer size in a manufacturing environment, is more costly and more complex because of the larger size of these wafers. In addition, new materials and circuit shrinkage create new contamination and material compatibility risks, rendering 300 mm wafers more vulnerable to damage or contamination. These trends will present new and increasingly difficult purification, dispense, shipping, transport, process and storage challenges. We seek to bring our advanced polymer manufacturing and advanced tool design capabilities to bear on these challenges to provide our customers with innovative materials integrity management solutions.

Many of the processes used to manufacture semiconductors are also used to manufacture flat panel displays, magnetic and optical storage devices and fiberoptic cables for telecommunications, resulting in the need for similar filtration, purification, control and measurement capabilities. We seek to leverage our products and expertise in serving semiconductor applications to address these important market opportunities.

OUR BUSINESS STRATEGY

Our objective is to be a global leader providing innovative products and solutions for purifying, protecting and transporting critical materials used in processing and manufacturing in the semiconductor and other high-technology industries. We intend to build upon our position as a worldwide developer, manufacturer and supplier of liquid delivery systems, components and consumables used by semiconductor and other electronic device manufacturers and upon our expertise in advanced specialty materials to grow our business in these and other high value-added manufacturing process markets. Our strategy includes the following key elements:

Comprehensive and Diverse Product Offerings. The semiconductor manufacturing industry is driven by rapid technological changes and intense competition. We believe that semiconductor manufacturers are seeking process control suppliers who can provide a broad range of reliable, flexible and cost-effective products, as well as the technological and application design expertise necessary to deliver effective solutions. Our comprehensive

product offering enables us to meet a broad range of customer needs and provide a single source of flexible product offerings for semiconductor device and capital equipment manufacturers as they seek to consolidate their supplier relationships to a smaller select group. In addition, we believe manufacturers of semiconductor tools are looking to their suppliers for subsystems that provide more integrated functionality and seamlessly communicate with other equipment. We believe our offering of consumables and equipment, as well as our ability to integrate them, allows us to provide advanced subsystems.

Diversified Revenue Stream. We target a diversified revenue stream by balancing our sales of wafer transport and process carriers as well as component and subsystem equipment products with sales of our unit-driven and consumable products. Our unit-driven and consumable products provide a relatively more stable and recurring source of revenue in this cyclical industry. Our capital expense-driven products, which are generally dependent upon such factors as the construction and expansion of semiconductor manufacturing facilities and the retrofitting and renovation of existing semiconductor facilities, position us to benefit from increases in capital spending that are typically more subject to the volatility of industry cycles.

Technology Leadership. With the emergence of smaller and more powerful semiconductor devices, and the deployment of new materials and processes to produce them, we believe there is a need for greater materials management within the semiconductor fabrication process. We seek to extend our technology by developing advanced products that address more stringent requirements for greater purification, protection and transport of high value-added materials and for contamination control, fluid delivery and monitoring, and system integration. We have continuously improved our products as our customers needs have evolved. For example, we have developed proprietary materials blends for use in our wafer handling product family that address the contamination concerns of advanced semiconductor processing below 100 nanometers; we have also developed a next-generation 300 mm front-opening unified pod utilizing those materials targeting the needs of 65 nm production; and we have expanded upon our proprietary two-stage dispense technology with integrated filtration for photoresist delivery, where the photoresist is filtered through one pump and precisely dispensed through a second pump at a different flow rate to reduce defects on wafers.

Strong Customer Base. We have established ongoing relationships with many leading original equipment manufacturers and materials suppliers in our key markets. These 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 products and applications that meet our customers needs. For example, we work with our key customers at the pre-design and design stages to identify and respond to their requests for current and future generations of products. We target opportunities to offer new technologies in emerging applications, such as copper plating, chemical mechanical planarization, wet-dry cleaning systems and photolithography. We believe that our large customer base will continue to be an important source of new product development ideas.

Global Presence. We have established a global infrastructure of design, manufacturing, distribution, service and support facilities to meet the needs of our customers. In addition, we may expand our global infrastructure, either through acquisition or internal development, to accommodate increased demand, or we may consolidate inefficient operations to optimize our manufacturing and other capabilities. For example, we have established sales and service offices in China in anticipation of a growing semiconductor manufacturing base in that region. As semiconductor and other electronic device manufacturers have become increasingly global, they have required that suppliers offer comprehensive local repair and customer support services. In response to this trend we transferred customer support and logistics activities to local regions in an effort to enhance our global customer contact and awareness. We maintain our customer relationships through a combination of direct sales and support personnel and selected independent sales representatives and distributors in Asia, Europe and the Middle East.

Ancillary Markets. We plan to leverage our accumulated expertise in the semiconductor industry by developing products for applications that employ similar production processes that utilize materials integrity management, high-purity fluids and integrated dispense system technologies. Our products are used in manufacturing processes outside of the semiconductor industry, including the manufacturing of flat panel displays, fuel cell components,

high-purity chemicals, photoresists, solar cells, gas lasers, optical and magnetic storage devices and fiberoptic cables. We plan to continue to identify and develop products that address materials management and advanced materials processing applications where fluid management plays a critical role. We believe that by utilizing our technology to provide manufacturing 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 any particular market.

Strategic Acquisitions, Partnerships and Related Transactions. We plan 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 and broaden our technological capabilities and product offerings. Our acquisition of Poco Graphite in August of 2008 is an example of this strategy. Poco Graphite reinforces our presence in that industry by providing a group of new products critical to front-end semiconductor manufacturing based on a materials science that we did not previously have in our technology portfolio. Further, as the dynamics of the markets that we serve shift, we will reevaluate the ability of our existing businesses to provide value-added solutions to those markets in a manner that contributes to achieving our objectives; in the event that we conclude that a business is not able to do this, we expect to restructure or replace that business. Our decision to divest our cleaning equipment business in 2007 was made pursuant to this strategy. Finally, we are continuously evaluating opportunities for strategic alliances and joint development efforts with key customers and other industry leaders.

OUR PRODUCTS

Our product portfolio includes three major categories of products: **(i)** contamination control products, a wide range of products that purify, monitor and deliver critical liquids and gases to the semiconductor manufacturing process, **(ii)** microenvironment products, which preserve the integrity of wafers, reticles and electronic components at various stages of transport, processing and storage and **(iii)** specialty materials products, which include critical graphite components used in semiconductor equipment and low-temperature, plasma-enhanced chemical vapor deposition coating of critical components of semiconductor manufacturing equipment used in various stages of the manufacturing process. There follows a detailed description of each of these three categories of products:

CONTAMINATION CONTROL SOLUTIONS

Liquid Filtration Products: Liquid processing occurs during multiple manufacturing steps including photolithography, deposition, planarization and surface etching and cleaning. The fluids that are used include various mixtures of acids, bases, solvents, slurries and photochemicals, which in turn are used over a broad range of operating conditions, including temperatures from 5 degrees Celsius up to 180 degrees Celsius. The design and performance of our liquid filtration and purification products are critical to the semiconductor manufacturing process because they directly affect the cost of ownership and manufacturing yield. Specially designed proprietary filters remove sub-micron sized particles and bubbles from the different fluid streams that are used in the manufacturing process. Some of our filters are constructed with ultra-high molecular weight polyethylene flat sheet membranes that offer improved bubble clearance and gel removal, either of which can cause defects in the wafers if not removed. Our low hold-up volume disposable filters, with flat sheet membranes, use our Connectology technology to allow filter changes in less than a minute, significantly faster than conventional filters, to reduce the amount of expensive chemicals lost each time a filter is changed and to minimize operator exposure to hazardous solvents and vapors during changeout. We also offer a line of consumable PVA roller brush products to clean the wafer following the chemical mechanical planarization process. Our unique Planarcore PVA roller brush is molded on the core to allow easy installation that reduces tool downtime and a dimensionally stable product that provides consistent wafer-to-wafer cleaning performance.

Components and Systems. Chemicals spend most of their time in contact with fluid storage and management distribution systems, so it is critical for fluid storage and handling components to resist these chemicals and avoid contributing contaminants to the fluid stream. We offer chemical delivery products that allow the consistent and

safe delivery of sophisticated chemicals from the chemical manufacturer to the point-of-use in the semiconductor fab. Most of these products are made from perfluoroalkoxy or PFA, a fluoropolymer resin widely used in the semiconductor industry because of its high purity and inertness to chemicals. The innovative design and reliable performance of our products and systems under the most stringent of process conditions has made us a recognized leader in high-purity fluid transfer products and systems. Both semiconductor manufacturers and semiconductor OEMs use our chemical delivery products and systems. Our comprehensive product line provides our customers with a single-source provider for their chemical storage and management needs throughout the manufacturing process. Our chemical delivery products include valves, fittings, tubing, pipe, chemical containers and custom fabricated products for high-purity chemical applications.

Our proprietary photochemical filtration and dispense systems integrate our patented two-stage, filter device and valve control technologies. We believe that we offer the microelectronics industry the only dispense systems with integrated filtration capability and that our proprietary patented two-stage technology has a significant advantage over conventional single-stage technology. Our two-stage technology permits the filtering and dispense functions to operate independently so that filtering and dispensing of photochemicals can occur at different rates, reducing the differential pressure across the filter, conserving expensive photochemicals and resulting in reduced defects in wafers. As described above, we offer a line of proprietary filters specifically designed to efficiently connect with these systems. Our patented digital valve control technology improves chemical uniformity on wafers and improves ease of optimized system operation. In addition, our integrated high-precision liquid dispense systems enable uniform application of photoresists for the spin-coating process, where uniformity is measured in units of Angstroms, a tiny fraction of the thickness of a human hair.

We offer a wide variety of measurement and control products for high-purity and corrosive applications. For electronic measurement and control of liquids, we provide a complete line of pressure and flow measurement and control products as well as all-plastic capacitance sensors for leak detection, valve position, chemical level and other measurements. We also offer a complete line of sight tube-style flowmeters and mechanical gauge pressure measurement products.

Gas Filtration Products. Our Wafergard®, ChamberGard and Waferpure® particle and molecular filtration products purify the gas entering the process chamber in order to eliminate system and wafer problems due to particulate, atmospheric and chemical contaminants. These filters are able to retain all particles 0.003 microns and larger. Our metal filters, such as stainless steel and nickel filters, reduce outgassing and improve corrosion resistance. Our Waferpure ® and Aeronex Gatekeeper® purifiers chemically react with and absorb volatile contaminants, such as oxygen and water, to prevent contamination, and our ChamberGard vent diffusers reduce particle contamination and processing cycle times. We offer a wide variety of gas purification products to meet the stringent requirements of semiconductor processing. Our Aeronex Gas Purification Systems contain dual-resin beds, providing a continuous supply of purified gas without process interruption. These gas purification systems are capable of handling higher flow rates and longer duty cycles than cartridge purifiers. Our Extraction products include filter housings and hybrid media chemical air filters which purify air entering exposure tool and process tool enclosures and remove airborne molecular contaminants.

Microenvironment Products

Our microenvironment products fall into three sub-categories, wafer handling products, wafer shipping products and data storage products.

Wafer Handling Products. We believe that we are a market leader in wafer handling products. We offer a wide variety of products that hold and position wafers as they travel between each piece of equipment used in the automated manufacturing process. These specialized carriers provide precise wafer positioning, wafer protection and highly reliable and predictable cassette interfaces in automated fabs. Semiconductor manufacturers rely on our products to improve yields by protecting wafers from abrasion, degradation and contamination during the manufacturing process. We provide standard and customized products that meet the full spectrum of industry

standards and customers wafer handling needs including FOUPs, wafer transport and process carriers, SMIF pods and work-in-process boxes. To meet our customers varying wafer processing and transport needs, we offer wafer carriers in a variety of materials and in sizes ranging from 100 mm through 300 mm.

Wafer Shipping Products. We believe that we are a leading provider of critical shipping products that preserve the integrity of raw silicon wafers as they are transported from wafer manufacturers to semiconductor manufacturers. We lead the market with our extensive, high-volume line of Ultrapak ® and Crystalpak ® products which are supplied to wafer manufacturers in a full range of sizes covering 100, 125, 150 and 200 mm wafers. We also offer a full-pitch, front-opening shipping box, or FOSB, for the transportation and automated interface of 300 mm wafers. We offer a complete shipping system, including both wafer shipping containers as well as secondary packaging that provides another level of protection for wafers.

We believe we are the only global provider currently offering outsourcing programs for wafer and device transportation and protection for both wafer manufacturing and wafer handling products. Our Wafercare ® and DeviceCare SM services include product cleaning, certified re-use services for shipping products, on-site and off-site product maintenance and optimization, and end-of-life recycling for our wafer, device and disk-handling products. Re-use services can be customized depending on the customers needs to provide product cleaning, logistics, recovery, certification and supply solutions for our products.

Data Storage Products. As is the case with the semiconductor industry, the data storage market continues to face new challenges and deploy new technologies at an accelerating rate. We provide products and solutions to manage two critical sectors of this industry: magnetic disks and the read/write heads used to read and write today s higher density disks. Because both of these hard disk drive components are instrumental in the transition to more powerful storage solutions, we offer products that carefully protect and maintain the integrity of these components during their processing, storage and shipment. Our product offerings for magnetic hard disk drives include process carriers, boxes, packages, tools and shippers for aluminum and other disk substrates. Our optical hard disk drive products include stamper cases, process carriers, boxes and glass master carriers. Our read/write head products include transport trays, carriers, handles, boxes, individual disk substrate packages and accessories.

Rapidly changing packaging strategies for semiconductor applications are creating new materials management challenges for back-end manufacturers. We offer chip and matrix trays as well as carriers for bare die handling and integrated circuits. Our materials management products are compatible with industry standards and available in a wide range of sizes with various feature sets. Our standard trays offer dimensional stability and permanent electrostatic discharge protection. Our trays also offer a number of features including custom designs to minimize die movement and contact; shelves and pedestals to minimize direct die contact, special pocket features to handle various surface finishes to eliminate die sticking; and other features for automated or manual die placement and removal. In addition, we support our product line with a full range of accessories to address specific needs such as static control, cleaning, chip washing and other related materials management requirements. To better address this market, we have established ictray.com, a website which allows new and existing customers to select from our full range of standard and custom integrated circuit trays.

Specialty Materials Products

Our specialty materials products fall into three sub-categories, Poco Graphite Products, Specialty Coating Products and Polymer Composites. These products all provide high-value materials science enabling solutions in the form of materials, components or services that provide corrosion, high temperature, wear and chemical resistance, electrical and thermal conductivity and biocompatibility to a wide range of customers both within the semiconductor industry and in adjacent and unrelated industries.

Poco Graphite Products. These products are made from specialized graphite or silicon carbide. Our Poco Graphite products sold to the semiconductor industry are used for critical components for semiconductor manufacturing equipment at various stages of the semiconductor manufacturing process including chemical

vapor deposition, where our expendable graphite chamber liners and shower heads are critical components used in the CVD chamber; wet etch and clean, where our consumable graphite components deliver, baffle and confine the process gases during the etch process; and ion implant, where our consumable graphite components are critical elements of ion implantation equipment. In addition, our Poco Graphite high-quality graphite is used as precision consumable electrodes for electrical discharge machining, a non-contact precision thermoelectric machining process for hard and exotic metals and other materials. Poco Graphite also manufactures a number of graphite hot glass contact materials for use in the manufacture of glass containers. Finally, Poco Graphite manufactures a number of graphite consumable products for various industrial applications including bushings and thrust washers for aerospace applications, substrates for industrial print heads, components for scan heads in industrial optical applications, cathodes for fuel cells and heart valves for human implantation.

Specialty Coatings. We offer a variety of high-performance specialty coatings for critical components used in semiconductor and other high-technology manufacturing operations. These components, often in highly complex geometries, are coated by means of a low-temperature, plasma-assisted chemical vapor deposition process to provide corrosion and abrasion resistance and desired conductivity and hydrophobicity properties. We also provide complex assemblies such as electrostatic chucks for semiconductor manufacturing equipment, where our coatings prevent contamination of the process. Our coatings are also used in other high-technology applications such as aerospace optical components.

Polymer Composite Products. We are pursuing a number of advanced materials initiatives to produce highly engineered, single wall and multi-wall carbon nanotube polymer composite materials that can be used in various products in the semiconductor and other high technology markets.

Worldwide Applications Development and Field Support Capabilities

We provide strong technical support to our customers through local service groups and engineers consisting of field applications engineers, technical service groups, applications development groups and training capabilities. Our field applications engineers, located in the United States and approximately ten other countries, work directly with our customers on product qualification and process improvements in their facilities. In addition, in response to customer needs for local technical service and fast turnaround time, we maintain regional applications laboratories. Our applications laboratories maintain process equipment that simulate customers applications and industry test standards and provide product evaluation, technical support and complaint resolution for our customers.

OUR CUSTOMERS AND MARKETS

Our major semiconductor customer groups include integrated circuit device manufacturers, original equipment manufacturers that provide equipment to integrated circuit device manufacturers, gas and chemical manufacturing companies and manufacturers of high-precision electronics. Our major non-semiconductor customers for our Poco Graphite products include electrical discharge machining customers, glass container manufacturers, aerospace manufacturers and manufacturers of biomedical implantation devices.

Our most significant customers based on sales in fiscal 2008 include industry leaders, such as ASML, MEMC, Samsung America Inc., ST Micro, Siltronic AG, SUMCO Oregon Corp., Taiwan Semiconductor Manufacturing Co. Ltd., Tokyo Electron and UMC Group. We also sell our products to flat panel display original equipment manufacturers, materials suppliers and end users. The major manufacturers for flat panel displays and flat panel display equipment are concentrated in Japan, Korea and other parts of Asia.

In 2008, 2007 and 2006, net sales to our top ten customers accounted for approximately 26%, 28% and 27%, respectively, of our net sales. During those same periods no single customer accounted for more than 10% of our net sales and international net sales represented approximately 71%, 74% and 71%, respectively, of our net sales. Over 3,600 customers purchased products from us during 2008.

We may enter into supply agreements with our customers to govern the conduct of our business with our customers, including the manufacture of our products. 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 and Marketing

We sell our products worldwide, primarily through our direct sales force located in offices in all major semiconductor markets, as well as through independent distributors elsewhere. As of December 31, 2008, our sales and marketing force consisted of approximately 515 employees worldwide. Our direct sales force is supplemented by independent sales representatives and agents.

Our semiconductor marketing efforts focus on our push/pull marketing strategy in order to maximize our selling opportunities. We work with original equipment manufacturers to persuade them to design tools that require our products and we create end-user pull demand by persuading semiconductor manufacturers to specify our products. Our 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 products and applications that meet our customers needs. In addition, we are constantly identifying for our customers the variety of analytical, purification and process control challenges that may be addressed by our products. Further, we adapt our products and technologies to resolve process control issues identified by our customers. Our sales representatives provide our customers with worldwide support and information about our products.

We believe that our technical support services are important to our marketing efforts. These services include assisting in defining a customer s needs, evaluating alternative products, designing a specific system to perform the desired separation, training users and assisting customers in compliance with relevant government regulations. In addition, we maintain a network of service centers located in the United States and in key international markets to support our products.

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:

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

We believe that we compete favorably with respect to all of the factors listed above, but we cannot assure you that we will continue to do so. We believe that our key competitive strengths include our broad product line, the low total cost of ownership of our products, our ability to provide our customers with quick order fulfillment and our technical expertise. 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 also face significant competition from companies that 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. In the markets for our consumable products, we believe that our differentiated membrane and materials integrity management technologies, strong supply chain capabilities that allow us to provide our customers with quick order fulfillment, and technical expertise, which enables us to develop membranes to meet specific customer needs and assist our customers in improving the functionality of our membranes for particular applications, allow us to compete favorably. In these markets our competitors compete against us on the basis of price, as well as alternative membrane technology having different functionality, manufacturing capabilities and breadth of geographic presence.

The market for our products is highly fragmented, and we compete with a number of different companies. Our liquid filtration- control products compete with product offerings from a wide range of companies including both large companies such as Pall Corporation as well as small Asian filter manufacturers. Our contamination control components and systems also face worldwide competition from companies such as Saint-Gobain, Parker, Gemu, Donaldson and Iwaki Co., Ltd. Our gas filtration products compete with companies such as SAES Puregas and Mott Metallurgical Corporation. Our microenvironment product lines face competition largely on a product-by-product basis. We face competition from companies such as Miraial (formerly Kakizaki), Dainichi and Shin-Etsu Polymer and from regional suppliers such as e.PAK Resources Pte. Ltd. These companies compete with us primarily in 200 mm and 300 mm applications. Our data storage and finished electronic components products compete with companies such as ITW/Camtex, Peak International and 3M and from regional suppliers. Our Poco Graphite products compete with products manufactured by companies such as Carbone Lorraine (France), Tokai Carbon (Japan) and Toyo Tanso (Japan). Some of our competitors are larger and have greater resources than we do. In some cases, our competitors are smaller than us, but well-established in specific product niches. We believe that none of our competitors competes with us across all of our product offerings and that, within the markets that we serve, we offer a broader line of products, make use of a wider range of process control technologies and address a broader range of applications than any single competitor.

Engineering, Research and Development

Our aggregate engineering, research and development expenses in 2008, 2007 and 2006 were $40.1 million, $39.7 million and $38.1 million, respectively. As of December 31, 2008, we had approximately 247 employees in engineering, research and development. In addition, we have followed a practice of supplementing our internal research and development efforts by licensing technology from unaffiliated third parties and/or acquiring distribution rights with respect thereto when we believe it is in our long-term interests to do so.

To meet the global needs of our customers, we have engineering, research and development capabilities in California, Minnesota, Massachusetts, Texas, Japan and Malaysia. 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 for which fluid management plays a critical role.

We use sophisticated methodologies to research, develop and characterize our materials and products. Our materials technology laboratory is equipped to analyze the physical, rheological, thermal, chemical and compositional nature of the polymers we use. Our materials lab includes standard and advanced polymer analysis equipment such as inductively coupled plasma mass spectrometry (ICP/MS), inductively coupled plasma atomic emission spectrometry (ICP/AES), fourier transform infrared spectroscopy (FTIR) and automated thermal desorption gas chromatography/mass spectrometry (ATD-GC/MS). This advanced analysis equipment allows us to detect contaminants in materials that could harm the semiconductor manufacturing process to levels as low as parts per billion, and in many cases parts per trillion.

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 expect that technology and product engineering, research and development will continue to represent an important element in our ability to develop and characterize our materials and products.

Key elements of our engineering, research and development expenditures over the past three years have included the development of new product platforms to meet the manufacturing needs for 90, 65, 45 and 32 nanometer semiconductor devices. Driven by the proliferation of new materials and chemicals in the manufacturing processes and increased needs for tighter process control for 300 mm wafers, investments were made for new contamination control products in the area of copper interconnects, deep ultra-violet (DUV) photolithography, and chemical and gas management technologies for advanced wafer cleans, deposition and etch equipment. Additional investments were made in the area of advanced process control, monitoring and diagnostics capabilities for future generations of semiconductor manufacturing processes. Our employees also work closely with our customers development personnel. These relationships help us identify and define future technical needs on which to focus our engineering, research and development efforts. In addition, we participate in Semiconductor Equipment and Materials International (SEMI), a consortium of semiconductor equipment suppliers. We also support research at academic and other institutions targeted at advances in materials science and semiconductor process development.

MANUFACTURING

Our customers rely on our products to assure the integrity of the critical materials used in their manufacturing processes by providing dimensional precision and stability, cleanliness and consistent performance. Our ability to meet our customers expectations, combined with our substantial investments in worldwide manufacturing capacity, position us to respond to the increasing materials integrity management demands of the microelectronics industry and other industries that require similar levels of materials integrity.

To meet our customer needs worldwide, we have established an extensive global manufacturing network with manufacturing facilities in the United States, Japan and Malaysia. 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 manufacturing operations and our advanced manufacturing capabilities are important competitive advantages. Our advanced manufacturing capabilities include:

Injection Molding. Our manufacturing expertise is based on our long experience with injection molding. Using molds produced from computer-aided processes, our manufacturing technicians utilize specialized injection molding equipment and operate within specific protocols and procedures established to consistently produce precision products.

Extrusion. Extrusion is accomplished through the use of heat and force from a screw to melt solid polymer pellets in a cylinder and then forcing the resulting melt through a die to produce tubing and pipe. We have established contamination-free on-line laser marking and measurement techniques to properly identify products during the extrusion process and ensure consistency in overall dimension and wall thickness. In addition, we use extrusion technology to extrude a polymer mix into flat sheet and hollow fiber membranes.

Blow Molding. Blow molding consists of the use of heat and force from a screw to melt solid polymer pellets in a cylinder and then forcing the resulting melt through a die to create a hollow tube. The molten tube is clamped in a mold and expanded with pressurized gas until it takes the shape of the mold. We utilize advanced three-layer processing to manufacture 55 gallon drums, leading to cost savings while simultaneously assuring durability, strength and purity.

Rotational Molding. Rotational molding is accomplished by the placing of a solid polymer powder in a mold, placing the mold in an oven and rotating the mold on two axes so that the melting polymer coats the entire surface of the mold. This forms a part in the shape of the mold upon cooling. We use rotational molding in manufacturing containers up to 5,000 liters. Our rotational molding expertise has provided rapid market access for our current fluoropolymer sheet lining manufacturing business.

Compression Molding. In compression molding, thermoset polymers are processed. Today, we use this manufacturing process primarily for manufacturing bipolar plates and end-plates for the fuel cell market. We use the same expertise as in injection molding to assure a consistently produced precision product.

Membrane Casting. We cast membrane by extruding a polymer into flat sheet or hollow fiber format that is passed through a chamber with controlled atmospheric conditions to control the development of voids or pores in the membrane. Once cast, the membrane is subjected to solvent extraction and annealing steps. The various properties of the membranes that we offer are developed during subsequent process steps.

Cartridge Manufacturing. We fabricate the membrane we manufacture as well as membranes manufactured by others into finished filtration cartridges in a variety of configurations. The fabrication process involves membrane processing into pleated and other configurations around a central core and enclosing it in a framework of end caps and protective screening for use in fabricated cartridge housings. We also manufacture filter cartridges that are integrated into their own housings and incorporate our patented Connectology quick connect technology.

Graphite Synthesis. We have a differentiated proprietary graphite synthesis process that produces premium graphite with superior strength, uniformity and performance. This synthesis process consists of blending and forming petroleum cokes into green billets, baking over an extended period between 800 to 1,100°C, followed by a graphitization process at temperatures between 2,000 to 3,000°C. The graphite produced by this process is sold in bulk, machined into specific components or converted into silicon carbide through controlled exposure to silicon monoxide gas.

Machining. Machining consists of the use of computer-controlled equipment to create shapes, such as valve bodies and other specific components, out of solid polymer blocks or rods, premium graphite and silicon carbide. Our computerized machining capabilities enable speed and repeatability in volume manufacturing of our machined products, particularly products utilized in chemical delivery applications.

Assembly. We have established protocols, flow charts, work instructions and quality assurance procedures to assure proper assembly of component parts. The extensive use of robotics throughout our facilities reduces labor costs, diminishes the possibility of contamination and assures process consistency.

Tool Making. We employ approximately 60 tool development and tool-making staff at locations in the United States and Malaysia. Our toolmakers produce the majority of the tools we use throughout the world.

We have made significant investments in systems and equipment to create innovative products and tool designs. Our computer-aided design (CAD) equipment allows us to develop three-dimensional electronic models of desired customer products to guide design and tool-making activities. Our CAD equipment also aids in the rapid prototyping of products.

We also use computer-automated engineering in the context of mold flow analysis. Beginning with a three-dimensional CAD model, mold flow analysis is used to visualize and simulate how our molds will fill. The mold flow analysis techniques cut the time needed to bring a new product to market because of the reduced need for sampling and development. Also, our CAD equipment can create a virtual part with specific geometries, which drives subsequent tool design, tool manufacturing, mold flow analysis and performance simulation.

In conjunction with our three-dimensional product designs, we use finite element analysis software to simulate the application of a variety of forces or pressures to observe what will happen during product use. This analysis helps us anticipate forces that affect our products under various conditions. The program also assists our product designers by measuring anticipated stresses against known material strengths and establishing proper margins of safety.

PATENTS AND OTHER INTELLECTUAL PROPERTY RIGHTS

We rely on a combination of patent, copyright, trademark and trade secret laws and license agreements to establish and protect our proprietary rights. As of February 1, 2009 our patent portfolio included 280 current U.S. patents, 508 current foreign patents, including counterparts to U.S. filings, 75 pending U.S. patent applications, 19 pending filings under the Patent Cooperation Treaty not yet nationalized and 543 pending foreign patent applications. While we believe that patents may be important for aspects of our business, we believe that our

success also depends more upon close customer contact, innovation, technological expertise, responsiveness and worldwide distribution. Additionally, while our patented technology may delay or deter a competitor in offering a competing product, we do not believe that our patent portfolio functions as a barrier to entry for any of our competitors. In addition, while we license and will continue to license technology used in the manufacture and distribution of products from third parties, except as described below, these licenses are not currently related to any of our core product technology. In connection with the separation of Mykrolis from Millipore Corporation, Mykrolis was granted licenses to certain Millipore technology. Our use of Millipore s technology is governed by the agreements governing the separation of Mykrolis from Millipore, which prohibit our use of Millipore s technology in fields of use outside the microelectronics industry. In general, where technology is used both by Millipore in the manufacture of its products and by us in the manufacture of our products, Millipore retained ownership of the technology and granted us a license to use the technology, limited to fields of use in the microelectronics industry. These restrictions could limit our ability to expand our business into markets outside the microelectronics industry, which could limit our growth.

We require each of our employees, including our executive officers, to enter into standard agreements pursuant to which the employee agrees to keep confidential all of our proprietary information and to assign to us all inventions made while employed by us.

The patent position of any manufacturer, including us, is subject to uncertainties and may involve complex legal and factual issues. Litigation is currently necessary and will likely be necessary in the future to enforce our patents and other intellectual property rights or to defend ourselves against claims of infringement or invalidity. The steps that we have taken in seeking patents and other intellectual property protections may prove inadequate to deter misappropriation of our technology and information. In addition, our competitors may independently develop technologies that are substantially equivalent or superior to our technology.

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. There can be no assurance that we will not incur material costs and liabilities or that our past or future operations will not result in exposure to injury or claims of injury by employees or the public. 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 assure that any new manufacturing facility is in compliance with environmental and health and safety laws, we do not expect these expenditures to be material. Otherwise, we are not presently aware of any facts or circumstances that would cause us to incur significant liabilities in the future related to environmental, health and safety law compliance.

Employees

As of February 1, 2009, we had approximately 2,829 full-time employees, including approximately 247 in engineering, research and development and approximately 515 in sales and marketing, as well as approximately 396 temporary 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 European countries.

Information About Our Operating Segment

For 2008, 2007 and 2006, the Company operated in one reportable business segment that develops, manufactures and sells consumables and capital equipment products to semiconductor manufacturing companies and other companies using similar manufacturing processes, as well as OEM suppliers to those companies. In 2008, 2007 and 2006 approximately 71%, 74% and 71%, respectively, of our net sales were made to customers outside North America. Industry and geographic segment information is discussed in Note 21 to the Entegris, Inc. Consolidated Financial Statements (the Financial Statements) included in response to Item 8 below, which Note is incorporated herein by reference.

Other Information

On July 27, 2005, our Board of Directors adopted a shareholder rights plan (the Rights Plan) pursuant to which Entegris declared a dividend on August 8, 2005 to its shareholders of record on that date of one preferred share purchase right (a Right) for each share of Entegris common stock owned on August 8, 2005. Each Right entitles the holder to purchase one-hundredth of a share of a series of preferred stock at an exercise price of $50, subject to adjustment as provided in the Rights Plan. The Rights Plan is designed to protect Entegris shareholders from attempts by others to acquire Entegris on terms or by using tactics that could deny all shareholders the opportunity to realize the full value of their investment. The Rights are attached to the shares of our common stock until certain triggering events specified in the Rights Agreement occur, including, unless approved by our board of directors, an acquisition by a person or group of specified levels of beneficial ownership of our common stock or a tender offer for our common stock. Upon the occurrence of any of these triggering events, the Rights authorize the holders to purchase at the then-current exercise price for the Rights that number of shares of our common stock having a market value equal to twice the exercise price. The Rights are redeemable by us for $0.01 and will expire on August 8, 2015. One of the events that would trigger the Rights is the acquisition, or commencement of a tender offer, by a person (an Acquiring Person, as defined in the shareholder rights plan), other than Entegris or any of our subsidiaries or employee benefit plans, of 15% or more of the outstanding shares of our common stock. An Acquiring Person may not exercise a Right.

Entegris products are made from a wide variety of raw materials that are generally available in quantity from alternate sources of supply. However, certain materials included in the Company s products, such as polymer resins, petroleum coke and certain filtration membranes, are obtained from a single source or a limited group of suppliers. Although the Company seeks to reduce dependence on these sole and limited source suppliers, the partial or complete loss of these sources could interrupt our manufacturing operations and result in an adverse effect on the Company s results of operations. Furthermore, a significant increase in the price of one or more of these components could also adversely affect the Company s results of operations.

Our History

Effective August 6, 2005 Entegris, Inc., a Minnesota corporation, and Mykrolis Corporation, a Delaware corporation, completed a strategic merger of equals transaction, pursuant to which they were each merged into the Company to carry on the combined businesses. We were incorporated in Delaware in March 2005 under the name Eagle DE, Inc. as a wholly owned subsidiary of Entegris Minnesota. Effective August 6, 2005 Entegris Minnesota merged into us in a reincorporation merger of which we were the surviving corporation. Immediately following that merger, Mykrolis merged into us and our name was changed to Entegris, Inc. Our stock is traded on the NASDAQ National Market System under the symbol ENTG .

Entegris Minnesota was incorporated in June 1999 to effect the business combination of Fluoroware, Inc., which began operating in 1966, and EMPAK, Inc., which began operating in 1980. On July 10, 2000 Entegris Minnesota completed an initial public offering of approximately 19% of the total shares of the Company s common stock outstanding.

Mykrolis was organized as a Delaware corporation on October 16, 2000 under the name Millipore MicroElectronics, Inc. in connection with the spin-off by Millipore Corporation of its microelectronics business

unit. On March 31, 2001, Millipore effected the separation of the Mykrolis business from Millipore s business by transferring to Mykrolis substantially all of the assets and liabilities associated with its microelectronics business. On August 9, 2001 Mykrolis completed an initial public offering of approximately 18% of the total shares of the Company s common stock outstanding. On February 27, 2002, Millipore completed the spin-off of Mykrolis by distributing to its stockholders the 82% of the Mykrolis common stock that it held following the Mykrolis initial public offering.

EXECUTIVE OFFICERS

The following is a list, as of December 31, 2008, of our Executive Officers. All of the Executive Officers listed below were elected to serve until the first Directors Meeting following the 2009 Annual Stockholders Meeting.

Name	Age	Office	First Elected To Office*
CORPORATE OFFICERS			
Gideon Argov	52	*President & Chief Executive Officer*	2004
Gregory B. Graves	48	*Executive Vice President, Chief Financial Officer & Treasurer*	2002
Bertrand Loy	43	*Executive Vice President & Chief Operating Officer*	2001
Peter W. Walcott	62	*Senior Vice President, Secretary & General Counsel*	2001
John J. Murphy	56	*Senior Vice President Human Resources*	2005
John Goodman	48	*Senior Vice President Chief Technology & Innovation Officer*	2005

* With either the Company or a predecessor company

Gideon Argov has been our President and Chief Executive Officer and a director since the effectiveness of our merger with Mykrolis. He served as the Chief Executive Officer and a director of Mykrolis since November 2004. Prior to joining Mykrolis, Mr. Argov was a Special Limited Partner at Parthenon Capital, a Boston-based private equity partnership, since 2001. He served as Chairman, Chief Executive Officer and President of Kollmorgen Corporation from 1991 to 2000. From 1988 to 1991 he served as Chief Executive Officer of High Voltage Engineering Corporation. Prior to 1988, he led consulting engagement teams at Bain and Company. He is a director of Interline Brands, Inc., X-Rite Incorporated and Fundtech Corporation.

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. Mr. Graves served as the Chief Business Development Officer of Entegris Minnesota since September 2002 and from September 2003 until August 2004 he also served as Senior Vice President of Finance. Prior to joining Entegris Minnesota, 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.

Bertrand Loy served as our Executive Vice President and Chief Administrative Officer from the effectiveness of the merger with Mykrolis until July 2008, when he assumed his current position as Chief Operating Officer. He served as the Vice President and Chief Financial Officer of Mykrolis from January 2001 until the Merger. Prior to that, Mr. Loy served as the Chief Information Officer of Millipore from April 1999 until December 2000. From 1995 until 1999, he served as the Division Controller for Millipore s Laboratory Water Division. From 1989 until 1995, Mr. Loy served Sandoz Pharmaceuticals (now Novartis) in a variety of financial, audit and controller positions located in Europe, Central America and Japan.

Peter W. Walcott has been our Senior Vice President, Secretary and General Counsel since the effectiveness of the merger with Mykrolis. He served as the Vice President, Secretary and General Counsel of Mykrolis since October 2000. Mr. Walcott served as the Assistant General Counsel of Millipore from 1981 until March 2001.

John J. Murphy joined us as our Senior Vice President, Human Resources in October of 2005. He served as the Senior Vice President Human Resources of HNTB, an engineering and architectural services firm from February 2004 until October 2005 and as Corporate Vice President, Human Resources of Cadence Design Systems, Inc. from May of 2000 through October 2003. Prior to that Mr. Murphy held senior human resources positions with L.M. Ericsson Telephone Company and with General Electric Company.

John Goodman has been our Senior Vice President, Chief Technology & Innovation Officer since the effectiveness of the merger with Mykrolis. He served as the Managing Director of the fuel cell market sector of Entegris Minnesota since January 2005 and prior to that as president of the fuel cell market sector since June 2002. Mr. Goodman served as Executive Vice President and Chief Technology Officer of Entegris Minnesota from 1999 to 2002. Prior to that time, Mr. Goodman held a variety of positions with Fluoroware (a predecessor to Entegris Minnesota) since 1982.

CORPORATE GOVERNANCE

At their first meeting following the Merger, on August 10, 2005, our Board of Directors adopted a code of business ethics, The Entegris Code of Business Ethics, applicable to all of our executives, directors and employees as well as a set of corporate governance guidelines. The Entegris Code of Business Ethics, the 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 Investor Relations Governance . The Governance Guidelines and committee charters are also available in print to any shareholder that requests a copy. Copies may be obtained by contacting Peter W. Walcott, our Senior Vice President, Secretary and General Counsel through our corporate headquarters.

Item 1A. Risk Factors.

Risks Relating to our Business and Industry

The current industry downturn is negatively impacting our business with significant revenue declines in the fourth quarter of 2008 and a worsening of those declines through the first seven weeks of 2009.

We had a net loss of $517.0 million in fiscal 2008, including a fourth quarter net loss of $131.7 million, which included after-tax goodwill impairment charges of $454.6 million and $89.4 million, respectively. Revenues declined sharply in the fourth quarter of 2008 to $112.7 million down from $145.8 million in the third quarter 2008 and from $161.3 million in the fourth quarter of 2007. The revenue run rate for the first seven weeks of 2009 is down significantly from what we experienced in the fourth quarter of 2008. As a result of this poor business environment, we projected that we would violate the debt covenants in our $230 revolving credit facility in the first half of 2009. Therefore, management, working with our banks, undertook amending our $230 million revolving credit facility. On March 2, 2009 we entered into a $150 million amended revolving credit facility. The $150 million amended revolving credit facility allows us to borrow up to $139 million based on our current borrowing base with an additional $11 million available at the discretion of the majority of our banks. As of December 31, 2008 and February 27, 2009, we have $139 million outstanding. The amended revolving credit facility requires us to maintain compliance with new debt covenants and to pay higher rates of interest (see Note 23 to our consolidated financial statements).

While management has taken significant action to date including the announcement of the closure of our largest Chaska facility that will ultimately result in the layoff of approximately 200 employees and the reduction of exempt employees wages by an aggregate annual amount in excess of $5.0 million, further actions will be necessary if revenue levels do not improve in the very near term. At current 2009 revenue levels, management

will be required to act upon its identified contingency plan to significantly reduce operating expenses further in order to avoid violating the covenants in our $150 million amended revolving credit facility. These reductions, if necessary, would include such items as furloughs, permanent headcount reductions, office closures, further reductions in discretionary spending, elimination of certain new product development initiatives and other cost reduction measures. Certain of the contingency plan actions may likely need to be implemented late in the first quarter to realize the financial benefits necessary to maintain compliance with our debt covenants. While there can be no assurances that these actions will be sufficient, such contingency plans are within management s control. Further, management has the intent and ability to execute as necessary and believes such benefits are achievable. However, there can be no assurance that these additional operating expense reductions will not have a lasting negative impact on our long term business prospects. Additionally, these actions could have direct or indirect negative effects on certain other risk factors below.

The semiconductor industry has historically been highly cyclical, and industry downturns reduce revenue and profits.

Our business depends on the purchasing patterns of semiconductor manufacturers, which, in turn, depend on the current and anticipated demand for semiconductors and products utilizing semiconductors. The semiconductor industry has historically been highly cyclical with periodic downturns, which often have resulted in decreased expenditures by semiconductor manufacturers. For example, we experienced considerably lower revenues during the industry s downturn in the 2001-2003 period. From 2003 to the middle of 2008, this cyclicality had moderated. However, it should be noted that even moderate cyclicality can cause our operating results to fluctuate significantly from one period to the next. Currently, we are experiencing significant revenue deterioration due to a severe downturn in both the capital and unit-driven segments of the semiconductor industry that began during the second half of 2008. We are unable to predict the ultimate duration and severity of this downturn or the timing of a recovery, if any, for the semiconductor industry.

Furthermore, in periods of reduced demand, we must continue to maintain a satisfactory level of engineering, research and development expenditures and continue to invest in our infrastructure. At the same time, we have to manage our operations to be able to respond to significant increases in demand. In addition, because we typically do not have significant backlog, changes in order patterns have a more immediate impact on our revenues. We expect the semiconductor industry to continue to be cyclical. During downturns our revenue is reduced, and there is likely to be an increase in pricing pressure, affecting both gross margin and net income. Such fluctuations in our results could cause our share price to decline. 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.

The semiconductor industry is subject to rapid demand shifts, which are difficult to predict. As a result, our inability to meet demand in response to these rapid shifts may cause a reduction in our market share.

Our ability to increase sales of our products, particularly our capital equipment products, depends in part upon our ability to ramp up the use of our manufacturing capacity for such products in a timely manner and to mobilize our supply chain. In order to meet the demands of our customers, we may be required to ramp up our manufacturing capacity in as little as a few months. If we are unable to expand our manufacturing capacity on a timely basis or manage such expansion effectively, our customers could seek such products from other suppliers, and our market share could be reduced. Because demand shifts in the semiconductor industry are rapid and difficult to foresee, we may not be able to increase capacity quickly enough to respond to such an increase in demand.

Our annual and quarterly operating results are subject to fluctuations as a result of rapid demand shifts and our insignificant level of backlog, and if we fail to meet the expectations of securities analysts or investors, the market price of our securities may decrease significantly.

Our sales and profitability can vary significantly from quarter to quarter and year to year. Because our expense levels are relatively fixed in the short-term, an unanticipated decline in revenue in a particular quarter could disproportionately affect our net income in that quarter. In addition, we make a substantial portion of our

shipments shortly after we receive the order, and therefore we operate with a relatively modest level of backlog. As a consequence of the just-in-time nature of shipments and the modest level of backlog, our results of operations may decline quickly and significantly in response to changes in order patterns or rapid decreases in demand for our products. We anticipate that fluctuations in operating results will continue in the future. Such fluctuations in our results could cause us to fail to meet the expectations of securities analysts or investors, which could cause the market price of our securities to decline substantially. 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.

We may not be able to accurately forecast demand for our products.

As noted above, we typically operate our business on a just-in-time shipment basis with a modest level of backlog and we order supplies and plan production based on internal forecasts of demand. Due to these factors, we have, in the past, and may again in the future, fail to accurately forecast demand for our products, in terms of both volume and specific products for which there will be demand. This has led to, and may in the future lead to, delays in product shipments, disappointment of customer expectations, or, alternatively, an increased risk of excess inventory and of inventory obsolescence. If we fail to accurately forecast demand for our products, our business, financial condition and operating results could be materially and adversely affected.

Semiconductor industry up-cycles may not reach historic levels but instead may reflect a lower rate of long-term growth, similar to the electronics industry.

Notwithstanding the severe and prolonged downturn in the semiconductor industry and the related reduction in manufacturing operations during the period 2001 to 2003 as well as during the current period, there may still be excess manufacturing capacity. In addition, there is no new high-opportunity application to drive growth in the semiconductor industry, as was the case in 1998 with telecommunications and Internet applications. Accordingly, some analysts have predicted that the semiconductor industry may experience lower growth rates during a recovery cycle than has historically been the case and that its longer-term performance may reflect this lower growth rate, which would be similar to the growth rate of the electronics industry. For example, we are currently experiencing a severe downturn comparable to the 2001 2003 downturn; we are unable to predict the duration or ultimate severity of this downturn or the growth rate of any recovery cycle that may follow.

If we are unable to maintain our technological expertise in design and manufacturing processes, we will not be able to successfully compete.

The microelectronics industry is subject to rapid technological change, changing customer requirements and frequent new product introductions. Because of this, the life cycle of our products is difficult to determine. We believe that our future success will depend upon our ability to develop and provide products that meet the changing needs of our customers, including the transition from the use of 200 millimeter wafers to 300 millimeter wafers, the shrinking of integrated circuit line-widths and the use of new classes of materials, such as copper, titanium nitride and organic and inorganic dielectric materials, which are materials that have either a low or high resistance to the flow of electricity. This requires that we successfully anticipate and respond to technological changes in manufacturing processes in a cost-effective and timely manner. Any inability to develop the technical specifications for any of our new products or enhancements to our existing products or to manufacture and ship these products or enhancements in volume in a timely manner could harm our business prospects and significantly reduce our sales. 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.

Because our sales are somewhat concentrated on a small number of key customers, our revenue and profitability may materially decline if one or more of our key customers do not continue to purchase our existing and new products in significant quantities.

We depend and expect to continue to depend on a limited number of customers for a large portion of our business, and changes in several customers orders could have a significant impact on our operating results. Our

top ten customers accounted for 26%, 28% and 27%, of our net sales in 2008, 2007 and 2006, respectively. If any one of our key customers decides to purchase significantly less from us or to terminate its relationship with us, our revenue and profitability may decline significantly. We could also lose our key customers or significant sales to our key customers because of factors beyond our control, such as a significant disruption in our customers businesses generally or in a specific product line. These customers may stop incorporating our products into their products with limited notice to us and suffer little or no penalty for doing so. In addition, if any of our customers merge, we may experience lower overall sales from the merged companies. Because one of our strategies has been to develop long-term relationships with key customers in the product areas in which we focus, and because we have a long product design and development cycle for most of our products and prospective customers typically require lengthy product qualification periods prior to placing volume orders, we may be unable to replace these customers quickly or at all.

Because we are subject to order and shipment uncertainties and many of our costs are fixed, any significant changes, cancellations or deferrals of orders or shipments could cause our revenue and profitability to decline or fluctuate.

As is typical in the microelectronics industry, we do not usually obtain long-term purchase orders or commitments from our customers. Instead, we work closely with our customers to develop non-binding forecasts of the future volume of orders. Customers may cancel their orders, change production quantities from forecasted volumes or delay production for reasons beyond our control. Order cancellations or deferrals could cause us to hold inventory for longer than anticipated, which could reduce our profitability, restrict our ability to fund our operations and cause us to incur unanticipated reductions or delays in our revenue. Our customers often change their orders multiple times between initial order and delivery. Such changes usually relate to quantities or delivery dates, but sometimes relate to the specifications of the products we are supplying. If a customer does not timely pay for these products, we could incur significant charges against our income. In addition, our profitability may be affected by the generally fixed nature of our costs. Because a substantial portion of our costs is fixed, we may experience deterioration in gross margins when volumes decline. From time to time, we make capital investments in anticipation of future business opportunities. If we are unable to obtain the anticipated business, our revenue and profitability may decline.

Competition from existing or new companies in the microelectronics industry could cause us to experience downward pressure on prices, fewer customer orders, reduced margins, the inability to take advantage of new business opportunities and the loss of market share.

We operate in a highly competitive industry. We compete against many domestic and foreign companies that have substantially greater manufacturing, financial, research and development and marketing resources than we do. In addition, some of our competitors may have more developed relationships with our existing customers than we do, which may enable them to have their products specified for use more frequently by these customers. We also face competition from the manufacturing operations of our current and potential customers, who continually evaluate the benefits of internal manufacturing versus outsourcing. As more original equipment manufacturers dispose of their manufacturing operations and increase the outsourcing of their products to liquid and gas delivery system and other component companies, we may face increasing competitive pressures to grow our business in order to maintain our market share. 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. 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. Further, customers continue to demand lower prices, shorter delivery times and enhanced product capability. If we do not respond adequately to such pressures, we could lose customers or orders. If we are unable to compete successfully, we could experience pricing pressures, reduced gross margins and order cancellations.

Lack of market acceptance of our 300 mm shipper products as well as our other products could continue to harm our operating results.

The growing trend toward the use of 300 mm wafers has contributed to the increasing complexity of the semiconductor manufacturing process. The greater diameter of these wafers requires higher tooling costs and presents more complex handling, storage and transportation challenges. We have made substantial investments to complete a full line of 300 mm wafer shipping products, but there is no guarantee that our customers will adopt our 300 mm wafer shipping product lines as they convert existing 200 mm wafer fabrication facilities to the fabrication of 300 mm wafers or build new 300 mm wafer fabrication facilities, and sales of our shipping products for these applications has in the past and could continue in the future to be minimal and we might not recover our development costs.

Semiconductor and other electronic device manufacturers may direct semiconductor capital equipment manufacturers to use a specified supplier s product in their equipment. Accordingly, our success depends in part on our ability to have semiconductor and other electronic device manufacturers specify that our products be used at their fabrication facilities. Some of our competitors may have more developed relationships with semiconductor and other electronic device manufacturers, which enable them to have their products specified for use in manufacturers fabrication facilities.

We may acquire other businesses, form joint ventures or divest businesses that could negatively affect our profitability, increase our debt and dilute your ownership of our company.

As part of our business strategy, we have, and we expect to continue to address gaps in our product offerings, diversify into complementary product markets or pursue additional technology and customers through acquisitions, joint ventures or other types of collaborations. We also expect to adjust our portfolio of businesses to meet our ongoing strategic objectives. As a result, we may enter markets in which we have no or limited prior experience and may encounter difficulties in divesting businesses that no longer meet our objectives. Competition for acquiring attractive businesses in our industry is substantial. In executing this part of our business strategy, we may experience difficulty in identifying suitable acquisition candidates or in completing selected transactions at appropriate valuations. Alternatively, we may be required to undertake multiple transactions at the same time in order to take advantage of acquisition opportunities that do arise; this could strain our ability to effectively execute and integrate these transactions. We consider a variety of financing alternatives for each acquisition which could include borrowing additional funds, reduction of our cash balances or issue of additional shares of our common stock to complete an acquisition. This could impair our liquidity and dilute your ownership of our company. Further, we may not be able to successfully integrate any acquisitions that we do make into our existing business operations and we could assume unknown or contingent liabilities or 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. We may experience difficulties in operating in foreign countries or over significant geographical distances and in retaining key employees or customers of an acquired business, and our management s attention could be diverted from other business issues. We may not identify or complete these transactions in a timely manner, on a cost-effective basis or at all, and we may not realize the benefits of any acquisition or joint venture.

Our amended credit agreement contains restrictions that limit our flexibility in operating our business.

Due to the economic downturn in our business we were projecting covenant violations in our $230 million revolving credit facility in the first half of 2009. Therefore, management, working with our banks, amended its revolving credit facility on March 2, 2009. Under our amended $150 million credit facility we are at a borrowing cap of $139 million. Our borrowing cap can be adjusted downward if our levels of qualifying US accounts receivable, inventories and value of our property plant and equipment were to decline from current levels. The remaining $11 million of the credit facility may not be borrowed unless a majority of the lenders consent. Total borrowings outstanding as of December 31, 2008 and February 27, 2009 was $139 million. In addition, our

amended credit facility contains various covenants that limit our ability to engage in specified types of transactions including, among other things our ability to:

- incur additional indebtedness;
- pay dividends on, repurchase or make distributions in respect of our capital stock or make other restricted payments;
- make certain investments or acquisitions;
- sell certain assets;
- create liens;
- materially change the nature and manner in which we conduct our business;
- consolidate, merge, sell or otherwise dispose of all or substantially all of our assets; and
- enter into certain transactions with our affiliates.

Further, if our future financial performance fails to meet certain financial covenants, then our lenders may terminate the amended credit facility and declare all amounts due, control of our cash receipts from the sale of products as well as certain of our other assets; in this event, our ability to conduct business could be severely impeded.

Our amended credit agreement contains financial covenants that we may not be able to meet.

Our amended credit agreement contains various financial covenants that limit our ability to purchase no more than $16 million in capital equipment in 2009 and no more than $20 million in 2010; requires that we maintain a minimum level of cash in the US; and achieve certain levels of EBITDA performance during 2009 and the first quarter of 2010.

During the first two months of 2009 our revenue levels have declined significantly from those we experienced during the fourth quarter of 2008 which has a negative impact on our ability to remain compliant with the EBITDA levels as required by our debt covenants. If our revenue continues at these levels for the balance of 2009, at our current operating expense levels we will violate the financial covenants of our amended credit agreement during 2009. In the event that revenue levels do not improve in the very near term, management will be required to act upon its identified contingency plan to significantly reduce operating expenses in order to avoid violating those covenants. These reductions, if necessary, would include such items as; furloughs, permanent headcount reductions, office closures, further reductions in discretionary spending, elimination of certain new product development initiatives and other cost reduction measures. Certain of the contingency plan actions may likely need to be implemented late in the first quarter to realize the financial benefits necessary to maintain our debt compliance. While there can be no assurances that these actions will be sufficient, such contingency plans are within its control. Further management has the intent and ability to execute as necessary and believes such benefits are achievable. There can be no assurance that these additional operating expense reductions will not have a lasting negative impact on our long term business prospects.

Our borrowings under our amended credit agreement leave us with a high degree of leverage.

A high degree of leverage could have important consequences for our business and your investment, including:

increasing our vulnerability to adverse economic, industry or competitive developments;

requiring a substantial portion of our cash flow from operations to be dedicated to the payment of principal and interest on our indebtedness, therefore reducing our ability to use our cash flow to fund our operations, capital expenditures and future business opportunities;

exposing us to the risk of increased interest rates on our borrowings;

making it more difficult for us to satisfy our obligations with respect to our indebtedness;

restricting us from making strategic acquisitions or causing us to make non-strategic divestitures;

limiting our ability to obtain additional financing for working capital, capital expenditures, product development, debt service requirements, acquisitions and general corporate or other purposes; and

limiting our flexibility in planning for, or reacting to, changes in our business or market conditions and placing us at a competitive disadvantage compared to our competitors who are less highly leveraged and who therefore, may be able to take advantage of opportunities that our leverage prevents us from exploiting.

Manufacturing Risks

Our dependence on single and limited source suppliers could affect our ability to manufacture our products.

We rely on single or limited source suppliers for some plastic polymers and petroleum coke that are critical to the manufacturing of our products. At times, we have experienced a limited supply of certain polymers as well as the need to substitute polymers, resulting in delays, increased costs and the risks associated with qualifying new polymers with our customers. An industry-wide increase in demand for these polymers could affect the ability of our suppliers to provide sufficient quantities to us. If we are unable to obtain an adequate quantity of such supplies, our manufacturing operations may be interrupted.

In addition, suppliers may discontinue production of polymers specified in certain of our products, requiring us in some instances to certify an alternative with our customers. If we are unable to obtain an adequate quantity of such supplies for any of the above reasons, our manufacturing operations may be affected. Obtaining alternative sources would likely result in increased costs and shipping delays, which could decrease profitability and damage our relationships with current and potential customers.

Prices for polymers can vary widely. In the volatile oil price environment, some suppliers have added and may in the future add surcharges to the prices of the polymers we purchase. While we have long-term arrangements with certain key suppliers of polymers that fix our price for purchases up to specified quantities, if our polymer requirements exceed the quantities specified, we could be exposed to higher material costs. If the cost of polymers increases and we are unable to correspondingly increase the sales price of our products, our profit margins will decline.

Our graphite synthesis process requires petroleum coke that meets specified criteria. While there are multiple suppliers for this petroleum coke, the required criteria may cause the price of this petroleum coke to increase.

Our production processes are becoming increasingly complex, and our production could be disrupted if we are unable to avoid manufacturing difficulties.

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 temporary shortages of raw materials and occasional critical equipment breakdowns that have delayed deliveries to customers. A number of our product lines are manufactured at only one or two facilities, and any disruption could impact our sales until another facility could commence or expand production of such products.

Our manufacturing operations are subject to numerous risks, including the introduction of impurities in the manufacturing process and other manufacturing difficulties that may not be well understood for an extended period of time and that could lower manufacturing yields and make our products unmarketable; the costs and

demands of managing and coordinating geographically diverse manufacturing facilities; and the disruption of production in one or more facilities as a result of a slowdown or shutdown in another facility. We could experience these or other manufacturing difficulties, which might result in a loss of customers and exposure to product liability claims.

We may lose sales if we are unable to timely procure, repair or replace capital equipment necessary to manufacture many of our products.

If our existing equipment fails, or we are unable to obtain new equipment quickly enough to satisfy any increased demand for our products, we may lose sales to competitors. In particular, we do not maintain duplicate tools or equipment for most of our important products. Fixing or replacing complex tools is time consuming, and we may not be able to replace a damaged tool in time to meet customer requirements. In addition, from time to time we may upgrade or add new manufacturing equipment that may require substantial lead times to build and qualify. Delays in building and qualifying new equipment could result in a disruption of our manufacturing processes and prevent us from meeting our customers requirements so that they would seek other suppliers.

We incur significant cash outlays over long-term periods in order to research, develop, manufacture and market new products that may never reach market or may have limited market acceptance.

We make significant cash expenditures to engineer, research, develop and market new products. For example, we incurred $40.1 million, $39.7 million and $38.1 million of engineering, research and development expense in 2008, 2007 and 2006, respectively. The development period for a product can be as long as five years. Following development, it may take an additional two to three years for sales of that product to reach a substantial level. We cannot be certain of the success of a new product. A product concept may never progress beyond the development stage or may only achieve limited acceptance in the marketplace. If this occurs, we do not receive a direct return on our expenditures and may not even realize any indirect benefits. Additionally, capacity expansion may be necessary in order to manufacture a new product. If sales levels do not increase to offset the additional fixed operating expenses associated with any such expansion, our revenue and profitability could decline and our prospects could be harmed.

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

In addition to other regulatory requirements affecting our business, we are subject to a variety of federal, state, local and foreign regulatory requirements relating to the use, disposal, clean-up of, and human exposure to, hazardous chemicals. We generate and handle materials that are considered hazardous waste under applicable law. Certain of our manufacturing operations require the discharge of substantial quantities of wastewater into publicly owned waste treatment works which require us to assure that our wastewater complies with volume and content limitations. If we fail to comply with any present or future regulations, we could be subject to future liabilities or the suspension of production. In addition, compliance with these or future laws could restrict our ability to expand our facilities or build new facilities or require us to acquire costly equipment, incur other significant expenses or modify our manufacturing processes.

We are continually evaluating our manufacturing operations within our plants in order to achieve efficiencies and gross margin improvements. If we are unable to successfully manage transfers or realignments of our manufacturing operations, our ability to deliver products to our customers could be disrupted and our business, financial condition and results of operations could be adversely affected.

In order to enhance the efficiency and cost effectiveness of our manufacturing operations, we expect to move several product lines from one of our plants to another and to consolidate manufacturing operations in our plants. For example, in the fourth quarter of 2008 we announced the closure of our largest North American plant, located in Chaska, Minnesota, and the transfer of its manufacturing activities to our Kulim, Malaysia and Colorado Springs, Colorado plants. Our product lines involve technically complex manufacturing processes that require

considerable expertise to operate. If we are unable to effect these transfers, realignments and consolidations in a systematic manner within established schedules or if we are unable to successfully operate relocated manufacturing processes in the destination plant, production may be disrupted and we may not be able to deliver these products to meet customer orders in a timely manner, which could harm our business.

Loss of our key personnel could hurt our business because of their experience in the microelectronics industry and their technological expertise. Similarly, our inability to attract and retain new qualified personnel could inhibit our ability to operate and grow our business successfully.

We depend on the services of our key senior executives and technological experts because of their experience in the microelectronics industry and their technical expertise. The loss of the services of one or several of our key employees or an inability to attract, train and retain qualified and skilled employees, specifically research and development and engineering personnel, could result in the loss of customers or otherwise inhibit our ability to operate and grow our business successfully. In the past and currently, during downturns in the semiconductor industry our predecessor companies have, and the Company has, had to impose salary reductions on senior employees and freeze or eliminate merit increases in an effort to maintain its financial position. These actions may have an adverse effect on employee loyalty and may make it more difficult for us to attract and retain key personnel.

If we are unable to protect our intellectual property rights, our business and prospects could be harmed.

Our future success and competitive position depend in part upon our ability to obtain and maintain proprietary technology used in our principal product families. We rely, in part, on patent, trade secret and trademark law to protect that technology. We routinely enter into confidentiality agreements with our employees. However, there can be no assurance that these agreements will not be breached, that we will have adequate remedies for any breach or that our confidential and proprietary information and technology will not be independently developed by or become otherwise known to third parties. We have obtained a number of patents relating to our products and have filed applications for additional patents. We cannot assure you that any of our pending patent applications will be approved, that we will develop additional proprietary technology that is patentable, that any patents owned by or issued to us will provide us with competitive advantages or that these patents will not be challenged by third parties. Patent filings by third parties, whether made before or after the date of our filings, could render our intellectual property less valuable. Competitors may misappropriate our intellectual property, and disputes as to ownership of intellectual property may arise. In addition, if we do not obtain sufficient international protection for our intellectual property, our competitiveness in international markets could be significantly impaired, which would limit our growth and future revenue. Furthermore, there can be no assurance that third parties will not design around our patents.

Protection of our intellectual property rights has and may continue to result in costly litigation.

We may from time to time be required to 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, as described in Item 3, Legal Proceedings, below we are engaged in multiple patent litigations with Pall Corporation. We intend to prosecute and defend these cases vigorously and expect that these lawsuits will continue for extended periods of time and that we will incur substantial costs in pursuing them. In addition it may become necessary for us to initiate other costly patent litigation against this or other competitors in order to protect and/or perfect our intellectual property rights.

If we infringe on the proprietary technology of others, our business and prospects could be harmed.

Our commercial success will depend, in part, on our ability to avoid infringing or misappropriating any patents or other proprietary rights owned by third parties. If we are found to 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 activities 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, there can be no assurance that we will be able to do so on commercially favorable terms, if at all.

International Risks

We conduct a significant amount of our sales activity and manufacturing efforts outside the United States, which subjects us to additional business risks and may cause our profitability to decline due to increased costs.

Sales to customers outside the United States accounted for approximately 71% of our net sales in 2008, 74% of our net sales in 2007, and 71% of our net sales in 2006. 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. 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:

- unexpected changes in regulatory requirements that could impose additional costs on our operations or limit our ability to operate our business;
- greater difficulty in collecting our accounts receivable and longer payment cycles than is typical in domestic operations;
- changes in labor conditions and difficulties in staffing and managing foreign operations;
- expense and complexity of complying with U.S. and foreign import and export regulations;
- liability for foreign taxes assessed at rates higher than those applicable to our domestic operations; and
- political and economic instability.

In the past, we have incurred costs or experienced disruptions due to the factors described above and expect to do so in the future. For example, our operations in Asia, and particularly Korea, Taiwan and Japan, have been negatively impacted in the past as a result of regional economic instability. In addition, Taiwan and Korea account for a growing portion of the world s semiconductor manufacturing. There have historically been strained relations between China and Taiwan and there are continuing tensions between North Korea and 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. Furthermore, we incur additional legal compliance costs associated with our international operations and could become subject to legal penalties in foreign countries if we do not comply with local laws and regulations, which may be substantially different from those in the United States. In many foreign countries it is common to engage in business practices that are prohibited by United States law applicable to us such as the Foreign Corrupt Practices Act. Although we implement policies and procedures designed to ensure compliance with these laws, there can be no assurance that all of our employees, contractors and agents, as well as those companies to which we outsource certain of our business operations, including those based in countries where practices that violate such United States laws may be customary, will not take actions in violation of our policies. Any such violation, even if prohibited by our policies, could have an adverse effect on our business.

Fluctuations in the value of the U.S. dollar in relation to other currencies may lead to lower net income and shareholders equity or may cause us to raise prices, which could result in reduced net sales.

Foreign currency exchange rate fluctuations could have an adverse effect on our net sales, results of operations and shareholders equity. Unfavorable foreign currency fluctuations against the U.S. dollar could require us to increase prices to foreign customers, which could result in lower net sales by us to such customers. Alternatively, if we do not adjust the prices for our products in response to unfavorable foreign currency fluctuations, our profitability could decline. In addition, sales made by our foreign subsidiaries will be denominated in the

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currency of the country in which these products are sold, and the currency we receive in payment for such sales could be less valuable at the time of receipt versus the time of sale as a result of foreign currency exchange rate fluctuations.

As we seek to source more of the materials from which our products are made from foreign countries we may be subject to increased import duties.

In an effort to reduce the cost of our products or to obtain the highest quality materials, we expect that our purchases of raw materials and components from foreign countries will increase. Those of our products manufactured in the United States or other countries from these materials and components may consequently be burdened by import duties imposed by the U.S. or those other countries, and these additional costs may be substantial and may put our products at a competitive disadvantage.

An increased concentration of wafer manufacturing in Japan could result in lower sales of our wafer shipper products.

A large percentage of the world s 300 mm wafer manufacturing currently takes place in Japan. Our market share in Japan is currently lower than in other regions we serve. If we are not able to successfully operate our manufacturing capability and increase market share in Japan, we might not be able to maintain our global market share in wafer shipper products, especially if 300 mm wafer manufacturing in Japan increases.

Terrorist attacks, such as the attacks that occurred in New York and Washington, D.C. on September 11, 2001 and other acts of violence or war may affect the markets in which we operate and hurt our profitability.

Terrorist attacks may negatively affect our operations and your investment. There can be no assurance that there will not be future terrorist attacks against the United States or United States businesses. These attacks or armed conflicts may directly impact our physical facilities or those of our suppliers or customers. Our primary facilities include headquarters, research and development and manufacturing facilities in the United States; sales, research and development and manufacturing facilities in Japan and Malaysia; and sales and service facilities in Europe and Asia. Attacks may also disrupt the global insurance and reinsurance industries with the result that we may not be able to obtain insurance at historical terms and levels for our facilities. Furthermore, such attacks may make travel and the transportation of our supplies and products more difficult and more expensive and may ultimately affect the sales of our products in the United States and overseas. As a result of terrorism the United States may enter into additional armed conflicts, which could have a further impact on our domestic and international sales, our supply chain, our production capacity and our ability to deliver products to our customers. The consequences of these armed conflicts and the associated instability are unpredictable, and we may not be able to foresee events that could have an adverse effect on our business and your investment.

Risks Related to the Economy, Securities Markets and Ownership of our Securities

Volatility in the global economy could adversely affect results.

Financial markets in the United States, Europe and Asia have been experiencing extreme disruption in recent months, including, among other things, volatility in security prices, diminished liquidity and credit availability, rating downgrades of certain investments and declining valuation of others. Currently, these conditions have had a significant impact on our financial condition and results of operations. Further, there can be no assurance that there will not be further change, which could lead to further challenges in our business and negatively impact our financial results. The current tightening of credit in financial markets adversely affects the ability of our customers and suppliers to obtain financing for significant purchases and operations and could result in a decrease in orders and spending for our products and services. We are unable to predict with certainty the likely duration and severity of the current disruption in financial markets and adverse economic conditions and the effects they may have on our business and financial condition.

Because of the past volatility of our stock price and the stock price of predecessor companies, the price of our common stock in the future may likewise be volatile so that the ability to trade our common shares may be adversely affected and our ability to raise capital through future equity financing may be reduced.

The price of our common stock has been volatile in the past and may be volatile in the future. For example: in fiscal year 2008, the closing price of our stock on the NASDAQ National Market ranged from a low of $1.04 to a high of $8.76 and in fiscal year 2007, the closing price of our stock on the NASDAQ National Market ranged from a low of $7.87 to a high of $12.18. Our share price was $0.61 at February 27, 2009.

The trading price of our common shares is subject to significant volatility in response to various factors, some of which are beyond our control, including factors discussed elsewhere in this report and 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; additions or departures of key personnel; and involvement in or adverse results from litigation. These market fluctuations may cause the trading price of our common stock to decrease.

If our common stock continues to trade below book value and the business outlook does not improve or worsens, we could likely be required to record material impairment losses for our long-lived assets, including property, plant and equipment and our identifiable intangibles.

In accordance with SFAS No. 144, the Company reviews its long-lived assets whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. If the carrying amount of an asset or group of assets exceeds its fair value, the asset will be written down to its fair value. In connection with the triggering events discussed above, during the third and fourth quarters of fiscal year 2008 the Company determined that none of its long-lived assets were impaired for its asset groups. The determination was based on reviewing estimated undiscounted cash flows for the Company s asset groups, which were greater than their carrying values. As required under U.S. generally accepted accounting principles, the SFAS No. 144 impairment analysis occurred before the SFAS No. 142 goodwill impairment assessment.

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 and the primary asset of the group; and long-range forecasts of revenue, 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 these estimates, which are made in the current economic environment and plan for a recovery, 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.

Due to the decline in the Company s market capitalization and the uncertain economic environment within the semiconductor industry, the Company will continue to monitor circumstances and events in future periods to determine whether additional asset impairment testing is warranted. It is possible that in the future the Company may no longer be able to conclude that there is no impairment of its long-lived assets, nor can the Company provide assurance that material impairment charges of long-lived assets will not occur in future periods.

Changes effected by the Sarbanes-Oxley Act of 2002 and related SEC regulations have in the past and are likely to continue to increase our costs.

The Sarbanes-Oxley Act of 2002 required changes in some of our corporate governance, securities disclosure and compliance practices. In response to the requirements of that Act, the Securities and Exchange Commission and

the NASDAQ have promulgated new rules and listing standards covering a variety of subjects. Compliance with these rules and listing standards has increased our legal and financial and accounting costs, and we expect these increased costs to continue indefinitely. We also expect these developments to make it more difficult and more expensive for us to obtain director and officer liability insurance, and we may be forced to accept reduced coverage or incur substantially higher costs to obtain coverage. Likewise, these developments may make it more difficult for us to attract and retain qualified members of our board of directors, particularly independent directors, or qualified executive officers.

If we fail to maintain an effective system of internal controls, we may not be able to accurately report our financial results. As a result, current and potential stockholders could lose confidence in our financial reporting, which would harm our business and the trading price of our stock.

Effective internal controls are necessary for us to provide reliable financial reports. If we cannot provide reliable financial reports, our business and operating results could be harmed. We have in the past discovered, and may in the future discover, areas of our internal controls that need improvement. For example, during each of the years 2008, 2007 and 2006, a material weakness in internal control over financial reporting was identified. Each of these material weaknesses represented a reasonable possibility that a material misstatement of the Company s annual or interim financial statements would not have been prevented or detected. None of these material weaknesses required the restatement of any of our annual financial statements.

Any failure to implement and maintain improvements in the controls over our financial reporting, or difficulties encountered in the implementation of these improvements in our controls, could cause us to fail to meet our reporting obligations. Any failure to improve our internal controls to address the identified material weaknesses could also cause investors to lose confidence in our reported financial information, which could have a negative impact on the trading price of our stock.

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

Our certificate of incorporation and By-Laws, Delaware law and our shareholder rights plan 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. In addition, our board of directors has the right to issue preferred stock without stockholder approval, which could be used to dilute the stock ownership of a potential hostile acquirer. Our shareholder rights plan will permit our stockholders to purchase shares of our common stock at a 50% discount upon the occurrence of specified events, including the acquisition by anyone of 15% or more of our common stock, unless such event is approved by our board of directors. Delaware law also imposes restrictions on mergers and other business combinations between us and any holder of 15% or more of our outstanding common stock. Although we believe these provisions provide for an opportunity to receive a higher bid by requiring potential acquirers to negotiate with our board of directors, these provisions apply even if the offer may be considered beneficial by stockholders. If a change of control or change in management is delayed or prevented, the market price of our common stock could suffer.

Your percentage ownership in us may be diluted by future issuances of capital stock, which could reduce your influence over matters on which stockholders vote.

Subject to applicable NASDAQ standards, our board of directors has the authority, without action or vote of our stockholders, to issue all or any part of our authorized but unissued shares. Issuances of common stock or the exercise of employee and director stock options would dilute your percentage ownership interest, which will have the effect of reducing your influence over matters on which our stockholders vote. In addition, we may issue substantial quantities of our common stock in order to effect acquisitions which would also dilute your ownership interest. If the issuances are made at prices that reflect a discount from the then current trading price of our common stock, your interest in the book value of our common stock might be diluted.

Item 1B. Unresolved Staff Comments.

Not Applicable.

Item 2. Properties.

Our principal executive offices are located in Chaska, Minnesota. We also have manufacturing, design and equipment cleaning facilities in the United States, Japan, France, Taiwan and Malaysia. Information about our principal facilities is set forth below:

Location	Principal Function	Approximate Square Feet	Leased/Owned
Chaska, Minnesota	Executive Offices, Research & Manufacturing	370,000	Owned[1]
Chaska, Minnesota	Warehouse	200,000	Leased
Billerica, Massachusetts	Executive Offices, Research & Manufacturing	175,000	Leased [2]
Colorado Springs, Colorado	Manufacturing	82,000	Owned
Gilroy, California	Manufacturing; Cleaning Services	60,000	Owned[3]
Decatur, Texas	Manufacturing	359,000	Owned
Montpellier, France	Cleaning Services	53,000	Owned
Yonezawa, Japan	Manufacturing	196,000	Owned
Kulim, Malaysia	Manufacturing	195,000	Owned

(1) In the fourth quarter of 2008, we announced that one of these buildings, comprising 178,000 square feet and housing our corporate headquarters, would be closed during the first half of 2009.
(2) This lease expires March 31, 2014, but is subject to two five-year renewal options.
(3) This facility was closed in 2008 and was in the process of being sold as of December 31, 2008.

We lease approximately 4,200 square feet of manufacturing space in Millipore s facility located at 80 Ashby Road, Bedford, Massachusetts pursuant to an Amended and Restated Membrane Manufacturing and Supply Agreement that expires December 31, 2010. We also lease approximately 13,000 square feet of research and development and manufacturing office space in two buildings located in San Diego, California. Approximately 31,000 square feet of office, research and development and manufacturing space located in Franklin, Massachusetts was assumed pursuant to the Mykrolis acquisition of Extraction Systems, Inc. in 2005.

We also lease an aggregate of approximately 11,000 square feet of office, research and development and manufacturing space in two buildings located in Burlington, Massachusetts which we acquired in connection with our acquisition of a specialty coatings business. These leases are for a term expiring December 31, 2009.

We maintain a worldwide network of sales, service, repair and cleaning centers in the United States, Germany, France, Japan, Taiwan, Singapore, China and Korea. Leases for our facilities expire through March 2014. 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. All of our facilities are generally utilized within a normal range of production volume. However, many of our facilities were utilized below our normal range of production volume in the latter half of 2008 due to rapidly declining business levels. We are currently preparing several facilities in anticipation of expected product transfers related to the closure of one of the Company s facilities in Chaska, Minnesota.

Item 3. Legal Proceedings.

The following discussion provides information regarding certain litigation to which the Company was a party that were pending as of December 31, 2008.

As previously disclosed, on March 3, 2003 the Company s predecessor, Mykrolis Corporation, filed a lawsuit against Pall Corporation in the United States District Court for the District of Massachusetts alleging infringement of two of the Company s U.S. patents by certain fluid separation systems and related assemblies used in photolithography applications manufactured and sold by the defendant. The Company s lawsuit also

sought a preliminary injunction preventing the defendant from the manufacture, use, sale, offer for sale or importation into the U.S. of any infringing product. On April 30, 2004, the Court issued a preliminary injunction against Pall Corporation and ordered Pall to immediately stop making, using, selling, or offering to sell within the U.S., or importing into the U.S., its PhotoKleen EZD-2 Filter Assembly products or any colorable imitation of those products. On January 18, 2005, the Court issued an order holding Pall Corporation in contempt of court for the violation of the preliminary injunction and ordering Pall to disgorge all profits earned from the sale of its PhotoKleen EZD-2 Filter Assembly products and colorable imitations thereof from the date the preliminary injunction was issued through January 12, 2005. In addition, Pall was also ordered to reimburse Mykrolis for certain of its attorney s fees associated with the contempt and related proceedings. The Court s order also dissolved the preliminary injunction, effective January 12, 2005, based on certain prior art cited by Pall which it alleged raised questions as to the validity of the patents in suit. On February 17, 2005, the Company filed notice of appeal to the U.S. Circuit Court of Appeals for the Federal Circuit appealing the portion of the Court s order that dissolved the preliminary injunction and Pall filed a notice of appeal to that court with respect to the finding of contempt and the award of attorneys fees. On June 13, 2007 the Court of Appeals issued an opinion dismissing Pall s appeal for lack of jurisdiction and affirming the District Court s order dissolving the preliminary injunction.

On April 6, 2006 the Company filed a lawsuit against Pall Corporation in the United States District Court for the District of Massachusetts alleging infringement of the Company s newly issued U.S. patent No. 7,021,667 by certain filter assembly products used in photolithography applications that are manufactured and sold by the defendant. The Company s lawsuit also seeks a preliminary injunction preventing the defendant from the manufacture, use, sale, offer for sale or importation into the U.S. of the infringing products. On October 23, 2006 the Company s motion for preliminary injunction was argued before the court. On March 31, 2008 the court issued an order denying the Company s motion for a preliminary injunction.

On August 23, 2006 the Company filed a lawsuit against Pall Corporation in the United States District Court for the District of Massachusetts alleging infringement of the Company s newly issued U.S. patent No. 7,037,424 by certain fluid separation modules and related separation apparatus, including the product known as the EZD-3 Filter Assembly, used in photolithography applications that are manufactured and sold by the defendant. It is believed that the EZD-3 Filter Assembly was introduced into the market by the defendant in response to the action brought by the Company in March of 2003 as described above. On May 5, 2008, the court issued an order consolidating this case with the two cases described in the preceding paragraphs for purposes of discovery; these cases are currently in the discovery stage.

As previously disclosed, on December 16, 2005 Pall Corporation filed suit against the Company in U.S. District Court for the Eastern District of New York alleging patent infringement. Specifically, the suit alleges infringement of two of plaintiff s patents by one of the Company s gas filtration products and by the packaging for certain of the Company s liquid filtration products. Both products and their predecessor products have been on the market for a number of years. The Company intends to vigorously defend this suit and believes that it will ultimately prevail. This case is currently awaiting a hearing before the court for claim construction of the patents in suit.

On May, 4, 2007 Pall Corporation filed a lawsuit against the Company in the U.S. District Court for the Eastern District of New York alleging patent infringement. Specifically, the suit alleges that certain of the Company s point-of-use filtration products infringe a newly issued Pall patent, as well as three older Pall patents. Pall s action, which relates only to the U.S., asserts that on information and belief the Company s Impact 2 and Impact Plus point-of-use photoresist filters infringe a patent issued to Pall on March 27, 2007, as well as three older patents. The Company intends to vigorously defend this suit and believes that it will ultimately prevail. This case is currently in the discovery stage.

Item 4. Submission of Matters to a Vote of Security Holders.

None.

PART II

Item 5. Market for Entegris Common Stock, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Entegris Common Stock, $0.01 par value, trades on the NASDAQ National Market System (NMS) under the symbol ENTG . The following table sets forth the highest and lowest sale prices of the Company shares during fiscal 2008 and 2007. As of February 1, 2009 there were 1,320 shareholders of record.

	Fiscal 2008		Fiscal 2007	
	High	Low	High	Low
First quarter	$ 8.76	$ 6.39	$ 11.98	$ 10.21
Second quarter	$ 8.05	$ 6.56	$ 12.18	$ 10.11
Third quarter	$ 7.10	$ 4.49	$ 12.17	$ 8.69
Fourth quarter	$ 4.94	$ 1.04	$ 9.49	$ 7.87

The Company has never declared or paid any cash dividends on its capital stock. The Company currently intends to retain all available earnings for use in its business operations and debt service and does not anticipate paying any cash dividends in the foreseeable future. On July 27, 2005 the Entegris Board of Directors declared a dividend of one common stock purchase right for each share of Entegris Common Stock outstanding to shareholders of record on August 8, 2005, payable on August 8, 2005. For a description of the Common Stock Rights Plan see Other Information in Item 1 above. Each right generally entitles the holder to purchase one one-hundredth of a share of a series of preferred stock of Entegris at a price of $50.

Comparative Stock Performance

The following graph compares the cumulative total shareholder return on the common stock of Entegris, Inc. from August 29, 2003 through December 31, 2008 with cumulative total return of (1) The NASDAQ Composite Index (NASDAQ), and (2) The Philadelphia Semiconductor Index (SOX), assuming $100 was invested at the close of trading August 29, 2003 in Entegris, Inc. common stock, the NASDAQ Composite Index and the Philadelphia Semiconductor Index and that all dividends are reinvested.

	August 29, 2003	December 31, 2003	December 31, 2004	December 31, 2005	December 31, 2006	December 31, 2007	December 31, 2008
Entegris, Inc.	100	87.30	67.59	63.99	73.50	58.62	14.87
NASDAQ Composite	100	110.66	120.79	123.35	136.17	155.06	93.09
Phila. Semi. Index	100	111.42	95.29	105.93	104.09	91.60	47.63

Issuer Purchases of Equity Securities

None

Item 6. Selected Financial Data

The table that follows presents selected financial data for each of the last five fiscal years and four months ended December 31, 2005 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 Form 10-K Report.

On December 13, 2005, the Company s board of directors approved a change in fiscal year end from a 52-week or 53-week fiscal year period ending on the last Saturday of August to December 31, effective as of December 31, 2005.

(In thousands, except per share amounts)	Year ended December 31, 2008	Year ended December 31, 2007	Year ended December 31, 2006	Four months ended December 31, 2005	Year ended August 27, 2005	Year ended August 28, 2004
Operating Results						
Net sales	$ 554,699	$ 626,238	$ 672,882	$ 199,644	$ 347,345	$ 329,006
Gross profit	211,515	266,237	305,078	70,207	138,183	149,857
Selling, general and administrative expenses	147,531	163,918	170,702	71,297	105,281	87,771
Engineering, research and development expenses	40,086	39,727	38,074	13,904	18,188	18,066
Amortization of intangible assets	19,585	18,874	17,609	5,956	5,060	3,891
Impairment of goodwill	473,799					
Restructuring charges	10,423					
Operating (loss) profit	(479,909)	43,718	78,693	(20,950)	9,654	40,129
(Loss) income before income taxes and equity in affiliate earnings	(496,413)	56,619	89,556	(18,572)	14,307	41,478
Income tax expense (benefit)	19,201	10,356	26,936	(8,713)	1,154	13,223
(Loss) income from continuing operations	(515,897)	46,356	63,151	(9,789)	12,906	28,242
Net (loss) income	$ (517,002)	$ 44,359	$ 63,466	$ (18,324)	$ 9,393	$ 24,770
Earnings Per Share Data						
Diluted (loss) earnings per share continuing operations	$ (4.58)	$ 0.37	$ 0.46	$ (0.07)	$ 0.16	$ 0.37
Weighted average shares outstanding diluted	112,653	124,940	138,492	135,437	79,328	76,220
Operating Ratios % of net sales						
Gross profit	38.1%	42.5%	45.3%	35.2%	39.8%	45.5%
Selling, general and administrative expenses	26.6	26.2	25.4	35.7	30.3	26.7
Engineering, research and development expenses	7.2	6.3	5.7	7.0	5.2	5.5
Amortization of intangible assets	3.5	3.0	2.6	3.0	1.5	1.2
Impairment of goodwill	85.4					
Restructuring charges	1.9					
Operating (loss) profit	(86.5)	7.0	11.7	(10.5)	2.8	12.2
(Loss) income before income taxes and equity in affiliate earnings	(89.5)	9.0	13.3	(9.3)	4.1	12.6
Effective tax rate	(3.9)	18.3	30.1	46.9	8.1	31.9
Net (loss) income	(93.2)	7.1	9.4	(9.2)	2.7	7.5

(In thousands, except per share amounts)	Year ended December 31, 2008	Year ended December 31, 2007	Year ended December 31, 2006	Four months ended December 31, 2005	Year ended August 27, 2005	Year ended August 28, 2004
Cash Flow Statement Data						
Depreciation and amortization	$ 46,343	$ 43,776	$ 42,905	$ 13,754	$ 23,599	$ 23,575
Capital expenditures	26,987	26,919	30,860	10,311	19,472	19,633
Net cash provided by operating activities	66,260	132,017	96,076	22,598	52,323	52,658
Net cash (used in) provided by investing activities	(199,921)	50,800	(17,370)	(13,116)	58,807	(86,880)
Net cash provided by (used in) financing activities	82,681	(183,061)	(80,037)	(15,432)	3,066	1,835
Balance Sheet and Other Data						
Current assets	$ 313,128	$ 382,621	$ 556,321	$ 516,364	$ 546,502	$ 276,482
Current liabilities	79,356	125,749	92,699	111,017	124,856	63,895
Working capital	233,772	256,872	463,622	405,347	421,646	212,587
Current ratio	3.95	3.04	6.00	4.65	4.38	4.33
Long-term debt	150,516	20,373	2,995	3,383	21,800	18,898
Shareholders equity	336,170	852,309	1,015,980	1,012,819	1,023,414	372,185
Total assets	597,824	1,035,241	1,157,618	1,142,790	1,185,620	467,046
Return on average shareholders equity %	(87.0)	4.7	6.3	(1.8)	1.3	7.0
Shares outstanding at end of period	113,102	115,356	132,771	136,044	135,299	73,380

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

You should read the following discussion and analysis of the Company s consolidated financial condition and results of operations with the consolidated financial statements and the accompanying notes to the consolidated financial statements included elsewhere in this document. *This discussion contains forward-looking statements that involve numerous risks and uncertainties, including, but not limited to, those described in the* Factors and Uncertainties That May Affect Future Results *section of this Item 7. The Company s actual results may differ materially from those contained in any forward-looking statements.*

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 discussion that follows. The detailed discussion and analysis that follows must be read in its entirety in order to fully understand the Company s financial condition and results of operations.

Entegris, Inc. is a leading provider of products and services that purify, protect and transport the critical materials used in key technology-driven industries. Entegris derives most of its revenue from the sale of products and services to the semiconductor and data storage industries. The Company s customers consist primarily of semiconductor manufacturers, semiconductor equipment and materials suppliers, and hard disk manufacturers, which are served through direct sales efforts, as well as sales and distribution relationships, in the United States, Asia, Europe and the Middle East.

The Company offers a diverse product portfolio which includes more than 15,000 standard and customized products that we believe provide the most comprehensive offering of materials integrity management products and services to the microelectronics industry. Certain of these products are unit-driven and consumable products that rely on the level of semiconductor manufacturing activity to drive growth, while others rely on expansion of manufacturing capacity to drive growth. The Company s unit-driven and consumable product class includes wafer shippers, disk shipping containers and test assembly and packaging products, membrane-based liquid filters and housings, metal-based gas filters and resin-based gas purifiers, as well as PVA roller brushes for use in post-CMP cleaning applications. The Company s capital expense- driven products include its process carriers that protect the integrity of in-process wafers, components, systems and subsystems that use electro-mechanical, pressure differential and related technologies to permit semiconductor and other electronics manufacturers to monitor and control the flow and condition of process liquids used in these manufacturing processes. With its August 2008 acquisition of Poco Graphite, Inc. (POCO) described below, the Company added process-critical, graphite-based consumables and finished products used in a variety of markets to its portfolio of products.

Key operating factors Key factors, which management believes have the largest impact on the overall results of operations of Entegris, Inc., include:

Level of sales Since a large 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 effects of industry cyclicality, technological change and substantial competition, including pricing pressures.

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 also affected by a number of factors, which include the Company s sales mix, purchase prices of raw material (especially resin and purchased components), competition, both domestic and international, direct labor costs, and the efficiency of the Company s production operations, among others.

Fixed cost structure Increases or decreases in sales have a large impact on profitability. There are a number of large fixed or semi-fixed cost components, which include salaries, indirect labor and benefits, facility costs, lease expense, and depreciation and amortization. It is not possible to vary these costs easily in the short term as volumes fluctuate. Thus changes in sales volumes can affect the usage and productivity of these cost components and can have a large effect on the Company s results of operations.

Overall Summary of Financial Results for the Year Ended December 31, 2008

For the year ended December 31, 2008 (2008), net sales were $554.7 million, down $71.5 million, or 11.4%, from net sales of $626.2 million reported for the year ended December 31, 2007 (2007). The sales decline was mitigated by the inclusion of sales of $23.3 million from POCO, which was acquired in August 2008, sales of $5.9 million related to the full-year inclusion of sales from the specialty coatings business acquired in August 2007, and a favorable foreign currency translation effect of $22.8 million. Excluding those mitigating factors, sales fell 19.7% in 2008 when compared to 2007.

Mainly reflecting the lower factory utilization associated with the year-over-year sales decrease and the $13.5 million incremental charge associated with the fair market value write-up of inventory acquired in the acquisition of POCO, the Company reported considerably lower gross profits and a reduced gross margin. The Company s gross margin in 2008 was 38.1% versus 42.5% in 2007. The Company s selling, general and administrative (SG&A) expenses decreased $16.4 million in 2008, the key element of the year-over-year reduction being the absence of incentive and profit sharing compensation.

The Company reported a loss from continuing operations of $515.9 million for 2008 compared to income of $46.4 million in 2007. The loss was substantially attributable to goodwill impairment charges of $473.8 million ($454.6 million, net of tax). The goodwill impairment charges, described in Note 2 to the Company s consolidated financial statements, have no impact on the Company s liquidity, cash flows from operating activities, or debt covenants.

As noted above, the Company acquired POCO on August 11, 2008 for cash consideration of $162.9 million. Based in Decatur, Texas, POCO is a leading provider of process-critical, graphite-based consumables and finished products used in a variety of markets. The acquisition was funded with a combination of existing cash balances and funds available from the Company s domestic credit facility.

During 2008, the Company s operating activities provided cash flow of $66.3 million. Cash and cash equivalents were $115.0 million at December 31, 2008 compared with $160.7 million at December 31, 2007. The decrease in cash mainly reflects the acquisition of POCO in the third quarter, partially offset by the cash provided by operating activities and an increase in long-term debt.

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 accounts receivable, warranty and sales return obligations, inventories, long-lived assets, income taxes, business combinations and shared-based compensation. The Company bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances. Actual results may differ from these estimates under different assumptions or conditions. The critical accounting policies affected most significantly by estimates, assumptions and judgments used in the preparation of the Company s consolidated financial statements are discussed below.

Net Sales The Company s net sales consist of revenue from sales of products net of trade discounts and allowances. The Company recognizes revenue upon shipment, primarily FOB shipping point, when evidence of an arrangement exists, contractual obligations have been satisfied, title and risk of loss have been transferred to the customer and collection of the resulting receivable is reasonably assured based upon historical collection results and regular credit evaluations. In most transactions, the Company has no obligations to its customers after the date products are shipped other than pursuant to warranty obligations. In the event that significant post-shipment obligations or uncertainties exist such as customer acceptance, revenue recognition is deferred as appropriate until such obligations are fulfilled or the uncertainties are resolved.

Accounts Receivable-Related Valuation Accounts The Company maintains allowances for doubtful accounts and for sales returns and allowances. Significant management judgments and estimates must be made and used in connection with establishing these valuation accounts. Material differences could result in the amount and timing of the Company s results of operations for any period if management made different judgments or utilized different estimates. In addition, actual results could be different from the Company s current estimates, possibly resulting in increased future charges to earnings.

The Company provides an allowance for doubtful accounts for all individual receivables judged to be unlikely for collection. For all other accounts receivable, the Company records an allowance for doubtful accounts based on a combination of factors. Specifically, management considers the age of receivable balances and historical bad debts write-off experience when determining its allowance for doubtful accounts. The Company s allowance for doubtful accounts was $1.3 million and $0.5 million at December 31, 2008 and 2007, respectively.

An allowance for sales returns and allowances is established based on historical and current trends in product returns. At December 31, 2008 and 2007, the Company s reserve for sales returns and allowances was $1.9 million and $2.0 million, respectively.

Inventory Valuation The Company uses certain estimates and judgments to properly value inventory. In general, the Company s inventories are recorded at the lower of cost or market value. Each quarter, the Company evaluates its ending inventories for obsolescence and excess quantities. This evaluation includes analyses of inventory levels, historical write-off trends, expected product lives, and sales levels by product. Inventories that are considered obsolete are written off or a full allowance is recorded. In addition, allowances are established for inventory quantities in excess of forecasted demand. Inventory allowances were $8.3 million and $8.9 million at December 31, 2008 and 2007, respectively.

The Company s inventories include materials and products subject to technological obsolescence, which are sold in highly competitive industries. If future demand or market conditions are less favorable than current conditions, additional inventory write-downs or allowances may be required and would be reflected in cost of sales in the period the revision is made.

Impairment of Goodwill and Long-Lived Assets The Company assesses the impairment of goodwill at least annually, or whenever events or changes in circumstances indicate that the carrying value may not be recoverable. The Company s annual impairment test is performed as of August 31. Factors considered important which could trigger an impairment review, and potentially an impairment charge, include the following:

- significant underperformance relative to historical or projected future operating results;
- significant changes in the manner of use of the acquired assets or the Company s overall business strategy;
- significant negative industry or economic trends; and
- significant decline in the Company s stock price for a sustained period, resulting in the Company s market capitalization being below its net book value.

In accordance with Statement of Financial Accounting Standards (SFAS) No. 142, *Goodwill and Other Intangible Assets*, the Company tested for impairment of its goodwill in connection with its annual impairment test of goodwill as of August 31, 2008, and due to events and changes in circumstances through the end of 2008, the Company had an additional triggering event that indicated impairments had occurred.

Based on the results of the Company s assessment of goodwill for impairment, it was determined that the carrying value of the Company s net assets exceeded its estimated fair value. Therefore, the Company performed a second step of the impairment test to determine the implied fair value its goodwill. The Company performed the assessment of impairment of its goodwill twice during the year, once during the third quarter, when the Company wrote off $379.8 million of goodwill, and the second time at the end of the year, when the Company wrote off the remaining goodwill of $94.0 million. (See Note 2 to the consolidated financial statements.)

The Company routinely considers whether indicators of impairment of its property and equipment assets, particularly its molding equipment, and its intangible assets, are present. If 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 their carrying value. If less, an impairment loss is recognized based on the excess of the carrying amount of the asset 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 present value of anticipated net cash flows 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 over the remaining estimated useful life of the assets.

In connection with the triggering events discussed above, during the third and fourth quarters of fiscal year 2008 the Company reviewed its long-lived assets and determined that none of its long-lived assets were impaired for its asset groups. The determination was based on reviewing estimated undiscounted cash flows for the Company s asset groups, which were greater than their carrying values. As required under U.S. generally accepted accounting principles, the SFAS No. 144 impairment analysis occurred before the SFAS No. 142 goodwill impairment assessment.

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 and the primary asset of the group; and long-range forecasts of revenue, 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 these estimates, particularly in the current economic environment and plan for a recovery, 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.

Due to the decline in the Company s market capitalization and the uncertain economic environment within the semiconductor industry, the Company will continue to monitor circumstances and events in future periods to determine whether additional asset impairment testing is warranted. It is not unlikely that in the future the Company may no longer be able to conclude that there is no impairment of its long-lived assets, nor can the Company provide assurance that material impairment charges of long-lived assets will not occur in future periods.

Income Taxes In the preparation of the Company s consolidated financial statements, management is required to estimate income taxes in each of the jurisdictions in which the Company operates. This process involves

estimating actual current tax expense together with assessing temporary differences resulting from differing treatment of items for tax and accounting purposes. These differences result in deferred tax assets and liabilities, which are included in the Company s consolidated balance sheet.

The Company has significant amounts of deferred tax assets. Management reviews its deferred tax assets for recoverability on a quarterly basis and assesses the need for valuation allowances. Management considered the positive and negative evidence for the potential utilization of its deferred tax assets based upon an application of the principles of SFAS No. 109, *Accounting for Income Taxes,* and related accounting pronouncements. Management concluded that it is not more likely than not that the Company will realize certain deferred tax assets and provided an allowance for the portion of deferred tax assets management concluded will not be utilized. As a result, the Company recorded a deferred tax asset valuation allowance of $42.7 million, which is included in income tax expense for 2008.

In addition, the calculation of tax liabilities involves significant judgment in estimating the impact of uncertainties in the application of complex tax laws. 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.

Warranty Claims Accrual The Company records a liability for estimated warranty claims. The amount of the accrual is based on historical claims data by product group and other factors. Estimated claims could be materially different from actual results for a variety of reasons, including a change in product failure rates and service delivery costs incurred in correcting a product failure, manufacturing changes that could impact product quality, or as yet unrecognized defects in products sold. At December 31, 2008 and 2007, the Company s accrual for estimated future warranty costs was $1.1 million and $1.3 million, respectively.

Business Acquisitions The Company accounts for acquired businesses using the purchase 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 acquisitions, the Company typically obtains assistance from independent valuation specialists.

There are several methods that can be used to determine the fair value of assets acquired and liabilities assumed. 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. 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. Some of the more significant estimates and assumptions inherent in the income method or other methods include the projected amount and timing of future cash flows and the discount rate reflecting the risks inherent in the future cash flows.

Determining the useful life of an intangible asset also requires judgment. For example, different types of intangible assets will have different useful lives and certain assets may even be considered to have indefinite useful lives. All of these judgments and estimates can significantly impact net income.

Share-Based Compensation Statement of Financial Accounting Standards No. 123 (revised 2004*), Share-Based Payment*, (SFAS 123(R)) requires the measurement and recognition of compensation expense for all share-based payment awards made to employees and directors based on estimated fair values. Under SFAS 123(R), the Company must estimate the value of employee stock option and restricted stock awards on the date of grant.

The fair value of restricted stock and restricted stock unit awards is valued based on the Company s stock price on the date of grant. The fair value of stock option awards is estimated on the date of grant using an option-pricing model affected by the Company s stock price as well as assumptions regarding a number of highly complex and subjective variables. These variables include, but are not limited to, the expected stock price

volatility over the term of the awards, risk-free interest rate and dividend yield assumptions, and actual and projected employee stock option exercise behaviors and forfeitures. Because share-based compensation expense recognized in the consolidated statement of operations is based on awards ultimately expected to vest, it has been recorded net of estimated forfeitures. SFAS 123(R) requires forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. Forfeitures are estimated based on historical experience.

If the above factors change, and the Company uses different assumptions in the application of SFAS 123(R) in future periods, the share-based compensation expense recorded under SFAS 123(R) may differ significantly from what was recorded in the current period.

Certain restricted stock and restricted stock unit awards involve stock to be issued upon the achievement of performance conditions (performance shares) under the Company s stock incentive plans. Such performance shares become available subject to time-based vesting conditions if, and to the extent that, financial performance criteria for the applicable fiscal year or multi-year period are achieved. Accordingly, the number of performance shares earned will vary based on the level of achievement of financial performance objectives for the applicable period. Until such time that the Company s performance can ultimately be determined, each quarter the Company estimates the number of performance shares more likely than not to be earned based on an evaluation of the probability of achieving the performance objectives. Such estimates are revised, if necessary, in subsequent periods when the underlying factors change the Company s evaluation of the probability of achieving the performance objectives. Accordingly, share-based compensation expense associated with performance shares recorded under SFAS 123(R) may differ significantly from the amount recorded in the current period.

Results of Operations

Year ended December 31, 2008 compared to year ended December 31, 2007

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, 2008 and 2007. The Company s historical financial data was derived from its consolidated financial statements and related notes included elsewhere in this annual report.

(Dollars in thousands)	2008		2007	
		% of net sales		% of net sales
Net sales	$ 554,699	100.0%	$ 626,238	100.0%
Cost of sales	343,184	61.9	360,001	57.5
Gross profit	211,515	38.1	266,237	42.5
Selling, general and administrative expenses	147,531	26.6	163,918	26.2
Engineering, research and development expenses	40,086	7.2	39,727	6.3
Amortization of intangible assets	19,585	3.5	18,874	3.0
Impairment of goodwill	473,799	85.4		
Restructuring charges	10,423	1.9		
Operating (loss) profit	(479,909)	(86.5)	43,718	7.0
Interest expense (income), net	1,018	0.2	(5,245)	(0.8)
Other expense (income), net	15,486	2.8	(7,656)	(1.2)
(Loss) income before income taxes and equity in earnings of affiliates	(496,413)	(89.5)	56,619	9.0
Income tax expense	19,201	3.5	10,356	1.7
Equity in net loss (earnings) of affiliates	283	0.1	(93)	(0.0)
Net (loss) income from continuing operations	$ (515,897)	(93.0)	$ 46,356	7.4

Net sales For the year ended December 31, 2008 (2008), net sales were $554.7 million, down $71.5 million, or 11.4%, from sales for the year ended December 31, 2007 (2007). The sales decline was mitigated by the inclusion of sales of $23.3 million from POCO, which was acquired in August 2008, sales of $5.9 million related to the full-year inclusion of sales from the specialty coatings business acquired in August 2007, and a favorable foreign currency translation effect of $22.8 million. Excluding those mitigating factors, sales fell 19.7% in 2008 compared to 2007. The currency effect reflected the strengthening of most international currencies versus the U.S. dollar, most notably the Japanese yen and the Euro. On a geographic basis, total sales to North America were 29%, Asia Pacific 34%, Europe 16% and Japan 21% in 2008.

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 facilities (capital-driven). The Company analyzes sales of its products by these two key drivers. Both unit-driven and capital-driven sales in 2008 decreased as compared with 2007. Sales of unit-driven products represented 65% of sales and sales of capital-driven products represented 35% of total sales in 2008. This compares to a unit-driven to capital-driven ratio of 60:40 for 2007, indicating a decrease in demand of capital-driven sales within the industry over the past twelve months.

Sales of unit-driven products fell 5% in 2008. Excluding sales of POCO, sales of unit-driven products fell 11% in 2008. Unit-driven products have average lives of less than 18 months or need to be replaced based on usage levels. These products include liquid filters used in the photolithography, CMP and wet etch and clean processes, and in wafer shippers used to ship raw wafers, particularly at wafer sizes of 150mm and below, as well as in chip trays and data storage components used to ship 65mm and 95mm disk drives. Sales of shippers declined 13%, partially offset by the increase in sales of 300mm wafer shippers of 181%. In addition, sales of filtration products declined by 11%.

Year-over-year sales of capital-driven products decreased 22% in 2008. Capital-driven products include wafer process carriers, gas microcontamination control systems used in the deployment of advanced photolithography processes, fluid handling systems, including dispense pumps used in the photolithography process, and integrated liquid flow controllers used in various processes around the fab. Sales of control systems declined by 20% due to lower sales of dispense pumps, which fell by 48%. Sales of wafer transport products fell by 31%, such as 300mm FOUP products which declined by 39%. Sales of filtration products also fell by 16% primarily due to decreased sales of gas filtration products.

Gross profit Gross profit for 2008 decreased by $54.7 million, to $211.5 million, a decrease of 20.6% from $266.2 million for 2007. The gross margin rate for 2008 was 38.1% versus 42.5% for 2007.

The gross profit decline was primarily due to lower utilization of the Company s production facilities compared to the prior period, as well as the fair market value write-up of inventory discussed below. Production volumes were considerably lower in 2008. Despite significant increases in the price of oil and other commodities during much of 2008, price increases for the Company s raw materials and purchased components were relatively modest on a year-over-year basis. Charges to cost of sales associated with obsolescence and excess inventory quantities were $2.2 million lower in 2008 compared to 2007.

Gross margin in 2008 included a $13.5 million incremental charge associated with the fair market value write-up of inventory acquired in the acquisition of POCO. This incremental charge had a negative 2.4% impact on the overall gross margin for 2008. The inventory write-up was recorded as part of the purchase price allocation and is charged to cost of sales over inventory turns of the acquired inventory. The Company expects to record additional incremental charges of $4.1 million associated with the fair market value write-up of POCO inventory, most of which will be recorded in the first quarter of 2009.

Selling, general and administrative expenses Selling, general and administrative (SG&A) expenses of $147.5 million for 2008 decreased $16.4 million, or 10%, compared to $163.9 million in 2007. SG&A expenses, as a percent of net sales, increased to 26.6% from 26.2% a year earlier.

The year-over-year decrease in SG&A costs includes reductions in commissions and incentive compensation totaling $8.2 million; share-based compensation expense and pension expense of $6.2 million, and royalty expense of $3.5 million. In addition, costs of $2.6 million were incurred by the Company in 2007 in connection with the integration and realignment activities associated with the Mykrolis merger. Partially offsetting these decreases was an increase of $4.8 million in SG&A costs reflecting the effect of foreign currency translation.

Engineering, research and development expenses Engineering, research and development (ER&D) expenses rose by $0.4 million, or 0.9%, to $40.1 million in 2008 compared to $39.7 million in 2007. ER&D expenses as a percent of net sales were 7.2% compared to 6.3% a year ago.

Amortization of intangible assets Amortization of intangible assets was $19.6 million in 2008 compared to $18.9 million for 2007. The increase mainly reflects the additional amortization expenses related to the intangibles of POCO that were acquired in August 2008 and the full-year amortization of the intangibles of the specialty coatings business acquired in August 2007.

Impairment of Goodwill In accordance with Statement of Financial Accounting Standards (SFAS) No. 142, *Goodwill and Other Intangible Assets*, the Company performed the assessment of impairment of its goodwill twice during the year, once in connection with its annual impairment test of goodwill as of August 31, 2008 and due to events and changes in circumstances through the end of the fourth quarter of fiscal 2008, the Company had a second trigger event that indicated impairments had occurred. In addition, the Company tested for impairment its long-lived assets (principally property, plant and equipment and intangibles) in accordance with SFAS No. 144, *Accounting for the Impairment or Disposal of Long-Lived Assets.*

The factors deemed by management to have collectively constituted impairment triggering events included a significant decrease in the Company s market capitalization throughout 2008, to a level significantly below the recorded value of its consolidated net assets, and a significant decline in the current and forecasted business level. As a result of the impairment assessments, the Company recorded impairment charges of goodwill of $473.8 million in 2008. As of December 31, 2008, the Company had no remaining goodwill.

Restructuring charges In 2008, the Company initiated a global business restructuring of its sales and marketing function, manufacturing operations, and realignment of the global supply chain and other ancillary operational functions. Related to these cost reduction initiatives, the Company announced on November 4, 2008 that it will close the larger of its two manufacturing facilities in Chaska, Minnesota and will transfer production to its other existing facilities. Associated with these changes, the Company recorded $10.4 million in restructuring charges in 2008, consisting mainly of employee severance costs.

Interest expense (income), net Net interest expense was $1.0 million in 2008 compared to interest income of $5.2 million in 2007. The decrease reflects lower average invested balances compared to a year ago and an increase in the Company s short-term borrowings and long-term debt in 2008.

Other expense (income) Other expense was $15.5 million in 2008 compared to other income of $7.7 million in 2007. Other expense in 2008 includes impairment losses on equity investments of $11.1 million and foreign currency transaction losses of $4.4 million. Other income in 2007 includes foreign currency transaction gains of $1.2 million and a pre-tax gain of $6.1 million on the sale of the Company s interest in a privately held equity investment accounted for using the cost method. Proceeds from the sale totaled $6.6 million.

Income tax expense The Company recorded income tax expense of $19.2 million in 2008, compared to income tax expense of $10.4 million in 2007. The effective tax rate was (3.9)% in 2008 compared with a 18.3% rate in 2007.

The effective tax rate for 2008 is principally attributable to two factors. The Company recorded a $473.8 million goodwill impairment charge in 2008. Most of the Company s goodwill impairment charge is not deductible for income tax purposes. Accordingly, the Company recognized a tax benefit of only $19.2 million in connection with the impairment charge.

Also during 2008, the Company recorded a $42.7 million valuation allowance against its deferred tax assets consisting primarily of net operating loss carryovers, general business carryovers and foreign tax credit carryforwards, $0.6 million of which related to discontinued operations. The Company carried no valuation allowance against its deferred tax assets at December 31, 2007. As a result of the recent general economic and industry downturn, and its impact on the Company s future outlook, management has reviewed its deferred tax assets and concluded that the uncertainties related to the realization of its assets, have become unfavorable. Management considered the positive and negative evidence for the potential utilization of its deferred tax assets based upon an application of the principles of SFAS No.109 and related accounting pronouncements. Management concluded that it is not more likely than not that the Company will realize certain deferred tax assets and thus provided an allowance for the portion of deferred tax assets management concluded will not be utilized.

The Company s 2007 tax rate was lower than the U.S. statutory rate for a number of reasons. In the fourth quarter of 2007, the Company s Japanese subsidiary declared a dividend of 6.8 billon yen (approximately U.S. $60 million) and also loaned 4.6 billion yen (approximately U.S. $40 million) to the Company. The resulting recharacterization of $100 million of the Japanese subsidiary s accumulated undistributed earnings resulted in a fourth quarter tax benefit of $9.4 million, net of state income tax expense. The Company also benefited from the tax holiday in Malaysia in 2007 in the amount of $2.1 million.

Discontinued operations

The Company s businesses classified as discontinued operations recorded a net loss of $1.1 million in 2008. The Company completed the sale of its cleaning equipment business, classified as a discontinued operation, for proceeds of $0.7 million in April 2008.

The Company s discontinued operations recorded a net loss of $2.0 million for 2007. These results included an operating loss of $1.4 million, a pre-tax impairment charge of $2.6 million recorded in connection with the write-down of long-lived assets to fair value less cost to sell, and a tax benefit of $0.7 million related to a reduction in the Company s deferred tax asset valuation allowance, resulting from the utilization of a capital loss carryforward to offset a portion of the capital gain on the sale of an equity investment.

Net (loss) income The Company recorded a net loss of $517.0 million, or $4.59 per share, in 2008, compared to net income of $44.4 million, or $0.36 per diluted share, in 2007. The Company s loss from continuing operations for 2008 was $515.9 million, or $4.58 per share, compared to income from continuing operations of $46.4 million, or $0.37 per diluted share, in the prior year.

Year ended December 31, 2007 compared to year ended December 31, 2006

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, 2007 and 2006. The Company s historical financial data was derived from its consolidated financial statements and related notes included elsewhere in this annual report.

(Dollars in thousands)	2007		2006	
		% of net sales		% of net sales
Net sales	$ 626,238	100.0%	$ 672,882	100.0%
Cost of sales	360,001	57.5	367,804	54.7
Gross profit	266,237	42.5	305,078	45.3
Selling, general and administrative expenses	163,918	26.2	170,702	25.4
Engineering, research and development expenses	39,727	6.3	38,074	5.7
Amortization of intangible assets	18,874	3.0	17,609	2.6
Operating profit	43,718	7.0	78,693	11.7
Interest income, net	(5,245)	(0.8)	(9,205)	(1.4)
Other income, net	(7,656)	(1.2)	(1,658)	(0.2)
Income before income taxes and equity in earnings of affiliates	56,619	9.0	89,556	13.3
Income tax expense	10,356	1.7	26,936	4.0
Equity in net earnings of affiliates	(93)	(0.0)	(531)	(0.1)
Net income from continuing operations	$ 46,356	7.4	$ 63,151	9.4

Net sales For the year ended December 31, 2007 (2007), net sales were $626.2 million, down $46.6 million, or 6.9%, from sales for the year ended December 31, 2006 (2006). Net sales for 2007 included favorable foreign currency translation effects of $8.9 million. This reflected the strengthening of certain international currencies versus the U.S. dollar, most notably the Euro. On a geographic basis, total sales to North America were 26%, Asia Pacific 36%, Europe 15% and Japan 23% in 2007. Sales from products of the high-purity semiconductor coatings business acquired in the third quarter totaled $6.2 million in 2007.

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 facilities (capital-driven). The Company analyzes sales of its products by these two key drivers. Both unit-driven and capital-driven sales in 2007 decreased as compared with 2006. Sales of unit-driven products represented 60% of sales and sales of capital-driven products represented 40% of total sales in 2007. This compares to a unit-driven to capital-driven ratio of 59:41 for 2006.

Sales of unit-driven products fell 6% in 2007 as semiconductor fab utilization rates were relatively flat. Unit-driven products have average lives of less than 18 months or need to be replaced based on usage levels. These products include liquid filters used in the photolithography, CMP and wet etch and clean processes, and in wafer shippers used to ship raw wafers, particularly at wafer sizes of 150mm and below, as well as in chip trays and data storage components used to ship 65mm and 95mm disk drives. Sales of wafer shippers declined 11%, while sales of disk shippers fell 17%, primarily due to lower sales of 65mm shippers.

Year-over-year sales of capital-driven products decreased 11% in 2007. Capital-driven products include wafer process carriers, gas microcontamination control systems used in the deployment of advanced photolithography processes, fluid handling systems, including dispense pumps used in the photolithography process, and integrated liquid flow controllers used in various processes around the fab. Sales of liquid systems also declined in the latter half of 2007, reflecting the general slowing in the industry. Wafer transport products, such as 300mm FOUP products, also fell, particularly at some North American customers. Sales of gas microcontamination control products fell 5% after reaching peak levels in 2006.

Gross profit Gross profit for 2007 decreased by $38.8 million, to $266.2 million, a decrease of 12.7% from $305.1 million for 2006. The gross margin rate for 2007 was 42.5% versus 45.3% for 2006.

The gross profit decline was primarily due to the lower utilization of the Company s production facilities compared to the prior period. Production volumes were considerably lower in 2007 as the Company sold inventory on hand to satisfy customer demand, particularly in the first half of the year. Prices for raw materials were relatively stable on a year-over-year basis.

Gross margin for 2007 also was affected by $2.2 million in transition costs such as travel, sampling and customer qualification costs related to the transfer of four product lines from U.S. facilities to the Company s facility in Kulim, Malaysia. Costs of $2.9 million associated with the consolidation or closure of manufacturing facilities in the U.S. and Singapore also reduced gross profit in 2007.

Gross margin in 2007 included a $0.8 million cost of sales charge associated with the fair market value write-up of inventory acquired in the purchase of the assets of the high-purity semiconductor coatings business acquired in the third quarter of 2007. The inventory write-up was recorded as part of the purchase price allocation and is charged to cost of sales over inventory turns of the acquired inventory.

Gross profit in 2006 was reduced by costs of $2.8 million incurred in connection with the consolidation of manufacturing facilities in the U.S., Germany and Japan. Offsetting these charges to 2006 gross profit was a gain of $0.7 million on the sale of a facility recognized during the second quarter of 2006. Gross profit in the third and fourth quarters of 2006 was lower than the strong levels achieved earlier in the year due to manufacturing inefficiencies experienced at a North American plant in the third quarter and expenses incurred in the fourth quarter in connection with a comprehensive worldwide review of the Company s manufacturing operations to identify and resolve manufacturing inefficiencies.

Selling, general and administrative expenses Selling, general and administrative (SG&A) expenses of $163.9 million for 2007 decreased $6.8 million, or 4.0%, compared to $170.7 million in 2006. SG&A expenses, as a percent of net sales, increased to 26.2% from 25.4% a year earlier.

The year-over-year decrease in SG&A costs reflects the lower SG&A expenses incurred by the Company in connection with the integration activities associated with the Mykrolis merger and other realignment activities, as well as the benefit of the consolidation of various sales, marketing and other corporate functions during 2006. Costs of $2.6 million were incurred by the Company in 2007 in connection with the integration and realignment activities associated with the Mykrolis merger, compared to $12.1 million in 2006. The costs included in this category generally relate to expenses incurred to integrate Mykrolis operations and systems into the Company s pre-existing operations and systems. These costs include, but are not limited to, the integration of information systems, employee benefits and compensation, accounting/finance, tax, treasury, risk management, compliance, administrative services, sales and marketing and other functions and include severance and retention costs. The year-over-year decrease in SG&A expenses also includes a decline in incremental share-based compensation expense of $3.0 million, offset by an increase in professional fees of $2.2 million.

Engineering, research and development expenses Engineering, research and development (ER&D) expenses rose by $1.7 million, or 4.3%, to $39.7 million in 2007 compared to $38.1 million in 2006. ER&D expenses as a percent of net sales were 6.3% compared to 5.7% in 2006. The increase reflected higher product sampling costs as the Company continued to focus on the support of current product lines and the development of new products and manufacturing technologies.

Amortization of intangible assets Amortization of intangible assets was $18.9 million in 2007 compared to $17.6 million in 2006. The increase mainly reflects the additional amortization expenses related to the intangibles of the specialty coatings business acquired in August 2007.

Interest income, net Net interest income was $5.2 million in 2007 compared to $9.2 million in 2006. The decrease reflects lower average invested balances compared to the prior year, primarily related to the Company s use of cash to finance the repurchase of its common shares during the second quarter of 2007.

Other income Other income in 2007 includes a pre-tax gain of $6.1 million on the sale of the Company s interest in a privately held equity investment accounted for using the cost method. Proceeds from the sale totaled $6.6 million.

Income tax expense The Company recorded income tax expense of $10.4 million in 2007, compared to income tax expense of $26.9 million in 2006. The effective tax rate was 18.3% in 2007 compared with a 30.1% rate a year earlier.

The Company s 2007 tax rate was lower than statutory rates for a number of reasons. In the fourth quarter of 2007, the Company s Japanese subsidiary declared a dividend of 6.8 billon yen (approximately U.S. $60 million) and also loaned 4.6 billion yen (approximately U.S. $40 million) to the Company. The resulting recharacterization of $100 million of the Japanese subsidiary s accumulated undistributed earnings resulted in a fourth quarter tax benefit of $9.4 million, net of state income tax expense.

The Company also benefited from a tax holiday in Malaysia whereby, as a result of employment commitments, research and development expenditures and capital investments made by the Company, income from certain manufacturing activities in Malaysia was exempt from tax with tax benefits in 2007 in the amount of $2.1 million. In 2006, the Company s benefit from the tax holiday was $2.8 million. The 2007 effective tax rate was also lower due to a corporate income tax refund of $0.8 million resulting from new legislation in Germany and a $0.9 million favorable adjustment recorded to recognize the reconciliation of the Company s 2006 federal tax return and tax accounts. Partially offsetting these reductions was an increase to the Company s tax contingency reserves.

Discontinued operations

The Company s businesses classified as discontinued operations recorded losses of $2.0 million, net of taxes, in 2007. These results included an operating loss of $1.4 million, a pre-tax impairment charge of $2.6 million recorded in connection with the write-down of long-lived assets to fair value less cost to sell, and a tax benefit of $0.7 million related to a reduction in the Company s deferred tax asset valuation allowance, resulting from the utilization of a capital loss carryforward to offset a portion of the capital gain on the sale of an equity investment.

The Company s discontinued operations recorded income of $0.3 million net of taxes for 2006. The after-tax earnings of discontinued operations in 2006 included a tax benefit of $1.6 million associated with a decrease in the Company s deferred tax asset valuation allowance described above. The change in the valuation allowance resulted from the settlement of negotiations regarding the terms of sale of a discontinued operation which established the characterization of certain gains and losses.

Net income The Company recorded net income of $44.4 million, or $0.36 per diluted share, in 2007, compared to net income of $63.5 million, or $0.46 per diluted share, in 2006. Income from continuing operations for 2007 was $46.4 million, or $0.37 per diluted share, compared to income from continuing operations of $63.2 million, or $0.46 per diluted share, in the prior year.

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, 2008. 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 (UNAUDITED)

	2007				2008			
(In thousands)	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
Net sales	$ 159,571	$ 153,508	$ 151,811	$ 161,348	$ 148,227	$ 147,947	$ 145,789	$ 112,736
Gross profit	68,508	65,494	65,510	66,725	63,988	59,887	55,398	32,242
Selling, general and administrative expenses	41,445	39,830	39,267	43,376	43,322	37,105	35,373	31,731
Engineering, research and development expenses	10,534	9,679	9,409	10,105	10,501	10,362	10,284	8,939
Amortization of intangible assets	4,499	4,487	4,716	5,172	5,087	4,552	4,858	5,088
Impairment of goodwill							379,810	93,989
Restructuring charges							3,332	7,091
Operating profit (loss)	12,030	11,498	12,118	8,072	5,078	7,868	(378,259)	(114,596)
Net income (loss)	10,383	14,777	8,417	10,782	2,865	4,933	(393,002)	(131,798)

(Percent of net sales)	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
Net sales	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Gross profit	42.9	42.7	43.2	41.4	43.2	40.5	38.0	28.6
Selling, general and administrative expenses	26.0	25.9	25.9	26.9	29.2	25.1	24.3	28.1
Engineering, research and development expenses	6.6	6.3	6.2	6.3	7.1	7.0	7.1	7.9
Amortization of intangibles	2.8	2.9	3.1	3.2	3.4	3.1	3.3	4.5
Impairment of goodwill							260.5	83.4
Restructuring charges							2.3	6.3
Operating profit (loss)	7.5	7.5	8.0	5.0	3.4	5.3	(259.5)	(101.6)
Net income (loss)	6.5	9.6	5.5	6.7	1.9	3.3	(269.6)	(116.9)

Our quarterly results of operations have been, and will likely continue to be, subject to significant fluctuations due to a variety of factors, a number of which are beyond the Company s control.

Reflecting the downturn in the semiconductor industry and general economic conditions, the Company s net sales declined 30% in the fourth quarter of 2008 compared to the comparable 2007 period, resulting in a significantly reduced gross profit for the quarter. In the third and fourth quarters of 2008, the Company s results included goodwill impairment losses of $379.8 million and $94.0 million, respectively. The third and fourth quarter of 2008 also included incremental charges of $5.7 million and $7.8 million, respectively, associated with the write-up of inventory to fair value in connection with acquisition of POCO in August 2008. These factors contributed to significant net losses for the Company for those quarters.

Liquidity and Capital Resources

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

Operating activities Net cash flow provided by operating activities totaled $66.3 million for the year ended December 31, 2008 (2008). Cash flow was provided by the Company s operations, net of various non-cash charges, including impairment of goodwill of $473.8 million, depreciation and amortization of $46.3 million, share-based compensation expense of $7.0 million and a $13.5 million incremental charge associated with the fair market value write-up of inventory acquired in the acquisition of POCO.

Working capital stood at $233.8 million at December 31, 2008, including $115.0 million in cash and cash equivalents, down from $256.9 million as of December 31, 2007, including $160.7 million in cash and cash equivalents.

During 2008, accounts receivable, net of foreign currency translation adjustments, decreased by $53.4 million, reflecting lower sales and an improvement in the Company s days sales outstanding, which were 57 days at year end compared to 63 days at the beginning of the year. Inventories decreased by $1.9 million from December 31, 2008, net of foreign currency translation adjustments and the addition of inventory acquired with the POCO acquisition.

Accounts payable and accrued expenses were $35.5 million lower than reported at December 31, 2007. This decrease mainly reflects the payment of 2007 incentive compensation in 2008, with no incentive compensation accrued as of December 31, 2008. Income taxes payable and refundable income taxes decreased by $18.9 million in 2008, with the Company making payments net of refunds of $23.3 million.

Investing activities Cash flow used in investing activities totaled $199.9 million in 2008. The purchase price for the acquisition of POCO in August 2008 totaled $162.9 million. In 2008, the Company invested $11.0 million to purchase equity interests in three privately held technology companies. Expenditures for acquisition of property and equipment totaled $27.0 million and primarily consisted of additions of manufacturing equipment, tooling and information systems. The Company expects total capital expenditures in 2009 to be approximately $16 million.

Financing activities Net cash provided by financing activities totaled $82.7 million during 2008. The Company made payments of $64.7 million on outstanding borrowings and received proceeds of $173.8 million from new borrowings.

During 2008, the Company purchased 4.0 million shares of its common stock at a total cost of $28.9 million under a Rule 10b-5-1 trading plan authorized by the Company s Board of Directors. The Company received proceeds of $3.1 million in connection with common shares issued under the Company s stock option and employee stock purchase plans.

On February 15, 2008, the Company entered into a credit agreement with Wells Fargo Bank, National Association, as agent, and certain other banks. The agreement provides for a $230 million revolving credit facility (the Facility) for a period of five years with an uncommitted option to expand the Facility by up to $20 million provided that no default or event of default has occurred or is continuing at such time. The Facility replaced the Company s credit agreement, executed in June 2007 between the Company and Wells Fargo Bank, National Association, as agent, and certain other banks. The Company generally may elect that the loans comprising each borrowing bear interest at a rate per annum equal to (a) the Base Rate equal to the higher of the Prime Rate then in effect and the Federal Funds Rate then in effect, plus 0.50% or (b) a LIBOR rate plus a LIBOR Margin ranging from 1.00% to 1.50% depending on leverage. As of December 31, 2008, $139.0 million was outstanding under the Facility.

At December 31, 2008, the Company s shareholders equity was $336.2 million, down 61% from $852.3 million at the beginning of the period. The decrease is primarily a result of the Company s fiscal 2008 net loss of $517.0 million.

As of December 31, 2008, the Company s sources of available funds comprised $115.0 million in cash and cash equivalents, as well as funds available under various credit facilities. Entegris has a credit agreement with one domestic commercial bank with available borrowing capacity of $90.1 million, with $139.0 million borrowings outstanding as of December 31, 2008. The Company also has a line of credit with three international banks that provide for borrowings of currencies for two of the Company s overseas subsidiaries, equivalent to an aggregate of approximately $19.6 million. There were no borrowings outstanding on these three international lines of credit at December 31, 2008.

As described in greater detail in Note 23 to its consolidated financial statements, the Company executed an amended domestic credit agreement in February 2009, which expires in November 2011, with a total borrowing capacity of $150 million.

As described in Note 23 to the Company s consolidated financial statements, the Company executed a new $150 million domestic credit agreement in February 2009, which expires in November 2011, with initial borrowing capacity of $139 million, with an additional $11 million available at the discretion of the majority of the Company s banks.

A global credit market crisis has created a very difficult business environment. These conditions have generally worsened since October 2008. The Company s operating performance, as well as its liquidity position, has been and continues to be negatively affected by these economic conditions, many of which are beyond its control. The Company does not believe it is likely that these adverse economic conditions, and their effect on the semiconductor industry, will improve significantly in the near term. However, the effect of current global economic environment on the semiconductor industry requires that the Company maintain its near-term liquidity support.

The amended credit facility requires that the Company meet various financial covenants. If the Company s future financial performance fails to meet these financial covenants, then its lenders may take control of the Company s cash receipts from the collection of its receivables as well as certain other assets. In this event, the Company s ability to conduct business could be severely impeded as there can be no assurance that funds adequate in amounts and timing will be available to meet the Company s liquidity requirements.

The Company plans to manage its business during this time through a series of operating measures designed to reduce expenditures and to generate incremental cash flow through asset management initiatives. If the economic environment does not improve in 2009, the Company s planned and initiated actions may not be sufficient and could lead to possibly failing the financial debt covenants required under the amended credit facility.

The Company believes that its cash and cash equivalents, cash flow from operations and funds available under its amended domestic credit facility will be sufficient to meet its working capital and investment requirements for the next 12 months. If available liquidity is not sufficient to meet the Company s operating and debt service obligations as they come due, management s plans include reducing expenditures as necessary, or pursuing alternative arrangements through additional equity or debt financing, in order to meet the Company s cash requirements through 2009. However, there can be no assurance that any such financing would be available on commercially acceptable terms.

The following table summarizes the maturities of the Company s significant financial obligations as of December 31, 2008:

		Maturity by fiscal year					
(In thousands)	**Total**	**2009**	**2010**	**2011**	**2012**	**2013**	**Thereafter**
Contractual obligations related to off-balance sheet arrangements:							
Operating leases	$ 26,291	$ 8,574	$ 6,522	$ 3,380	$ 3,001	$ 2,752	$ 2,062
Foreign currency contracts	280	280					
Total	$ 26,571	$ 8,854	$ 6,522	$ 3,380	$ 3,001	$ 2,752	$ 2,062
Contractual obligations reflected in the balance sheet:							
Long-term debt	$ 163,682	$ 13,166	$ 11,516	$	$	139,000	$
Pension obligations	$ 17,183	624	920	589	472	549	14,029
Total	$ 180,865	$ 13,790	$				