

MFIC CORP  
Form 10-K  
March 28, 2003

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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**

WASHINGTON, D.C. 20549

**FORM 10-K**

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

**For the fiscal year ended December 31, 2002**

**Commission File Number: 0-11625**

**MFIC CORPORATION**

(Exact name of registrant as specified in its charter)

**Delaware**  
(State or other jurisdiction of  
incorporation or organization)

**04-2793022**  
(I.R.S. Employer  
Identification No.)

**30 Ossipee Road, P.O. Box 9101**  
**Newton, Massachusetts**  
(Address of principal executive offices)

**02464-9101**  
(Zip Code)

Registrant's telephone number, including area code: **(617) 969-5452**

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

Securities registered pursuant to Section 12(g) of the Act: **Common Stock, \$.01 par value**

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

Indicate by check mark 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 this Form 10-K or any amendment to this Form 10-K.

The aggregate market value of Common Stock held by non-affiliates of the registrant (without admitting that any person whose shares are not included in determining such value is an affiliate), based upon the closing sale price of the Common Stock on March 14, 2003 as reported on the NASDAQ Over-the-Counter Bulletin Board was \$1,302,772.

The number of shares outstanding of the registrant's Common Stock as of March 14, 2003 was 7,720,987 shares.

**DOCUMENTS INCORPORATED BY REFERENCE**

The registrant intends to file a definitive proxy statement pursuant to Regulation 14A within 120 days of the end of the fiscal year ended December 31, 2002. Portions of such proxy statement are incorporated by reference into Part III of this report.

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**Item 1. BUSINESS:**

*Company Overview:*

MFIC Corporation (MFIC or the Company), through its wholly-owned subsidiaries, Microfluidics Corporation (Microfluidics Division) and MediControl Corporation (MediControl), as well as its operating division, Morehouse-COWLES, specializes in producing and marketing a broad line of fluid materials processing systems used for a variety of grinding, dispersing, milling, and blending applications across a variety of industries and for use in high shear fluid processing in numerous applications within those industries. Microfluidizer® high shear fluid processor systems are produced at the Microfluidics Division, while high shear dispersers, dissolvers, colloid mills, horizontal media mills, vertical media mills, and grinding media are produced and sold by the Morehouse-COWLES Division.

Microfluidizer® fluid processing equipment, produced by the Company's Microfluidics Division, is used by industry to formulate stable emulsions, dispersions, and liposomes, and is used in general for deagglomeration and for cell disruption in the biotech industry. Emulsions are found in a broad variety of common products, including processed foods, pharmaceuticals, and specialty coatings such as photographic films. Dispersions are often employed in products such as pharmaceuticals, inks, pigments and coatings. The Company believes that the processing technique of the Microfluidizer® equipment enhances the stability and consistency of emulsions and dispersions due to the equipment's unique ability to consistently produce uniform micron and sub-micron scale particles in many applications. Liposomes, which are biodegradable cell-like structures, are used to encapsulate medications or nutrients, and are typically used in cosmetic or pharmaceutical products. In addition, Microfluidizer® processor equipment is used in biotechnology applications to harvest, through cell disruption, the cultivated product contents of plant and animal cells.

The Company's product lines are used to create stable emulsions and dispersions through deagglomeration and particle size reduction. These formulations may be liquid/liquid or liquid/solid formulations and are generally prepared in quantities ranging from less than one gallon to several thousand gallons in an industrial environment. In connection with the processing of emulsions and dispersions, the various pieces of equipment in the product lines of the Morehouse-COWLES Division may be used in preparatory steps prior to introduction of the product into the Microfluidizer® processor system for further processing.

The Company's product lines are diversified and the Morehouse-COWLES equipment is used independent of the Microfluidizer® equipment in the preparation of many industrial fluid formulations where the desired product characteristics do not require the sub-micron size of particles created by Microfluidizer® processing.

While the Microfluidizer® equipment is generally used in the processing of high value-added end-products that require extremely small particle sizes, the Morehouse-COWLES product lines are used in broader, high volume, lower value-added applications requiring less stringent particle size reduction.

The combination of product lines result in one of the broadest offerings of fluid processing equipment in the materials processing market. The Company, in late 1998 and early 1999, integrated its then existing three divisions such that its corporate marketing and sales group was responsible for the marketing and sales of products for all divisions. The acquisition of the Epworth Mill and Morehouse-COWLES divisions in 1998 and the consolidation of marketing and sales personnel into one group enabled the Company to sell stand-alone pieces of equipment to smaller companies that require only limited processing capability, as well as integrated systems or multiple pieces of equipment from more than one division to larger customers that have a variety of fluid processing requirements.

The Company was incorporated in Delaware in 1983. The Company, formerly named Biotechnology Development Corporation, changed its name effective June 8, 1993 to Microfluidics

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International Corporation, and again changed its name effective July 12, 1999 to MFIC Corporation. Its principal executive offices are located at 30 Ossipee Road, in Newton, Massachusetts, 02464-9101 and its telephone number is (617) 969-5452.

Microfluidizer® and Zinger® are trademarks of the Company, which have been registered with the United States Patent and Trademark Office. Morehouse-COWLES and Microfluidics are trademarks of the Company for which registration applications have been filed with the United States Patent and Trademark Office. All other trademarks or trade names referred to herein are the property of their respective owners.

### *The Technology:*

The Company's Microfluidizer® materials processor equipment is based on patents and related technology that were licensed by the Company from Arthur D. Little & Co. in 1983 and subsequently purchased by the Company in 1985. The Company holds two United States patents related to the apparatus and process used to intimately mix liquids and disperse particulate solids in microemulsions. See "Patents and Proprietary Rights Protection."

The Company's Microfluidizer® processor technology is used in materials processing and product formulation to mix materials that are normally very difficult to mix. The Microfluidizer® processor technology allows manufacturers in the chemical, pharmaceutical, biotechnology, cosmetic, and food processing industries to produce higher quality products with better characteristics on a more consistent basis than with other blending, mixing, or homogenizing techniques. Additionally, the equipment is used for cell disruption to harvest the cultivated contents of animal and/or plant cells and for liposomal encapsulation of materials for the cosmetics and biotech/ biopharma industry.

Prior to October 1, 2000, the Company's Epworth Mill Division products consisted of ball mills and horizontal media mills. The division was also engaged in the sale and distribution of grinding media. Ball mills are used in coarse grinding application of liquid slurries such as ore from mines or coarse slurries of material that will later be processed into finer slurries. Ball mills use large media in a horizontal rotating cylindrical vessel to crush and grind the product being processed. The patented Zinger® horizontal media mill utilizes a unique design for grinding and dispersing solid materials in a liquid carrying medium. The design is based upon established rotating, horizontal shaft technology but adds the unique capability of enhanced mechanical activity between the grinding media and the product formulation. The enhanced mechanical activity is achieved through a unique combination of specially designed rotors and containment vessels. In comparison to traditional horizontal media mills, the Zinger media mill technology has demonstrated significantly improved productivity in terms of greater volumes of product processed at acceptable quality than the comparably sized and priced horizontal media mills. On July 24, 2000, the Company announced that it would transfer the manufacturing and sale of its Zinger® horizontal media mills from its Michigan-based Epworth Mill Division to the Morehouse-COWLES Division plant in Fullerton, California. The transfer began on October 1, 2000, and was completed in the fourth quarter of fiscal 2000.

On September 30, 2000, the Company ceased operations of the Ball Mill repair business and decided to sell its Ball Mill operation conducted at the Epworth Mill Division through a broker. On April 13, 2001 the Company concluded the sale of the assets of the division's operation for \$200,000 in cash and a promissory note, which resulted in a loss on the sale of these assets of approximately \$53,000.

The Company's Morehouse-COWLES Division manufactures grinding and dispersing equipment used in a broad number of industries including the coatings and ink industries. The products include high-speed single and multi-shaft dissolvers and dispersers, stone mills, and vertical and horizontal media mills. As one of the early inventors of dispersers, dissolvers, stone mills, and media mills, the one hundred-year-old COWLES name is an industry-accepted symbol of quality, reliable products.

### *Commercial Applications:*

The Microfluidizer® equipment can be used to mix and formulate stable emulsions, dispersions and liposomes, and for cell disruption.

Emulsions are homogenous mixtures of oil and water components (or other normally immiscible components), which, if mixed properly, do not readily separate. Emulsions comprise many products, such as food additives, medicines (including injectable drugs), photographic films, and polymers. The Company believes that, generally, an emulsion processed with Microfluidizer® equipment will exhibit improved stability and require reduced concentrations of costly emulsifying agents that are otherwise needed to enhance product stability.

Dispersions are mixtures of fine solids suspended in liquid so that the two do not separate readily after processing. Similar to emulsions, dispersions are used in a variety of consumer and industrial products, including pigments for medicines (including injectable drugs), paints and inks, iron oxide for magnetic tapes, phosphorescent coatings for TV screens and fluorescent lamps, barium titanate for capacitors, toners and inks.

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Liposomes are biodegradable cell-like structures, formed from materials such as cholesterol and lecithin, which can be used to encapsulate medications or nutrients. Pharmaceutical and cosmetic manufacturers use liposomes as a delivery system to target active ingredients for specific anatomical sites and to prolong their efficacy. To date, liposomes have been used commercially in two predominant applications: medical diagnostic agents and cosmetics. Applications include the encapsulation of dye to be used as a marker in medical diagnostic tests and the encapsulation of ingredients for deeper skin penetration, or time release control, as well as pharmaceutical, food and specialized agricultural applications.

In the biotechnology industry, Microfluidizer® equipment is currently used to harvest, by cell rupture, the contents of bacteria and mammalian plant or animal cells. The precision with which the Microfluidizer® equipment can be used to break up materials allows the encapsulating cell wall to be ruptured without damage to or contamination of the cell contents. The Microfluidizer® equipment minimizes the amount and presence of cell wall debris and eliminated grinding media contamination, thus minimizing downstream processing requirements.

The Microfluidizer® equipment is generally used in commercial applications where a scientist, formulator or chemist is trying to develop or improve a product formulation for an expensive, high value-added end product. Microfluidizer® equipment is initially employed in a research laboratory, with the equipment subsequently being used in scaleup to pilot scale production of new or improved products, and ultimately, for full production scale volumes as the improved product comes to market. From laboratory to production, it has been demonstrated that the volume of product processed range from less than one quarter of a gallon per minute to 18 gallons per minute.

The Company, through its Morehouse-COWLES Division, also manufactures products that are generally used for blending, mixing, deagglomeration and dispersion of paints and coatings, inks, adhesives, sealants, and pigment dispersions. These applications are more conventional whereby the formulations are less expensive to produce and the volumes of product produced are large.

### *The Products:*

The Company currently manufactures and markets the following lines of equipment:

*The HC Series:* The HC Series, also known as "Homogenizers," is a laboratory-scale series of equipment that is intended to impart moderate levels of energy into a customer's product with greater flow rates than the more energy intensive Microfluidizer® devices. Operating pressures of

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products in the Company's HC Series can range from under 500 psi to as high as 8,000 psi, and will process as much as two liters of fluid per minute.

*The M-110 Series:* The M-110 Series, a laboratory product line that operates with available laboratory air and is designed primarily for research and development applications. Standard models can generate pressures as high as 25,000 psi and have a product flow rate on the order of one-half liter per minute. The M-110EH includes an on-board hydraulic pump system for high performance "lab scale" micro-mixing at processing pressures up to 25,000 psi and flow rates up to 450 ml/min. It has numerous standard features and options including explosive-proof motor and steam sterilization.

*The M-140 Series:* The M-140K Series, introduced in June of 1994, is a laboratory-scale unit developed for customers in the chemical, biotechnology, pharmaceutical, cosmetic and food processing industries that require elevated operating pressures and higher shear forces to achieve better performance. The M-140K can achieve operating pressures up to 40,000 psi. The M-140K has a built-in hydraulic system and utilizes a bi-directional intensifier pump that provides a highly uniform pressure profile. It has been designed with many accessories and options including an explosion proof motor, control package, and solvent seal quench.

*The M-210 Series:* The M-210 Series is a pilot unit and is primarily marketed to pharmaceutical, cosmetic and food product manufacturers who have created a successful new or improved formulation on the M-110 Series unit and would like to increase their productive capacity. The M-210 Series unit is typically used for testing formulations at greater volume levels before initiating full-scale production. For some customers (such as pharmaceutical product manufacturers), the M-210 Series may have the capacity to function as a production unit.

*The M-700 Series:* The M-700 Series was introduced at the end of fiscal 1998 and was initially designed, engineered, and constructed for use in "rugged" industrial environments such as coatings, paints and pigments research and manufacturing. This product line was especially designed to withstand such hazards as dust, grease, and water spray. Through use of our own proprietary designed intensifier pump and other components, the system has also proven to be more cost-effective in many user applications.

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More recently, because of the market demands of the pharmaceutical, biotech and cosmetic industries, the M-700 product line was upgraded to all stainless steel construction, and meets Good Manufacturing Practices (GMP) requirements. (See discussion under heading "Government Regulations".) It also offers steam in place (SIP) and clean in place (CIP) options.

The M-700 Series equipment is available in a variety of configurations and flow rates depending upon motor size and the number of intensifier pumps. The M-7250-20 is a 50 H.P. machine with 2 intensifier pumps with a maximum operating pressure of 30,000 psi. It achieves flow rates and productive capacity exceeding that of the M-210 series and is, therefore, considered by the Company to be a large-scale production unit.

*The M-610 Series:* The M-610 Series consists of custom-built models used for large-scale production. These units have flow rates of up to 18 gallons per minute and generate operating pressures up to 40,000 psi.

*Stone Mills:* Stone Mills are utilized for processing chemicals, food products and minerals where the user desires to reduce particles to 15-25 microns in size and where the capital equipment costs must be minimized.

*Vertical Media Mills:* Vertical Media Mills are used in connection with batches or continuous milling of products in a wide variety of industries including chemical, agricultural, cosmetics and

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food. Batch sizes typically range from 2 to 60 gallons with throughput capacities of 2 to 900 gallons per hour.

*Single Shaft Dissolvers and Dispersers:* Single Shaft Dissolvers and Dispersers are available in a variety of sizes to meet demand from laboratory to full production volume. Generally, these dissolvers and dispersers are used in lower cost products, at viscosities up to 50,000 centipoise that require blending, mixing, deagglomeration and dispersion.

*Multi-shaft Dissolvers and Dispersers:* Multi-shaft Dissolvers and Dispersers are available in a variety of sizes to meet demand from laboratory to full production volume. Generally these dissolvers and dispersers are used for high viscosity products up to 2 million centipoise.

*Customized Units:* To meet larger production volume requirements or specialized applications, the division provides customized single and multi-shaft dissolvers and dispersers on a specialized quotation basis.

*Zinger® Horizontal Media Mills:* This media milling equipment is available in the following sizes that process products in volumes ranging from one-quarter liter to 60 liter batches or on a continuous basis.

*The XL Series:* The XL Series equipment is used in laboratory environments and has processing vessel sizes from 0.33 liters to 1.25 liters.

*The SV Series:* The SV Series equipment is used in pilot scale environments and has processing vessel sizes from 1.35 to 5.1 liters.

*The LV Series:* The LV Series equipment is used in production environments and has processing vessel sizes from 7.3 to 38 liters.

*Grinding Media:* The Company is a distributor of grinding media in the United States. Sale and distribution of grinding media includes a wide variety of grinding media from media producers around the world. Grinding media is used as a consumable in horizontal and vertical media mills produced by the Morehouse-COWLES Division as well as by competitors. Media types include all currently used materials in the industry including glass, ferrous, stone, steel shot, and ceramic.

*Marketing and Sales:*

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The Company's marketing and sales activities are conducted through a corporate marketing and sales group that is responsible for the worldwide marketing and sales of all products.

Marketing programs include advertising, direct mail, seminars, trade shows and telemarketing. In addition, the Company has an active program of field demonstrations, as well as demonstrations to potential users in the Company's laboratories located in Newton, Massachusetts, Fullerton, California, and Lampertheim, Germany. Distributors and sales agents worldwide are supported with trade advertising, collateral literature and trade show materials. The distributors also advertise directly on their own behalf and attend regional and international trade shows. As an aid to the marketing and sales activity for the equipment, the Company provides prospective customers with access to its applications laboratories. These laboratories provide free processing and particle size and distribution analysis of a prospective customer's sample formulation. Additionally, a prospective customer may pay for subsequent laboratory time and services on a fee for services basis, which includes equipment rentals.

The Company sells its divisions' equipment in the United States through a network of independent manufacturer's representative firms who are managed by the Company's regional sales managers. In Canada, the Company has an exclusive distributor for the Microfluidics product line. In Europe, the Company sells its equipment through a network of independent regional sales agents and distributors

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who are managed by the Company's European Sales organization. In Asia and the Pacific Rim, the Company sells through a network of distributors and independent manufacturer's representative firms. Customers in other geographical regions are assisted directly by Company sales staff.

### *Customers:*

The users of the Company's systems are in various industries, including the chemical, pharmaceuticals, food, cosmetic and biotechnology industries. Two customers accounted for 11% and 10% of the revenues in 2002, respectively, and one customer accounted for 13% of the trade accounts receivable as of December 31, 2002. A reduction or delay in orders from these or other significant customers could have a material adverse effect on the Company's results of operations. No customer accounted for more than 10% of the Company's revenues in 2001 or 2000.

### *Competition:*

The patented Microfluidizer® equipment product line of high shear fluid processors has direct competition in its major markets, including pharmaceutical and coatings/chemical applications, but management believes that the Company's products have larger installed bases and competitive performance advantages over products of our competitors. The Company believes that the Microfluidizer® processor equipment product line offers the highest shear forces available in the process equipment market today. In many critical formulations Microfluidizer® processors produce better quality products for our customers.

The M-700 Series of fluid processors, together with the M-210 and M-610 product lines, provide high shear fluid processing capabilities for sanitary, sterile, and industrial applications. The Company believes that the Microfluidizer® product line provides a distinct advantage over the product lines of our competitors with respect to the processing of abrasive slurries or solids dispersed in liquids in large part because of the Company's unique, wear-resistant, diamond interaction chamber and the special design of the intensifier pumping system.

Grinding media sales are in direct competition with a large number of suppliers, including the major supplier of the Company's media materials.

The product lines of the Morehouse-COWLES Division have direct competition in its major market segments. The Morehouse-COWLES product line has strong brand name recognition, a large installed base and a reputation for high quality, reliable, processing systems. The systems of this division have a very broad market use in a wide variety of mixing, blending, grinding, and dispersing applications and therefore have potential for high volume unit shipments.

The patented Zinger horizontal media mill competes against a well-established group of competitive mills. The unique design of the Zinger media mill, however, results in an economic advantage for customers who employ the Zinger media mill because they are able to process larger volumes of product at lower energy cost while attaining the same or better quality as produced by competitive mills, and can do so occupying less floor space. As customers replace older mills or expand their facilities, they will gain an economic advantage by lowering the processing costs of their products by using a mill, such as the Zinger media mill, which more efficiently processes larger quantities of product than competitive mills.

The Company faces, and will continue to face, intense competition from other companies who manufacture and sell fluid processing systems used in grinding, mixing, milling and dispersing applications. The Company is subject to significant competition from organizations that are pursuing technologies and products that are similar to the Company's technology and products. The Company's future success will depend in large part on its maintaining its current technologically superior product line and competitive position in the fluid processing systems field. Rapid technological development by

the Company or others may result in the Company's products or technologies becoming obsolete before the Company recovers the expenses it incurs in connection with their development. Products offered by the Company could be made obsolete by less expensive or more effective technologies. There can be no assurance that the Company will be able to make the enhancements to its technology necessary to compete successfully with newly emerging technologies. The Company expects competition to intensify in the fluid processing systems field as technical advances are made and become more widely known.

*Research and Development:*

The Company's research and development efforts are focused on developing new mixing techniques for the process industries and further enhancing the functionality, reliability and performance of existing products. Research and development costs were \$906,494, \$857,491, and \$835,136 in 2002, 2001, and 2000, respectively. The Company continues to pursue development of the Multiple-Stream High Pressure Mixer/Reactor (See Patents and Proprietary Rights Protection) by working with customers who assist in the development of the system with both application knowledge and financial support. Patent coverage for this new product has been obtained both in the United States and in Europe (with national entry in process) and is prosecuting the patent application in Canada.

*Cooperative Research Arrangements:*

The Company subsidizes research and development activities centered around Microfluidizer® processor technology at a number of research centers and universities. The Company's subsidy of these activities takes the form of substantial reduction or elimination of the customary rental charges for the Microfluidizer® equipment provided for use. The Company has, in past years, subsidized research and development in the following fields at the following universities: The University of Massachusetts, Lowell biotechnology; Lehigh University polymer chemistry; Université Laval (Quebec) food science; Worcester Polytechnic Institute (WPI) catalytic chemistry; and Purdue University pharmaceuticals. In addition to their research activities, these universities provide the Company with contacts at industrial companies that may utilize the Microfluidizer® processing technology. Additionally, on occasion, research reports, technical papers, and doctoral theses may be published, which document the use of Microfluidizer® technology. Finally, the Company engages in many informal co-operative development efforts with its customers, particularly in the Microfluidics Division.

In addition to providing subsidies, the Company has, in the past, entered into a research arrangement with Worcester Polytechnic Institute (WPI). The Company commenced support of research and development at WPI in 1988 and continued such support until the mid 1990's. In 1992, the Company entered into a cooperative venture with WPI to develop, patent and license for WPI, for its commercial applications, the Microfluidizer® process technology in the following fields: (i) the production of catalysts used in chemical and petroleum processing; (ii) the manufacture of advanced ceramic materials; and (iii) the destruction of volatile organic compounds and other organic contaminants in process waste water. The Company and WPI applied for United States and foreign patents in 1992 and 1993, respectively, which cite the Microfluidizer® processing technology as enabling the above process technologies. The two applied-for United States patents were both granted and issued to WPI in the United States in 1995. In 1996 one applied for patent was granted to WPI in France for European entry in the Patent Cooperation Treaty (PCT) countries. The program is inactive at this time.

*Patents and Proprietary Rights Protection:*

To protect its proprietary rights, the Company relies on a combination of U.S. patent and trademark laws, trade secrets, confidentiality agreements, contractual provisions and technical means. In the event of patent infringement or breach of confidentiality, there can be no assurance that these

measures will be adequate or that the Company will have sufficient resources to prosecute or prevail in an action against a third party. In addition, the Company has not sought patent or trademark protection for its Microfluidizer® equipment's interaction chamber in any country other than the United States and, as such, its proprietary rights are not subject to the protection of patent or trademark laws of foreign countries where the Company's equipment is sold. The Company's Microfluidizer® equipment process patent expires on March 13, 2007 and its device patent expired on August 6, 2002. The Company does not believe that the expiration of its patent will result in any material detriment to the Company since the Company has made many alterations, improvements and advances to its equipment over the years with such modification and innovations having been treated by the Company as trade secrets. In 1997 the Company completed development of a novel adaptation of its Microfluidizer® equipment a Multiple Stream High Pressure Mixer/ Reactor (MMR). In August 1997, the Company filed a patent application for the device and its processes with the United States Patent and Trademark Office (USPTO), and filed a Patent Cooperation Treaty (PCT) application on May 5, 1998. In July and November 2000, the USPTO issued to the Company notices of allowances of utility patent claims regarding the MMR and the use thereof. On September 18, 2002, the European Patent Office advised the Company it would grant its MMR patent substantially as applied for, including its device and process claims. The Company is in the process of pursuing national entry in France, Germany, Italy, The Netherlands, and the United Kingdom. The Company's Zinger horizontal media mill is protected by a United States patent granted June 5, 1997.

The Company maintains confidentiality and non-competition agreements with those parties to whom it discloses non-public technical information relating to its equipment. The Company believes that enforcement of the provisions of such agreements should adequately protect the Company's proprietary information.

#### *Manufacturing:*

At present, the Microfluidics Division subcontracts the manufacture of many of the components of its equipment to third parties, with the Company undertaking the remaining fabrication, assembly and performance testing. The Microfluidics Division has selected certain primary suppliers based upon pricing terms and the quality of their products. The Company believes that there are adequate available alternate manufacturing sources and suppliers for all of its components and raw materials requirements.

In the past, the Morehouse-COWLES Division performed a significant portion of machining and assembly operations. In the past year, a significant portion of this work has been outsourced in an attempt to reduce labor and capital costs. The Company believes that there are adequate available alternate contractors to provide the division with all of its' components and raw material requirements.

The Company is keenly aware that the loss of any primary supplier could have a material, adverse effect on the Company's business, financial condition, or results of operations. Therefore, the Company has procured alternative suppliers for its most critical components of its equipment.

#### *Government Regulation:*

Certain of the Company's customers utilize the Company's products in processes and production that are subject to governmental regulation. For example, the manufacturing and marketing of pharmaceutical products may require the approval of the Food and Drug Administration (FDA) within the United States and of comparable agencies in foreign countries. The FDA has established mandatory procedures, safety standards and protocols that apply to the manufacture, clinical testing and marketing of new pharmaceutical products in the United States. The process of seeking and obtaining FDA approval of a new product often takes a number of years and often involves the expenditure of substantial resources by the Company's customers. The FDA approval process can result in long lead times that are attendant to manufacturing equipment orders for these applications.

Further, in addition to product approvals, the FDA imposes requirements as to manufacturing practices, record keeping and reporting (Good Manufacturing Practices or GMP). GMP-regulated companies are subject to inspections by the FDA (inclusive of Microfluidizer® processor equipment) and product approvals may be withdrawn if GMP are not met.

At present, the Company's customers include companies who are making FDA approved drugs, preparations, and products (example: x-ray film) for external use and companies who utilize Microfluidizer® processor equipment for the formulation or production of FDA approved parenteral (injectable) drugs or compounds.

For the Company's equipment entering Europe, CE compliance (Regulatory Compliance with European Safety Standards) is required. All products manufactured by the Microfluidics division are CE compliant.



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Various laws, regulations and recommendations relating to safe working conditions, laboratory practices and the purchase, storage, movement, import and export, use and disposal of harmful or potentially harmful substances that may be used in connection with the Company's research work are, or may, be applicable to its activities. These laws include, among others, the United States Atomic Energy Act, the Clean Air Act, the Clean Water Act, the Occupational Safety and Health Act, the National Environmental Policy Act, the Toxic Substances Control Act, the Resource Conservation and Recovery Act, national restrictions on technology transfer, import, export and customs regulations and other present and possible future local, state or Federal regulation. The extent of adverse governmental regulation which might result from future legislation or administrative action cannot be accurately predicted. Certain agreements that may be entered into by the Company involving exclusive license rights may also be subject to national or supranational antitrust regulatory control, the effect of which cannot be predicted.

### *Backlog:*

The Company's sales order backlog of accepted and unfilled orders at March 14, 2003, and March 15, 2002 was approximately \$3,647,000 and \$3,337,000, respectively. Backlog as of any particular date should not be relied upon as indicative of the Company's net revenues for any future period.

### *Employees:*

The Company has approximately 69 full-time employees as of March 14, 2003. None of the Company's employees are covered by a collective bargaining agreement, and the Company considers its relations with its employees to be satisfactory. The Company believes that its future success will depend in large part on its ability to attract and retain highly skilled employees.

## **Item 2. PROPERTIES**

The Company's corporate headquarters are in Newton, Massachusetts. The Company also maintains other locations in South Haven, Michigan, Fullerton, California and a sales office in Lampertheim, Germany. The Company rents approximately 127,000 square feet of offices, production and research and development facilities at these locations for administrative, development and production activities. A portion of space is sublet to other non-affiliated companies for a total of \$84,000 per annum. The lease terms expire at various times through August 2006. The Company has the option to extend the leases for up to five additional years. The Company believes these facilities will be adequate for operations for the next several years.

## **Item 3. LEGAL PROCEEDINGS**

The Company is not a party to any material legal proceedings.

## **Item 4. SUBMISSION OF MATTERS TO VOTE OF SECURITY HOLDERS**

No matters were submitted to a vote of the Company's security holders during the quarter ended December 31, 2002.

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## **PART II**

## **Item 5. MARKET FOR REGISTRANT'S COMMON EQUITY AND RELATED STOCKHOLDER MATTERS**

### *Market*

The Company's Common Stock is traded on the Over-the-Counter Bulletin Board under the symbol MFIC. The following table sets forth the range of quarterly high and low bid quotations for the last two fiscal years, as furnished by the National Association of Securities Dealers Automated Quotation System. The quotations represent interdealer quotations without adjustment for retail markups, markdowns, or commissions, and may not necessarily represent actual transactions.

### **Quarters Ended**

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	12/31 2002	9/30 2002	6/30 2002	3/31 2002	12/31 2001	9/30 2001	6/30 2001	3/31 2001
<b>Low</b>	\$ 0.25	\$ 0.28	\$ 0.35	\$ 0.41	\$ 0.40	\$ 0.56	\$ 0.43	\$ 0.50
<b>High</b>	\$ 0.43	\$ 0.42	\$ 0.45	\$ 0.55	\$ 0.65	\$ 1.11	\$ 1.19	\$ 0.88

Holdings

As of March 14, 2003, there were approximately 389 holders of record of the Company's Common Stock.

*Dividends*

The Company has never paid any cash dividends on its Common Stock and presently anticipates that no dividends on its Common Stock will be declared in the foreseeable future. The Company's current policy is to retain all of its earnings to finance future growth. In addition, pursuant to loan covenants contained in the Company's loan agreement with its commercial lender, the Company may not pay dividends without the commercial lender's prior approval.

*Equity Compensation Plan Information:*

The information in the table below is as of December 31, 2002. See also the Consolidated Financial Statements Note 9.

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)	Weighted-average exercise price of outstanding options, warrants and rights (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders	2,010,650	\$ 0.90	1,316,037
Equity compensation plans not approved by security holders			
<b>Total</b>	<b>2,010,650</b>	<b>\$ 0.90</b>	<b>1,316,037</b>

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**Item 6. SELECTED FINANCIAL DATA**

The selected financial information presented below is derived from the audited consolidated financial statements of the Company for each of the five year period ended December 31, 2002. The information set forth below should be read in conjunction with Management's Discussion and Analysis of Financial Condition and Results of Operations and the Consolidated Financial Statements and related Notes included elsewhere in this Form 10-K.

The Company acquired the assets and assumed certain liabilities of two businesses, Morehouse-COWLES, Inc. and Epworth Manufacturing Company. These acquisitions were accounted for as a purchase. Accordingly, in the following selected financial information, the results of operations and cash flows include Morehouse-COWLES and Epworth Mill subsequent to August 14, 1998.

**Selected Statement of Operations Data**

	Year Ended December 31, 2002	Year Ended December 31, 2001	Year Ended December 31, 2000	Year Ended December 31, 1999	Year Ended December 31, 1998
Total revenues	\$ 14,573,382	\$ 15,511,014	\$ 15,725,695	\$ 14,083,216	\$ 8,869,679
Total costs and expenses	14,253,709	15,728,336	15,793,065	14,417,304	9,968,142

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	Year Ended December 31, 2002	Year Ended December 31, 2001	Year Ended December 31, 2000	Year Ended December 31, 1999	Year Ended December 31, 1998
Income (loss) from operations	319,673	(217,322)	(67,370)	(334,088)	(1,098,463)
Interest expense	(179,429)	(261,754)	(350,486)	(542,045)	(149,043)
Other expense		(53,142)	(250,000)		
Interest income	7,191	7,032	248	9,835	119,492
Gain on sale of investments				11,864	36,203
Net income (loss) before taxes, cumulative effect of accounting change, and extraordinary item	147,435	(525,186)	(667,608)	(854,434)	(1,091,811)
Income tax (provision)					(413,630)
Net income (loss) before extraordinary item and cumulative effect of an accounting change	147,435	(525,186)	(667,608)	(854,434)	(1,505,441)
Gain on subordinated debt restructuring			194,500		
Net income (loss) before cumulative effect of an accounting change	147,435	(525,186)	(473,108)	(854,434)	(1,505,441)
Cumulative effect of a change in accounting principle	(2,661,409)				
Net loss	\$ (2,513,974)	\$ (525,186)	\$ (473,108)	\$ (854,434)	\$ (1,505,441)
Weighted-average shares outstanding:					
Basic	7,426,586	7,375,102	7,086,058	5,818,588	5,296,923
Diluted	7,470,090	7,375,102	7,086,058	5,818,588	5,296,923
Basic amounts per common share:					
Net income (loss) per share before extraordinary gain and cumulative effect of a change in accounting principle	\$ .02	\$ (.07)	\$ (.09)	\$ (.15)	\$ (.28)
Extraordinary gain per share:			\$ .03		
Net income (loss) per share before cumulative effect of a change in accounting principle	\$ .02	\$ (.07)	\$ (.06)	\$ (.15)	\$ (.28)
Cumulative effect of a change in accounting principle per share	\$ (.36)				
Basic net loss per share	\$ (.34)	\$ (.07)	\$ (.06)	\$ (.15)	\$ (.28)
Diluted amounts per common share:					
Net income (loss) per share before extraordinary gain and cumulative effect of a change in accounting principle	\$ .02	\$ (.07)	\$ (.09)	\$ (.15)	\$ (.28)
Extraordinary gain per share:			\$ .03		
Net income (loss) per share before cumulative effect of a change in accounting principle	\$ .02	\$ (.07)	\$ (.06)	\$ (.15)	\$ (.28)
Cumulative effect of a change in accounting principle per share	\$ (.36)				
Diluted net loss per share	\$ (.34)	\$ (.07)	\$ (.06)	\$ (.15)	\$ (.28)

**Selected Balance Sheet Data**

	Year Ended December 31, 2002	Year Ended December 31, 2001	Year Ended December 31, 2000	Year Ended December 31, 1999	Year Ended December 31, 1998
Working capital	\$ 1,571,712	\$ 1,404,675	\$ 1,900,740	\$ 1,404,820	\$ 1,575,113
Total assets	9,486,780	12,639,391	13,644,235	13,227,316	14,700,022
Long term debt	139,985	316,239	896,243	775,000	675,000
Stockholders' equity	4,102,368	6,587,087	7,093,781	7,161,111	8,029,786

**Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS**

**CERTAIN FACTORS AND CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS**

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Management believes that this report contains forward-looking statements that are subject to certain risks and uncertainties including statements relating to the Company's plan to achieve full sales/marketing and operational integration of its divisions, to achieve revenue growth, to maintain and/or increase operating profitability, and to attain net income profitability. Such statements are based on management's current expectations and are subject to a number of factors and uncertainties that could cause actual results achieved by the Company to differ materially from those described in the forward-looking statements. The Company cautions investors that there can be no assurance that the actual results or business conditions will not differ materially from those projected or suggested in such forward-looking statements as a result of various factors, including but not limited to, the following risks and uncertainties: (i) the ability to manage the integration of the Company's divisions into a cohesive operation and the attainment of successful operating results of such integrated operations, (ii) whether the performance advantages of the Company's Microfluidizer® or Zinger® materials processing equipment will be realized commercially or that a commercial market for the equipment will continue to develop, and (iii) whether the Company will have access to sufficient working capital through continued and improving cash flow from sales and ongoing borrowing availability, the latter being subject to the Company's ability to comply with the covenants and terms of the Company's loan agreement with its senior lender.

### ***Critical Accounting Policies***

The Company considers certain accounting policies related to revenue recognition and inventories and the valuation of inventories to be critical policies due to the estimation processes involved in each.

***Revenue recognition:*** Revenue from the sale of machines and spare parts is generally recognized upon shipment of the product or when the earnings process is complete. Rental income for the lease of equipment is recognized on a straight-line basis over the term of the lease agreement.

The Company recognizes revenue for the sale of machines and spare parts in accordance with Securities and Exchange Commission (SEC) Staff Accounting Bulletin (SAB) No. 101, *Revenue Recognition in Financial Statements*, as amended by SAB 101A and 101B. SAB 101 requires that four basic criteria must be met before revenue can be recognized: (1) persuasive evidence of an arrangement exists; (2) delivery has occurred or services rendered; (3) the fee is fixed and determinable; and (4) collectibility is reasonably assured. Determination of criteria (3) and (4) are based on management's judgments regarding the fixed nature of the fee charged for services rendered and products delivered and the collectibility of those fees. Should changes in conditions cause management to determine these criteria are not met for certain future transactions, revenue recognized for any reporting period could be adversely affected.

The Company's products are generally covered by a warranty for a one-year period. The Company's estimate of costs to service its warranty obligations is based on historical experience and expectation of future conditions. To the extent the Company experiences increased warranty claim activity or increased costs associated with servicing those claims, it will result in decreased gross profit.

***Inventories and Related Allowance for Obsolete and Excess Inventory:*** Inventories are valued at the lower of cost or net realizable value on a first-in, first-out method. The Company regularly reviews inventory quantities on hand and records a provision for excess and obsolete inventory based primarily on the estimated forecast of product demand over the next two years. A significant increase in the demand for the Company's products could result in a short-term increase in the cost of inventory

purchases while a significant decrease in demand could result in an increase in the amount of excess inventory quantities on hand. Additionally, estimates of future product demand may prove to be inaccurate, in which case the Company may have understated or overstated the provision required for excess and obsolete inventory. In the future, if inventory were determined to be overvalued, the Company would be required to recognize such costs in its cost of goods sold at the time of such determination. Likewise, if inventory is determined to be undervalued, the Company may have over-reported costs of goods sold in previous periods and would be required to recognize such additional operating income at the time of sale. Therefore, although the Company makes every effort to ensure the accuracy of forecasts of future product demand, any significant unanticipated changes in demand or technological developments could have a significant impact on the value of its inventory and reported operating results.

### **Results of Operations**

#### ***Fiscal 2002 Compared to Fiscal 2001***

Total revenues for the year ended December 31, 2002 were \$14,573,382 as compared to revenues of \$15,511,014 for the year ended December 31, 2001, representing a decrease of \$937,632 or 6%.

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North American sales for the year ended December 31, 2002 were approximately \$10,342,000, a 3% decrease as compared to North American sales of approximately \$10,630,000 for the year ended December 31, 2001. This decrease in North American sales was principally due to a decrease in the sale of machines. Foreign sales were approximately \$4,231,000 for the year ended December 31, 2002 compared to \$4,881,000 for the year ended December 31, 2001, a decrease of approximately \$650,000 or 13%. The decrease in foreign sales was principally due to a decrease in the sale of machines compared to 2001.

Total cost of goods sold for 2002 was \$8,064,758 or 55% of revenue, as compared to \$8,897,755 or 57% of revenue for 2001. The decrease in cost of goods sold in absolute dollars reflects principally the decrease in sales generated by the Microfluidics division of the Company, offset by the increase in sales at the Morehouse-COWLES Division. It also reflects an increase in profit margins at both divisions. The Company's major product lines have different profit margins, as well as multiple profit margins within each product line. In the course of the periods compared, there may be significant changes in the cost of revenues as a percentage of revenue depending on the mix of product sold. Also, the cost of sales as a percent of revenue will differ between laboratory and pilot plant units sold, due to the difference in costs between air driven and electric-hydraulic units.

Total operating expenses for 2002 were \$6,188,951, or 42% of revenue, as compared to \$6,830,581, or 44% of revenue, for 2001, which is a decrease of \$641,630, or 9%.

Research and development expenses for 2002 were \$906,494 compared to \$857,491 for 2001, an increase of \$49,003, or 6%. The increase in research and development expenses is principally due to an increase in payroll costs, as a result of both an increase in headcount and pay increases.

Sales and marketing expenses for 2002 increased approximately \$44,000, or 1% from \$3,049,418 to \$3,093,293. The increase was due principally to an increase in media costs of approximately \$136,000, partially offset by a decrease in payroll costs of approximately \$70,000, and other general cost reductions of approximately \$20,000.

For the year ended December 31, 2002, general and administrative expenses decreased by approximately \$735,000, from \$2,923,672 for the year ended December 31, 2001, to \$2,189,164, or 25%. The decrease in general and administrative expenses was principally due to a decrease in amortization of goodwill costs of approximately \$422,000 as a result of the adoption of SFAS No. 142, media costs of approximately \$169,000, professional fees of approximately \$86,000, and other cost decreases of

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approximately \$105,000, partially offset by increases in payroll costs of approximately \$47,000, due to pay increases.

Interest expense for 2002 decreased to \$179,429 from \$261,754 for 2001, a decrease of \$82,325, or 31%. The decrease was due primarily to a decrease in the interest rates charged the Company.

Interest income for 2002 increased to \$7,191 from \$7,032 for 2001, an increase of \$159 or 2%.

In October, 2000, the Company entered into a settlement agreement related to a warranty claim for the Epworth Mill Division, pursuant to which the Company paid \$100,000 upon execution of the agreement, and executed a promissory note for \$350,000 payable two years from the execution date, with interest payable quarterly in arrears at 10% per annum. The Company paid off the balance of this note in December, 2002.

On January 1, 2002, the Company adopted SFAS No. 142, *Goodwill and Other Intangible Assets*, which requires companies to stop amortizing goodwill and certain intangible assets with an indefinite useful life. Instead, SFAS No. 142 requires that goodwill and intangible assets deemed to have an indefinite useful life be reviewed for impairment upon adoption of SFAS No. 142 and annually thereafter. The Company will perform its annual impairment review during the fourth quarter of each year, or when an event occurs which may potentially impair goodwill.

Under SFAS No. 142, goodwill impairment is deemed to exist if the net book value of a reporting unit exceeds its estimated fair value. Upon adoption of SFAS No. 142 in the first quarter of 2002, the Company recorded a one-time, noncash charge of \$2,661,409 to reduce the carrying value of its goodwill. Such charge is nonoperational in nature and is reflected as a cumulative effect of a change in the accounting principle in the accompanying consolidated statement of operations pursuant to the SFAS No. 142 transition rules. The SFAS No. 142 goodwill impairment is associated solely with goodwill resulting from the acquisition of Morehouse-COWLES, Inc. and the Epworth Manufacturing Company in 1998.

***Fiscal 2001 Compared to Fiscal 2000***

Total revenues for the year ended December 31, 2001 were \$15,511,014 as compared to revenues of \$15,725,695 for the year ended December 31, 2000, representing a decrease of \$214,681, or 1%. This decrease in revenues was the result of a decrease in sales by the Morehouse-COWLES Division of the Company of approximately \$1,390,000, a decrease in sales at the Epworth Mill Division of approximately \$1,442,000 (due to a cessation of operations of the Ball Mill repair business), offset by an increase of approximately \$2,617,000 in additional revenue generated by the Company's Microfluidics Division.

North American sales for the year ended December 31, 2001 decreased to approximately \$10,630,000, or 7%, as compared to North American sales of approximately \$11,386,000 for the year ended December 31, 2000. This decrease in North American sales was principally due to a decrease in the sale of machines. Foreign sales were approximately \$4,881,000 for the year ended December 31, 2001 compared to \$4,340,000 for the year ended December 31, 2000, an increase of \$541,000 or 12%. This increase in foreign sales was principally due to an increase in the sale of machines.

Total cost of goods sold for 2001 was \$8,897,755 or 57% of revenue, as compared to \$8,688,465 or 55% of revenue for 2000. The increase in cost of goods sold reflects primarily the increase in sales generated by the Microfluidics operating division of the Company, offset by a decrease in cost of goods sold by the Morehouse-COWLES and Epworth Mill operating divisions. The Company's major product lines have different profit margins, as well as multiple profit margins within each product line. In the course of the periods compared, there may be significant changes in the cost of revenues as a percentage of revenue depending on the mix of product sold. Also, the cost of sales as a percent of

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revenue will differ between laboratory and pilot plant units sold, due to the difference in costs between air driven and electric-hydraulic units.

Total operating expenses for 2001 were \$6,830,581 or 44% of revenue, as compared to \$7,104,600 or 45% of revenue for 2000, which is a decrease of \$274,019 or 4%.

Research and development expenses for 2001 were \$857,491 compared to \$835,136 for 2000, an increase of \$22,355 or 3%. The increase in research and development expenses is primarily due to an increase in payroll and related costs of approximately \$157,000, partially offset by a decrease in amortization costs of approximately \$60,000, a decrease in outside contract services of approximately \$44,000, and a reduction of expenses at the Epworth Mill Division of approximately \$49,000, due to the transfer of the division's operations in October of 2000.

Sales and Marketing expenses for 2001 decreased approximately \$433,000, from \$3,482,866 in 2000 to \$3,049,418 or 12%. The decrease was due principally to the reduction of selling expenses at the Epworth Mills Division of approximately \$287,000, a decrease in commission expense of approximately \$138,000, and decreases in consultant expenses of approximately \$48,000, partially offset by increases of approximately \$41,000 in demonstration cost expenses.

General and administrative expenses for 2001 increased by approximately \$137,000, from \$2,786,598 for the year ended December 31, 2000, to \$2,923,672, or 5%. The increase in general and administrative expenses is primarily due to an increase in payroll costs of approximately \$152,000, and an increase in grinding media sales costs of approximately \$169,000, partially offset by a reduction of general and administrative costs of approximately \$167,000 at the Epworth Mill Division, due to the sale of the business, and a decrease in professional fees of approximately \$40,000.

Interest expense for 2001 decreased from \$350,486 in 2000 to \$261,754, a decrease of \$88,732, or 25%. The decrease was due primarily to a reduction in the interest rate paid, partially offset by the increase in debt due to the transaction with J.M. Huber Corporation.

Interest income for 2001 increased to \$7,032 from \$248 for 2000, an increase of \$6,784. The increase is due to interest earned on the note receivable arising from the sale of the Ball Mill operation.

On July 24, 2000, the Company announced that it would transfer the sales and manufacturing of its line of Zinger ® horizontal media mills from its Michigan-based Epworth Mill Division to the Morehouse-COWLES plant in Fullerton, California. The transfer began on October 1, 2000 and did not have a material impact on the profitability of the Company. Simultaneously, the Company ceased operations of the Ball Mill repair business and decided to sell its Ball Mill product line. On March 19, 2001, the Company reached an agreement to sell the Ball Mill operation for \$200,000 in cash and notes.

**QUARTERLY RESULTS OF OPERATIONS**

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The following table sets forth, for the periods presented, certain data from our consolidated statements of operations. In the opinion of our management, the unaudited quarterly consolidated statement of operations data have been prepared on substantially the same basis as our audited consolidated financial statements and include all adjustments, consisting only of normal recurring adjustments, necessary for a fair presentation of the financial information for the periods presented. This information should be read in conjunction with the consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K. The operating results in any quarter are not necessarily indicative of the results that may be expected for any future period.

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Summarized unaudited quarterly financial data are as follows:

	Fiscal 2002 Quarters			
	First	Second	Third	Fourth
Revenues	\$ 3,581,320	\$ 3,644,754	\$ 3,599,687	\$ 3,747,621
Gross income	1,670,945	1,551,016	1,570,439	1,716,224
Net income (loss) before cumulative effect of accounting change	100,247	55,431	13,686	(21,929)
Cumulative effect of accounting change	(2,661,409)			
Net (loss) income	\$ (2,561,162)	\$ 55,431	\$ 13,686	\$ (21,929)

Net income (loss) per share:

Basic income per share before cumulative effect of accounting change	\$ .01	\$ .01		
Cumulative effect of accounting change	\$ (.36)			
Net (loss) income per share	\$ (.35)	\$ .01		
Diluted income per share before cumulative effect of accounting change	\$ .01	\$ .01		
Cumulative effect of accounting change	\$ (.36)			
Diluted (loss) income per share	\$ (.35)	\$ .01		

	Fiscal 2001 Quarters			
	First	Second	Third	Fourth
Revenues	\$ 4,449,624	\$ 3,436,749	\$ 3,753,750	\$ 3,870,891
Gross income	2,227,086	1,472,388	1,649,237	1,264,548
Net income (loss)	497,055	(285,573)	(240,165)	(496,503)
Net income (loss) per share	\$ .07	\$ (.04)	\$ (.03)	\$ (.07)
Diluted net income (loss) per share	\$ .07	\$ (.04)	\$ (.03)	\$ (.07)

### LIQUIDITY AND CAPITAL RESOURCES

The Company generated cash from operations of \$398,748 in 2002, \$297,127 in 2001 and \$80,718 in 2000. In 2002, the Company's principal operating cash requirements were to fund its decrease in current liabilities, and increase in other current assets and prepaid expenses, offset by net income from operations, and a decrease in receivables and inventory. In 2001, the Company's principal operating cash requirements were to fund its net loss from operations, increase in other assets, and decreases in current liabilities, offset by a decrease in trade and other receivables, inventories, and prepaid expenses. In 2000, the Company's principal operating cash requirements were to fund its net loss from operations, increases in inventories, trade and other receivables, other current assets and prepaid expenses, offset by a decrease in current liabilities.

The Company used cash of \$38,706 for investing activities in 2002. Net cash used in investing activities included the proceeds from the sale of assets, net of the purchase of capital equipment. Net cash used by investing activities for 2001 resulted from the sale of assets from the Ball Mill operation offset by the issuance of a note receivable in connection with the sale of the Ball Mill operation, and the purchase of fixed assets, partially offset by the sale of fixed assets. Net cash used by investing activities of \$27,673 in 2000 consisted of the proceeds from the sale of assets of \$152,989, offset by the purchase of capital equipment of \$180,662. The Company's sale of assets principally related to used

equipment. As of December 31, 2002, the Company had no material commitments for capital expenditures.

For financing activities, the Company used cash of \$362,472 in 2002, \$387,235 in 2001, and generated cash of \$37,138 in 2000. In 2002 cash was used to pay the note payable due Huber, to pay down the term note, and the subordinated debt, and was partially offset by proceeds from the line of credit, and the issuance of common stock. Cash used in 2001 reflected the payments on the line of credit, line of credit term note, and subordinated debt, partially offset by the proceeds from the issuance of common stock. In 2000, cash was generated from the proceeds of stock issued, from the proceeds of both a line of credit and a term note from a refinancing, and was used to pay down a previous line of credit, and pay fees in connection with obtaining the line of credit.

The cash and cash equivalents balance at December 31, 2002 was \$84,956, a decrease of \$2,430 from the December 31, 2001 balance of \$87,386. At December 31, 2002, the Company maintained a line of credit and a term loan (collectively the Credit Facility) with PNC Bank, N.A. (the Lender). The line of credit facility provides for a maximum borrowing of \$4,000,000. As of December 31, 2002 and March 14, 2003, the Company had borrowings of \$2,681,987 and \$2,456,162, respectively.

Under the terms of the line of credit with the Lender, the Company is subject to a number of restrictions that impact the Company's use of funds. The Company is limited to acquisition of property of \$250,000 per year or less, cannot pay dividends, and must maintain certain financial covenants as defined. In addition, the Company is required to maintain a lockbox arrangement with the Lender, and all cash receipts are included in the lockbox and are applied against the outstanding line of credit. As discussed in Note 6 to the consolidated financial statements, the Company was in violation of two covenants of the Credit Facility as of December 31, 2002. The Company had previously received a waiver from the Lender and the previous Lender as of both December 31, 2001, and December 31, 2000, respectively, but was required to meet such covenants thereafter. As indicated in Note 6, the Company determined that violations of the tangible net worth and liabilities to worth ratio covenant occurred for the quarter ended March 31, 2001. The Company obtained a waiver for these violations from the Lender. The Company's ability to continue planned operations is dependent upon access to financing under its Credit Facility, which is potentially impacted by the Company's ability to achieve future compliance with the financial covenants. On March 29, 2002, the Company and the Lender set new covenants for fiscal 2002. Borrowings outstanding under the Credit Facility are secured by a collateral pledge to the lender of substantially all of the assets of the Company. Management of the Company is executing plans for a return to profitability, including the recent reorganization of its Morehouse-COWLES Division and the concentration of manufacturing operations in an effort to improve costs and marketing leverage; however, there can be no assurance that the Company will be successful in implementing these plans. On February 19, 2003, the Company and the Lender signed a third amendment to the original agreement extending the credit facility for one year until February 28, 2004.

Assuming that there is no significant change in the Company's business, Management believes that cash flows from operations, together with existing cash balances, will be sufficient to meet its working capital and debt service requirements for at least the next twelve months.

#### **EFFECT OF RECENT AND NEW ACCOUNTING PRONOUNCEMENTS**

In July 2001, the Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standards No. 142, *Goodwill and Other Intangible Assets*, which was effective January 1, 2002. SFAS No. 142 requires, among other things, the discontinuance of goodwill amortization. In addition, the standard includes provisions for the reclassification of certain existing recognized intangibles as goodwill, reassessment of the useful lives of existing recognized intangibles, reclassification of certain intangibles out of previously reported goodwill, and the identification of reporting units for purposes of assessing potential future impairment of goodwill. Management made an assessment of the goodwill valuation, and upon adoption recognized a goodwill impairment charge

of \$2,661,409 in the first quarter of 2002. This Goodwill impairment charge was recognized as a change in accounting principle in the consolidated statements of operations.

In April, 2002, the FASB issued SFAS No. 145, *Rescission of FASB Statements No. 4, 44 and 64, Amendment of FASB Statement No. 13, and Technical Corrections*. This statement eliminates extraordinary accounting treatment for a gain or loss reported on the extinguishment of debt and amends other existing authoritative pronouncements to make technical corrections, clarify meanings, or describe their applicability under changed conditions. The provisions of this statement are effective at the beginning of fiscal year 2003. The Company does not believe the adoption of this statement will have a material impact on the overall financial position or results of operations.



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In June, 2002, the FASB issued SFAS No. 146, *Accounting for Costs Associated with Exit or Disposal Activities*. This statement requires that the fair value of a liability associated with an exit or disposal activity be recognized when the liability is incurred. Prior to the adoption of SFAS No. 146, certain exit costs were recognized when we committed to a restructuring plan, which may have been before the liability was incurred. The Company adopted the provisions of this statement in December, 2002. The adoption of SFAS No. 146 had no impact on the Company's financial position or results of operations.

In December 2002, the FASB issued SFAS No. 148, *Accounting for Stock-Based Compensation-Transition and Disclosure, an amendment of FASB Statement No. 123*, to provide alternative methods of transition for a voluntary change to the fair value based method of accounting for stock-based employee compensation. In addition, this statement amends the disclosure requirements of SFAS No. 123 to require prominent disclosures in both annual and interim financial statements about the method of accounting for stock-based employee compensation and the effect of the method used on reported results. Management has determined that it will continue to account for stock-based compensation to employees under the provisions of APB No. 25 and it will make all disclosures in its financial reports. The amendments to SFAS 123 provided for under SFAS No. 148 are effective for financial statements for fiscal years ending after December 15, 2002. The disclosure requirements of SFAS No. 148 have been implemented in Note 1 Organization and Summary of Significant Accounting Policies and the interim disclosure requirements will be adopted by the Company in the first quarter of 2003.

### ITEM 7A QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The Company's financial instruments are generally not subjected to changes in market value as a result of changes in interest rates due to the short maturities of the instruments. The Company's fixed rate debt is not exposed to cash flow or interest rate changes but is exposed to fair market value changes in the event of refinancing this fixed rate debt. The Company does not have significant exposure to fluctuations in foreign exchange rates.

The Company had approximately \$2,836,000 of variable rate borrowings outstanding under its revolving credit agreement at December 31, 2002. A hypothetical 10% adverse change in interest rates for this variable rate debt would have had an approximate \$18,000 negative effect on the Company's earnings and cash flows on an annual basis.

For additional information about the Company's financial instruments, see Note 6.

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### Item 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The following Consolidated Financial Statements of the Company and its Subsidiaries appear on the following pages of this Form 10-K.

	<u>Page</u>
Report of Independent Auditors	F-1
Report of Independent Auditors	F-2
Consolidated Balance Sheets as of December 31, 2002 and 2001	F-3
Consolidated Statements of Operations for the years ended December 31, 2002, 2001 and 2000	F-4
Consolidated Statements of Cash Flows for the years ended December 31, 2002, 2001 and 2000	F-5
Consolidated Statements of Changes in Stockholders' Equity for the years ended December 31, 2002, 2001 and 2000	F-6
Notes to Consolidated Financial Statements	F-7

(b)

#### Reports on Form 8-K.

The Company filed a current report on Form 8-K regarding changes in its certifying accountant dated October 29, 2001.

(c)

**Exhibits.**

The Company hereby files as part of this Form 10-K the Exhibits listed in Item 15(a)(3) as set forth above.

(d)

**Financial Statement Schedule.**

Schedule II - Valuation and Qualifying Accounts and Reserves for the years ended December 31, 2002, 2001, and 2000.

**REPORT OF INDEPENDENT AUDITORS**

To the Board of Directors and Stockholders of MFIC Corporation:

We have audited the accompanying consolidated balance sheets of MFIC Corporation (the "Company") and subsidiaries as of December 31, 2002 and December 31, 2001 and the related consolidated statements of operations, stockholders' equity and cash flows for each of the two years in the period ended December 31, 2002. These consolidated financial statements and the schedule referred to below are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements and schedule based on our audits. The financial statements of MFIC Corporation and subsidiaries for the year ended December 31, 2000 were audited by other auditors whose report dated March 29, 2001 expressed an unqualified opinion on those statements.

We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of MFIC Corporation and subsidiaries as of December 31, 2002 and December 31, 2001 and the results of their operations and their cash flows for each of the two years in the period ended December 31, 2002 in conformity with accounting principles generally accepted in the United States of America.

Our audits were made for the purpose of forming an opinion on the basic consolidated financial statements taken as a whole. The financial statement schedule listed in the index to consolidated financial statements is presented for purposes of complying with the Securities and Exchange Commission's rules and is not part of the basic consolidated financial statements. This schedule has been subjected to the auditing procedures applied in the audit of the basic consolidated financial statements and, in our opinion, fairly states in all material respects the financial data required to be set forth therein in relation to the basic consolidated financial statements taken as a whole.

As discussed in Note 1 to the consolidated financial statements, the Company changed its method of accounting for goodwill and intangible assets in 2002 to conform to Statement of Financial Accounting Standards No. 142, *Goodwill and Other Intangible Assets*.

BROWN & BROWN LLP

Boston, Massachusetts

February 21, 2003, except for Note 6, as to which the date is March 11, 2003

**REPORT OF INDEPENDENT AUDITORS**

To the Board of Directors and Stockholders of MFIC Corporation:

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We have audited the accompanying consolidated statements of operations, changes in stockholders' equity, and cash flows of MFIC Corporation and Subsidiaries (the "Company") for the year ended December 31, 2000. Our audit also included the financial statement schedule listed in the index at Item 15 (a)(2) for the year ended December 31, 2000. These consolidated financial statements and financial statement schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and financial statement schedule based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated results of operations and cash flows of MFIC Corporation and Subsidiaries for the year ended December 31, 2000 in conformity with accounting principles generally accepted in the United States of America. Also, in our opinion, such financial statement schedule referred to above for the year ended December 31, 2000, when considered in relation to the basic 2000 financial statements taken as a whole, presents fairly in all material respects the information set forth therein.

Deloitte & Touche LLP  
 Boston, Massachusetts  
 March 29, 2001, except for Note 6, as to which the date is April 13, 2001

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### MFIC CORPORATION CONSOLIDATED BALANCE SHEETS

	December 31,	
	2002	2001
<b>ASSETS</b>		
<i>Current Assets:</i>		
Cash and cash equivalents	\$ 84,956	\$ 87,386
Accounts receivable, less allowance of \$45,233 and \$38,248 in 2002 and 2001, respectively	2,458,108	2,707,136
Note receivable - current	16,429	17,798
Inventories	3,898,098	3,962,745
Prepaid expenses	192,518	180,687
Other current assets	166,030	184,988
	<b>6,816,139</b>	<b>7,140,740</b>
<i>Property and Equipment, at cost:</i>		
Furniture, fixtures and office equipment	288,472	194,365
Machinery and equipment	397,359	459,880
Leasehold improvements	133,522	126,849
	<b>819,353</b>	<b>781,094</b>
Less: Accumulated depreciation and amortization	(379,680)	(221,331)
	<b>439,673</b>	<b>559,763</b>
<b>Net property and equipment</b>	<b>439,673</b>	<b>559,763</b>
Note receivable - long-term	71,190	88,988
Goodwill (net of accumulated amortization and impairment charges of \$4,064,459 in 2002 and \$1,403,050 in 2001)	2,100,000	4,761,409

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	December 31,	
Patents, licenses and other assets (net of accumulated amortization of \$299,985 in 2002 and \$662,085 in 2001)	59,778	88,491
<b>TOTAL ASSETS</b>	<b>\$ 9,486,780</b>	<b>\$ 12,639,391</b>
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
<i>Current Liabilities:</i>		
Line of credit	\$ 2,681,987	\$ 2,535,792
Accounts payable and accrued expenses	1,899,113	1,989,148
Accrued interest-related party	14,980	44,635
Accrued compensation and vacation pay	158,119	109,619
Customer advances	320,224	536,867
Current portion of term note payable	95,004	95,004
Current portion of long-term debt-related party	75,000	75,000
Note payable other		350,000
<b>TOTAL CURRENT LIABILITIES</b>	<b>5,244,427</b>	<b>5,736,065</b>
Long-term debt, net of current portion-related party	81,250	162,500
Term note	58,735	153,739
Commitments (Note 10)		
<i>Stockholders' Equity:</i>		
Common Stock, par value \$.01 per share, 20,000,000 shares authorized; 7,705,064 and 7,643,981 shares issued at December 31, 2002 and 2001, respectively	77,051	76,440
Additional paid-in capital	12,945,520	12,916,876
Accumulated deficit	(8,232,502)	(5,718,528)
Less: Treasury Stock, stated at cost, 260,446 shares at both December 31, 2002 and 2001, respectively	(687,701)	(687,701)
<b>TOTAL STOCKHOLDERS' EQUITY</b>	<b>4,102,368</b>	<b>6,587,087</b>
<b>TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY</b>	<b>\$ 9,486,780</b>	<b>\$ 12,639,391</b>

The accompanying notes are an integral part of these consolidated financial statements.

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MFIC CORPORATION

CONSOLIDATED STATEMENTS OF OPERATIONS

	Years Ended December 31,		
	2002	2001	2000
Revenues	\$ 14,573,382	\$ 15,511,014	\$ 15,725,695
Cost of goods sold	8,064,758	8,897,755	8,688,465
Gross income	6,508,624	6,613,259	7,037,230
Operating expenses:			

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Years Ended December 31,

Research and development	906,494	857,491	835,136
Selling	3,093,293	3,049,418	3,482,866
General and administrative	2,189,164	2,923,672	2,786,598
Total operating expenses	6,188,951	6,830,581	7,104,600
Income (loss) from operations	319,673	(217,322)	(67,370)
Interest expense	(179,429)	(261,754)	(350,486)
Interest income	7,191	7,032	248
Other expense		(53,142)	(250,000)
Net income (loss) before extraordinary item and cumulative effect of a change in accounting principle	147,435	(525,186)	(667,608)
Gain on subordinated debt restructuring			194,500
Net income (loss) before cumulative effect of a change in accounting principle	147,435	(525,186)	(473,108)
Cumulative effect of change in accounting principle	(2,661,409)		
Net loss	\$ (2,513,974)	\$ (525,186)	\$ (473,108)

Weighted average number of common and common equivalent shares outstanding:

Basic	7,426,586	7,375,102	7,086,058
Diluted	7,470,090	7,375,102	7,086,058

Basic amounts per common share:

Net income (loss) per share before extraordinary gain and cumulative effect of accounting change	\$ .02	\$ (.07)	\$ (.09)
Extraordinary gain per share	\$	\$	\$ .03
Net income (loss) per share before a change in accounting principle	\$ .02	\$ (.07)	\$ (.06)
Cumulative effect of a change in accounting principle per share	\$ (.36)	\$	\$
Basic net loss per share	\$ (.34)	\$ (.07)	\$ (.06)

Diluted amounts per common share:

Net income (loss) per share before extraordinary gain and cumulative effect of accounting change	\$ .02	\$ (.07)	\$ (.09)
Extraordinary gain per share	\$	\$	\$ .03
Net income (loss) per share before a change in accounting principle	\$ .02	\$ (.07)	\$ (.06)
Cumulative effect of a change in accounting principle per share	\$ (.36)	\$	\$
Diluted net loss per share	\$ (.34)	\$ (.07)	\$ (.06)

The accompanying notes are an integral part of these consolidated financial statements.

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MFIC CORPORATION

CONSOLIDATED STATEMENTS OF CASH FLOWS

Years Ended December 31,

2002	2001	2000
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Years Ended December 31,

	Years Ended December 31,		
<i>Cash flows from operating activities:</i>			
Net loss	\$ (2,513,974)	\$ (525,186)	\$ (473,108)
Adjustments to reconcile net loss to net cash used in operating activities:			
Change in accounting principle:			
Impairment of goodwill	2,661,409		
Depreciation and amortization	308,131	726,252	804,823
Bad debt expense (recovery)	6,985	(17,322)	(9,751)
Non cash provision for loss on legal settlement			150,000
Extraordinary gain on debt restructuring			(194,500)
Gain on sale of assets	(42,268)	(32,254)	(81,752)
Issuance of restricted common stock to consultants	11,668		
Loss on sale of Ball Mill repair business assets		53,142	
<i>Changes in assets and liabilities:</i>			
Receivables	242,043	143,892	(89,210)
Inventories	64,647	60,495	(461,121)
Prepaid expenses	(11,831)	42,413	(42,913)
Other current assets	(40,229)	(61,882)	(68,552)
Current liabilities	(287,833)	(92,423)	546,802
Net cash provided by operating activities	398,748	297,127	80,718
<i>Cash flows from investing activities:</i>			
Proceeds from sale of fixed assets	105,991	37,925	152,989
Purchase of fixed assets	(163,864)	(200,000)	(180,662)
Issuance of note receivable in connection with sale of Ball Mill operation		(115,000)	
Proceeds from note receivable	19,167	8,214	
Proceeds from sale of Ball Mill repair business assets (net of selling expenses of \$40,000)		160,000	
Net cash used in investing activities	(38,706)	(108,861)	(27,673)
<i>Cash flows from financing activities:</i>			
Payments on bank line of credit		(188,223)	(3,075,815)
Proceeds on bank line of credit	146,195		2,724,015
Proceeds from term note			475,000
Principle payments on term note	(95,004)	(155,004)	(71,253)
Principle payments on note payable	(350,000)		
Financing costs and termination payments for debt refinancing			(265,587)
Issuance of restricted common stock			250,000
Issuance of common stock under employee stock purchase plan	11,581	17,909	7,341
Issuance of common stock under employee stock option plan	6,006	7,614	
Purchase of common stock		(7,031)	(6,563)
Principle payments on subordinated debt-related party	(81,250)	(62,500)	
Net cash (used in) provided by financing activities	(362,472)	(387,235)	37,138
Net (decrease) increase in cash and cash equivalents	(2,430)	(198,969)	90,183
Cash and cash equivalents, beginning of year	87,386	286,355	196,172
Cash and cash equivalents, end of year	\$ 84,956	\$ 87,386	\$ 286,355

Supplemental disclosure of cash flow information:

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Years Ended December 31,

Assets acquired in exchange for notes or common stock			200,000
Cash paid for interest	\$ 204,977	\$ 269,421	\$ 367,111

The accompanying notes are an integral part of these consolidated financial statements.

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MFIC CORPORATION

CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY

	Common Stock			Accumulated Deficit	Treasury Stock		Total Stockholders' Equity
	Number of Shares	\$0.01 Par Value	Additional Paid-in Capital		Number of Shares	Stated at Cost	
Balance, December 31, 1999	6,061,307	\$ 60,613	\$ 12,494,839	\$ (4,720,234)	242,719	\$ (674,107)	\$ 7,161,111
Issuance of restricted common stock	1,500,000	15,000	390,000				405,000
Issuance of common stock under employee stock purchase plan	27,641	276	7,065				7,341
Purchase of treasury stock					7,500	(6,563)	(6,563)
Net loss				(473,108)			(473,108)
Balance, December 31, 2000	7,588,948	75,889	12,891,904	(5,193,342)	250,219	(680,670)	7,093,781
Stock options exercised	24,375	245	7,369				7,614
Issuance of common stock under employee stock purchase plan	30,658	306	17,603				17,909
Purchase of treasury stock					10,227	(7,031)	(7,031)
Net loss				(525,186)			(525,186)
Balance, December 31, 2001	7,643,981	76,440	12,916,876	(5,718,528)	260,446	(687,701)	6,587,087
Stock options exercised	19,375	194	5,812				6,006
Issuance of common stock under employee stock purchase plan	29,207	292	11,289				11,581
Issuance of common stock to consultants	12,501	125	11,543				11,668
Net loss				(2,513,974)			(2,513,974)
Balance, December 31, 2002	7,705,064	\$ 77,051	\$ 12,945,520	\$ (8,232,502)	260,446	\$ (687,701)	\$ 4,102,368

The accompanying notes are an integral part of these consolidated financial statements.

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MFIC CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

**Note 1 ORGANIZATION AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

**Organization**

MFIC Corporation (MFIC or the Company), through its wholly-owned subsidiaries, Microfluidics Corporation (Microfluidics) and MediControl Corporation (MediControl), as well as its operating divisions, Morehouse-COWLES and Microfluidics, operates in one segment, specializing in producing and marketing a broad line of proprietary fluid materials processing systems used for a variety of grinding, mixing, milling, and blending applications across a variety of industries and for use in numerous applications within those industries. Microfluidizer® materials processor systems are produced at the Microfluidics Division, while dispersers, dissolvers, colloid mills, horizontal media and vertical media mills are produced at the Morehouse-COWLES Division. The Morehouse-COWLES Division also sells and distributes grinding media.

**Principles of Consolidation**

The consolidated financial statements of the Company include the accounts of the Company and its wholly owned subsidiaries. All significant intercompany transactions and balances have been eliminated in consolidation.

**Use of Estimates**

The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

**Revenue Recognition**

Revenue from the sale of machines and spare parts is generally recognized upon shipment of the product or when the earnings process is complete. Rental income for the lease of equipment is recognized on a straight-line basis over the term of the lease agreement. Rental income and equipment sales are classified in revenues in the consolidated statement of operations.

The Company has adopted Securities and Exchange Commission (SEC) Staff Accounting Bulletin (SAB) No. 101, *Revenue Recognition in Financial Statements*. The Company recognizes revenues at the time of shipment of the system to the customer. Management believes the customer's post-delivery acceptance provisions and installation are routine. The Company has never failed to successfully complete a system installation. Should an installation not be successfully completed, the contractual provisions do not provide for forfeiture or refund. Installation costs are predictable and insignificant to the total purchase price. The Company has demonstrated a history of customer acceptance subsequent to shipment and installation of these systems.

**Cash and Cash Equivalents**

The Company considers all highly liquid securities with remaining maturities of 90 days or less, at the time of acquisition, to be cash equivalents.

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**Inventories**

Inventories consist of material, labor and manufacturing overhead and are stated at the lower of cost or market. Cost is determined on a first-in, first-out basis. (FIFO)

The Company periodically reviews quantities of inventory on hand and compares these amounts to expected usage of each particular product line. The Company records a charge to cost of goods sold, by any amounts required to reduce the carrying value to net realizable value.

**Property and Equipment**



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The Company's property and equipment is recorded at cost. Depreciation is computed using the straight-line method, based upon useful lives of 3 to 7 years. Leasehold improvements are amortized using the straight-line method based upon the shorter of the estimated useful lives or remaining life of the lease. Expenditures for maintenance and repairs are expensed as incurred. Upon retirement or sale of property and equipment, the cost of the disposed asset and the related accumulated depreciation are removed from the accounts and any resulting gain, or loss is credited or charged to operations.

### **Patents, Licenses, and Other Intangible Assets**

In accordance with SFAS No. 144, *Accounting for the Impairment or Disposal of Long-lived Assets*, the Company reviews long-lived assets and all amortizing intangible assets for impairment whenever events or changes in circumstances indicate the carrying amount of such assets may not be recoverable. Recoverability of these assets is determined by comparing the forecasted undiscounted net cash flows of the operation to which the assets relate, to the carrying amount. If the operation is determined to be unable to recover the carrying amount of its assets, then intangible assets are written down first, followed by the other long-lived assets of the operation, to fair value. Fair value is determined based on discounted cash flows or appraised values, depending upon the nature of the assets.

Patents, patent applications and rights, are stated at acquisition cost. Amortization is recorded using the straight-line method over the shorter of the legal lives or useful life of the patents. Patents, licenses and other intangible assets are being amortized over a period of 3 to 17 years.

### **Research and Development Expenses**

The Company charges research and development expenses to operations as incurred.

### **Earnings (Loss) per Share**

Basic and diluted net loss per share is presented in conformity with Statement of Financial Accounting Standards (SFAS) No. 128, *Earnings per Share*, for all periods presented. In accordance with SFAS No. 128, basic and diluted net loss per common share was determined by dividing net loss applicable to common stockholders by the weighted average number of common shares outstanding during the period. Options to purchase 2,010,650, 1,612,980 and 1,761,575 shares of common stock were outstanding for the years ended 2002, 2001, and 2000, respectively. Basic and diluted net loss per share are the same for 2001 and 2000 because all outstanding common stock equivalents have been excluded as they are antidilutive. Although there were dilutive shares of common stock for 2002, the basic and diluted net loss per share were the same.

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### **Fair Value of Financial Instruments**

The carrying amount of cash and cash equivalents, accounts receivable, accounts payable and accrued liabilities approximates fair value due to the short term nature of these accounts. The Company's bank debt, because it carries a variable interest rate, is stated at its approximate fair market value. The Company's subordinated debt bears interest at 10%, which approximates fair market value.

### **Income Taxes**

The Company accounts for income taxes under SFAS No. 109, *Accounting for Income Taxes*. Under SFAS No. 109, deferred tax assets and liabilities are computed based on the differences between the financial statement and income tax bases of assets and liabilities using the effective tax rates. Deferred income tax expense or credits are based on changes in the asset or liability from period to period. The Company records a valuation allowance against any net deferred tax assets if it is more likely than not that they will not be realized.

### **Stock Based Compensation**

As allowed by SFAS No. 123, *Accounting for Stock-Based Compensation*, the Company has elected to account for stock-based compensation at intrinsic value with disclosure of the effects of fair value accounting on net income and earnings per share on a pro forma basis. At December 31, 2002, the Company had one stock incentive plan, which is described more fully in Note 9. The Company accounts for awards issued to employees under the plan under the recognition and measurement principles of Accounting Principles Board (APB) Opinion No. 25, *Accounting for Stock Issued to Employees*, and the related interpretations. No stock-based employee compensation cost is reflected in net income, as all options granted under the plan had an exercise price equal to the market value of the underlying common stock on the date of

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grant. The following table illustrates the effect on net income and earnings per share if the Company had applied the fair value recognition provisions of SFAS No. 123:

	2002	2001	2000
Net loss, as reported	\$ (2,513,974)	\$ (525,186)	\$ (473,108)
Deduct: Total stock-based employee compensation expense determined under fair value based method for all awards, net of related tax effects	(340,178)	(318,438)	(389,275)
<b>Pro forma net loss</b>	<b>\$ (2,854,152)</b>	<b>\$ (843,264)</b>	<b>\$ (862,383)</b>
Net loss per share:			
Basic and diluted-as reported	\$ (0.34)	\$ (0.07)	\$ (0.06)
Basic and diluted pro forma	\$ (0.38)	\$ (0.11)	\$ (0.12)

Stock options granted to non-employees are accounted for in accordance with SFAS No. 123 and the Emerging Issues Task Force (EITF) Abstract No. 96-18, *Accounting for Equity Instruments That Are Issued to Other Than Employees for Acquiring, or in Conjunction with Selling, Goods or Services*, and the related interpretations, which generally requires the value of options to be periodically remeasured and

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charged to expense as they are earned over the performance period. Compensation related to stock appreciation rights and other variable stock option or award plans should be measured at the end of each period. The Company did not grant any stock options to non-employees, excluding board members, during 2002, 2001 or 2000.

### Reclassifications

Certain fiscal 2000 and 2001 amounts have been reclassified to conform with fiscal 2002 presentations.

### Effect of Recent and New Accounting Pronouncements

In July 2001, the Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standards No. 142, *Goodwill and Other Intangible Assets*, which was effective January 1, 2002. SFAS No. 142 requires, among other things, the discontinuance of goodwill amortization. In addition, the standard includes provisions for the reclassification of certain existing recognized intangibles as goodwill, reassessment of the useful lives of existing recognized intangibles, reclassification of certain intangibles out of previously reported goodwill, and the identification of reporting units for purposes of assessing potential future impairment of goodwill. Management made an assessment of the goodwill valuation, and upon adoption recognized a goodwill impairment charge of \$2,661,409 in the first quarter of 2002.

In April, 2002, the FASB issued SFAS No. 145, *Rescission of FASB Statements No. 4, 44 and 64, Amendment of FASB Statement No. 13, and Technical Corrections*. This statement eliminates extraordinary accounting treatment for a gain or loss reported on the extinguishment of debt and amends other existing authoritative pronouncements to make technical corrections, clarify meanings, or describe their applicability under changed conditions. The provisions of this statement are effective at the beginning of fiscal year 2003. The Company does not believe the adoption of this statement will have a material impact on the overall financial position or results of operations.

In June, 2002, the FASB issued SFAS No. 146, *Accounting for Costs Associated with Exit or Disposal Activities*. This statement requires that the fair value of a liability associated with an exit or disposal activity be recognized when the liability is incurred. Prior to the adoption of SFAS No. 146, certain exit costs were recognized when we committed to a restructuring plan, which may have been before the liability was incurred. The Company adopted the provisions of this statement in December, 2002. The adoption of SFAS No. 146 had no impact on the Company's financial position or results of operations.

In December 2002, the FASB issued SFAS No. 148, *Accounting for Stock-Based Compensation-Transition and Disclosure, an amendment of FASB Statement No. 123*, to provide alternative methods of transition for a voluntary change to the fair value based method of accounting for stock-based employee compensation. In addition, this statement amends the disclosure requirements of SFAS No. 123 to require prominent disclosures in both annual and interim financial statements about the method of accounting for stock-based employee compensation and the effect of the method used on reported results. Management has determined that it will continue to account for stock-based compensation to

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employees under the provisions of APB No. 25 and it will make all disclosures in its financial reports. The amendments to SFAS 123 provided for under SFAS No. 148 are effective for financial statements for fiscal years ending after December 15, 2002. The disclosure requirements of

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SFAS No. 148 have been implemented in Note 1 Organization and Summary of Significant Accounting Policies and the interim disclosure requirements will be adopted by the Company in the first quarter of 2003.

### Note 2 INDUSTRY SEGMENT, GEOGRAPHIC AND ENTERPRISE-WIDE REPORTING

SFAS No. 131, *Disclosures about Segments of an Enterprise and Related Information*, requires companies to report selected information about operating segments, as well as enterprise-wide disclosures about products, services, geographic areas and major customers. Operating segments are determined based on the way management organizes its business for making operating decisions and assessing performance. The Company's chief decision-maker, as defined under SFAS No. 131, is the chairman and chief executive officer. The Company has determined that it conducts its operations in one business segment: the development, manufacture, marketing and sale of process and formulation equipment. The Company's sales are primarily to companies with processing needs in the chemical, pharmaceutical, food, cosmetic, and biotechnology industries. The Company conducts its business primarily in the United States of America. The Company has less than 1% of total assets overseas. As a result, the financial information disclosed herein represents all of the material financial information related to the Company's principal operating segment.

Approximate sales to customers outside North America are broken out, by major foreign markets, as follows:

	2002	2001	2000
Asia	\$ 2,940,000	\$ 2,674,000	\$ 1,805,000
Europe	756,000	1,401,000	997,000
Other	535,000	806,000	1,538,000
	<b>\$ 4,231,000</b>	<b>\$ 4,881,000</b>	<b>\$ 4,340,000</b>

Two customers accounted for 11% and 10% of the revenues in 2002, respectively, and one customer accounted for 13% of the trade accounts receivable as of December 31, 2002. A reduction or delay in orders from these or other significant customers could have a material adverse effect on the Company's results of operations. No customer accounted for more than 10% of the Company's revenues in 2001 or 2000.

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### Note 3 INVENTORIES

The components of inventories are as follows at December 31:

	2002	2001
Raw materials	\$ 2,507,487	\$ 2,841,475
Work in progress	417,434	195,644
Finished goods	973,177	925,626
	<b>\$ 3,898,098</b>	<b>\$ 3,962,745</b>

### Note 4 INTANGIBLES AND OTHER ASSETS

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The Company purchased the rights and title of certain liposome and microemulsion technology devices from Arthur D. Little in 1985. The unamortized license fee and patent are included in intangible assets and are being amortized using the straight-line method over the useful life of the patent, which is 17 years. In 1995, the Company capitalized \$96,680 of patent costs related to a cooperative research venture. Amortization of these assets charged to expense was \$14,896 in 2002, \$24,576 in 2001, and \$42,269 in 2000. In 2001, the Company capitalized \$64,528 of costs related to the Multi-Stream Mixer Reactor patent, which is being amortized over a 17-year period, beginning in the last quarter of 2001. Amortization of these costs was \$3,800 in 2002 and \$950 in 2001.

Costs incurred in connection with the debt refinancing that occurred on February 28, 2000 are being amortized over three years, the initial term of the line of credit. The total of such costs was approximately \$207,000. Amortization of these costs amounted to \$69,204 in both 2002 and 2001, and \$57,663 in 2000, respectively.

### Note 5 GOODWILL

In 1998, MFIC purchased substantially all of the assets and assumed certain liabilities of Epworth Manufacturing Company of South Haven, Michigan (Epworth) and Morehouse-COWLES, Inc. of Fullerton, California (Morehouse) pursuant to an Asset Purchase Agreement (the "Agreement").

In accordance with the Agreement, MFIC paid the following as consideration for the purchase price: (i) \$5,508,480 in cash, (ii) two subordinated promissory notes in the aggregate principal amount of \$800,000 (the Promissory Notes) and (iii) 900,000 shares of MFIC's restricted common stock, \$0.01 par value per share, subject to the restrictions as defined. MFIC also incurred approximately \$500,000 in expenses. In addition, MFIC assumed approximately \$1,930,000 in accounts payable and accrued liabilities. The acquisition has been accounted for under the purchase method of accounting.

On January 1, 2002, the Company adopted SFAS No. 142, *Goodwill and Other Intangible Assets*, which requires companies to stop amortizing goodwill and certain intangible assets with an indefinite useful life. Instead, SFAS No. 142 requires that goodwill and intangible assets deemed to have an indefinite useful life be reviewed for impairment upon adoption of SFAS No. 142 and annually thereafter. The Company performed its annual impairment review during the fourth quarter of 2002, and determined that no impairment of goodwill had occurred since it had recorded a one-time, noncash charge of \$2,661,409 in the first quarter of 2002.

Under SFAS No. 142, goodwill impairment is deemed to exist if the net book value of a reporting unit exceeds its estimated fair value. Upon adoption of SFAS No. 142 in the first quarter of 2002, the Company recorded a one-time, noncash charge of \$2,661,409 to reduce the carrying value of its goodwill. Such charge is nonoperational in nature and is reflected as a cumulative effect of a change in accounting principle in the accompanying consolidated statement of operations pursuant to the SFAS

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No. 142 transition rules. The SFAS No. 142 goodwill impairment is associated solely with goodwill resulting from the acquisition of Morehouse-COWLES, Inc. and the Epworth Manufacturing Company in 1998.

### Note 6 DEBT

Long-term debt as of the following dates consisted of:

	December 31,	
	2002	2001
Line of credit	\$ 2,681,987	\$ 2,535,792
10% note payable	156,250	350,000
10% subordinated note payable to related party	153,739	237,500
Term note payable	(2,851,991)	248,743
Less current portion	(2,851,991)	(3,055,796)
<b>TOTAL</b>	<b>\$ 139,985</b>	<b>\$ 316,239</b>

December 31,  

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**Subordinated Note Payable**

The subordinated note is payable to Lake Shore Industries Inc. See Note 12 for further explanation of the note to Lake Shore Industries Inc.

**Notes Payable**

In October, 2000, the Company entered into a settlement agreement related to a warranty claim dating back to 1998 for the Epworth Mill Division pursuant to which the Company paid \$100,000 upon execution of the agreement, and executed a promissory note for \$350,000 payable two years from the execution date, with interest payable quarterly in arrears at 10% per annum. The Company paid off the balance of this note in December, 2002.

**Line of Credit**

On February 28, 2000, the Company entered into a revolving credit and term loan agreement with National Bank of Canada providing the Company with a \$4,475,000 three-year revolving credit and term loan facility. The Credit Facility was comprised of: (i) a \$4 million three year revolving line of credit (Revolving Credit Line) with advances thereunder bearing interest at an interest rate equal to the prime rate (the Prime Rate for United States borrowings from the National Bank of Canada as publicly announced from time to time) plus one-half percent (0.50%). All borrowings under the Revolving Credit Line were evidenced by a \$4 million promissory note having a maturity date of February 28, 2003 (the Revolving Note), and (ii) a \$475,000 term promissory note, amortized over a five-year period but having a maturity date of February 28, 2003 and bearing interest at an interest rate equal to the Prime Rate (4.75% at December 31, 2001) plus three quarters of one percent (0.75%). Loans under the Credit Facility were secured by a collateral pledge to the Lender of substantially all the assets of the Company and its subsidiaries. The Company's Microfluidics Corporation subsidiary guaranteed the Company's obligations to the Lender under the Credit Facility. The Company also pledged to the Lender all shares of Microfluidics Corporation owned by the Company. On January 16, 2002, the United States portion of National Bank of Canada's operations and its loan portfolio was sold to PNC Bank. On February 19, 2003, the Company and PNC entered into an extension of the loan for an additional year, until February 28, 2004.

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As one of the Lender's conditions precedent to the closing of the Finance Facility, the Company's Chairman, Irwin Gruverman, at the closing of the Credit Facility purchased, for \$250,000, 1,000,000 shares of restricted Common Stock of the Company. This purchase was approved by the Company's Board of Directors on December 30, 1999.

The Credit Facility includes restrictive financial and non-financial covenants. The covenants include prohibition from paying dividends and limits capital expenditures to \$250,000 per year. In addition, the financial covenants include quarterly calculations of tangible net worth, maximum capital expenditures, and debt service coverage, and an annual covenant requirement regarding net income. The Credit Facility also contains a subjective acceleration clause and a lock-box arrangement, whereby remittances from the Company's customers reduce the outstanding amount of the Revolving Credit Line.

After review of the results as of and for the quarter ended March 31, 2001, the Company notified the National Bank of Canada that it was in violation of the tangible net worth and liabilities to worth ratio covenants contained in the Credit Facility for the quarter ended March 31, 2001. On April 13, 2001, the Company received a waiver of these violations from the National Bank of Canada, but is required to meet all covenant requirements thereafter. As a result of the waiver and management's expectations of future compliance, the non-current portion of the term Promissory Note was classified as a non-current liability, as of December 31, 2000.

At December 31, 2002, the Company was in violation of the net income and debt service coverage covenants. At December 31, 2001, the Company was not in compliance with the tangible net worth, liabilities to worth ratio, net income covenants, and the debt service covenant. The Company has received a waiver of these violations from the Lender for both years, but is required to meet all covenant requirements thereafter. On March 29, 2002, the Company and the Lender agreed on a revised set of covenants for fiscal 2002 under a second amendment to the original agreement. On February 19, 2003, the Company and the Lender entered into a third amendment to the original agreement extending the credit facility for an additional year until February 28, 2004, with no change to the revised covenants agreed upon under the agreement of March 29, 2002.

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Due to the subjective acceleration clause, and the lock-box arrangement, the revolving credit line is classified as a current liability in the consolidated balance sheet. At December 31, 2002, the outstanding balance on the Revolving Credit Line was \$2,681,987, having an interest rate of 5.5%. The balance outstanding on the term loan was \$153,739, at an interest rate of 5.75%.

### Management's Plans

The Company's ability to continue planned operations is dependent upon access to financing under the Credit Facility, which is potentially impacted by the Company's ability to achieve future compliance with the financial covenants. It is expected by management that the Company will be in compliance with the revised covenants. Borrowings outstanding under the Credit Facility are secured by a collateral pledge to the Lender of substantially all of the assets of the Company.

Management of the Company is executing plans for a return to profitability; however, there can be no assurance that the Company will be successful in implementing these plans.

### Note 7 EMPLOYEE BENEFIT PLANS

The Company offers a 401(k) profit-sharing plan (the 401K Plan), to its employees. All Company and related entity employees who are eighteen years of age and have completed one hour of service are eligible to participate in the 401K Plan. Employees may contribute from 1% to 20% of their compensation. The Company's contribution is discretionary, with contributions made from time to time

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as management deems advisable. The Company has made no matching contributions during 2002, 2001, and 2000. The Company also instituted a cafeteria plan in 1992, giving the employees certain pre-tax advantages on specific payroll deductions.

### Note 8 INCOME TAXES

At December 31, 2002, the Company had net operating loss and research tax credit carryforwards of approximately \$5,086,000 and \$171,000, respectively, for financial reporting purposes, which may be used to offset future taxable income.

The components of the net deferred tax asset with the approximate income tax effect of each type of carryforward, credit and temporary difference are as follows:

	December 31,	
	2002	2001
Operating loss carryforwards	\$ 2,048,000	\$ 2,193,000
Tax credit carryforwards	171,000	172,000
Temporary differences	(22,000)	(38,000)
	2,197,000	2,327,000
Less Valuation allowance	(2,197,000)	(2,327,000)
Net deferred tax asset	\$	\$

The Company has recorded a full valuation allowance against its deferred tax assets because, based on the weight of available evidence, the Company believes it is more likely than not that the deferred tax assets will not be realized in the near future. The carryforwards expire from 2003 through 2021 and are subject to review and possible adjustment by the Internal Revenue Service. The Internal Revenue Code contains provisions that may limit the net operating loss and research tax credit carryforwards in the event of certain changes in the ownership interests of significant stockholders.

### Note 9 STOCKHOLDERS' EQUITY

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The Company adopted the 1988 Stock Plan (the Plan) as the successor plan to the 1987 Stock Plan, which, as amended at the 2002 stockholders' meeting, authorizes the grant of Stock Rights for up to 3,500,000 shares of common stock and the 1989 Non-Employee Director Stock Option Plan which, as amended at the 1996 stockholders' meeting, authorizes the grant of nonqualified stock options for up to 500,000 shares of common stock.

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**Stock Option Plans**

Options granted under the Plans vest over a three-to-five-year period and expire 10 years from the grant date. At December 31, 2002, 1,316,037 shares were available for future grant under the Plan. Information with respect to activity under the Plan is as follows:

	Number of Shares	Weighted Average Exercise Price
Outstanding, December 31, 1999	1,303,731	\$ 1.13
Granted	583,500	0.41
Exercised		
Canceled	(125,656)	0.96
Outstanding, December 31, 2000	1,761,575	0.94
Granted	328,500	0.81
Exercised	(24,375)	0.31
Canceled	(452,720)	0.98
Outstanding, December 31, 2001	1,612,980	0.88
Granted	532,045	0.52
Exercised	(19,375)	0.31
Canceled	(115,000)	0.60
Outstanding, December 31, 2002	2,010,650	\$ 0.90
Exercisable, December 31, 2000	629,401	\$ 1.24
Exercisable, December 31, 2001	878,803	\$ 1.06
Exercisable, December 31, 2002	1,093,972	\$ 1.01

The following table summarizes information relating to outstanding and exercisable stock options as of December 31, 2002:

Exercise Price	Outstanding			Exercisable	
	Number of Shares	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price	Number of Shares	Weighted Average Exercise Price
\$0.31 to 1.31	1,997,850	6.5	\$ 1.00	1,081,172	\$ 0.99
\$1.69 to 5.88	12,800	3.0	2.30	12,800	2.30

				<b>Exercisable</b>
2,010,650	6.50	\$	0.90	1,095,972 \$ 1.01

### Accounting for Stock-Based Compensation

SFAS No. 123, *Accounting for Stock-Based Compensation*, requires the measurement of the fair value of stock options to be included in the statement of income or disclosed in the notes to the financial statements. The Company has determined that it will continue to account for stock-based compensation for employees under APB Opinion No. 25, *Accounting for Stock issued to Employees*, and elect the disclosure-only alternative under SFAS No. 123.

The Company has computed the pro forma disclosures required under SFAS No. 123 for its stock compensation plan for employees during the years ended December 31, 2002, 2001 and 2000 using the

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Black-Scholes option pricing model under the fair value method as prescribed by SFAS No. 123. The assumptions used for the years ended December 31, 2002, 2001 and 2000 are as follows:

	December 31,		
	2002	2001	2000
Risk-free interest rates	4.36%	5.25%	5.25%
Expected lives	5 years	5 years	5 years
Expected volatility	75%	197%	146%
Dividend yield	0%	0%	0%

Stock or other equity-based compensation for nonemployees must be accounted for under the fair value method as required by SFAS No. 123 and Emerging Issues Task Force No. 96-18, *Accounting for Equity Instruments That Are Issued To Other Than Employees for Acquiring, or in Conjunction with Selling, Goods or Services*, and the related interpretations. Under this method, the equity-based instrument is valued at either the fair value of the consideration received or the fair value of the equity instruments issued, whichever is more reliably measurable. The measurement date is generally the vesting date for nonemployees. Compensation related to stock appreciation rights and other variable stock option or award plans should be measured at the end of each period. The resulting noncash expense is recorded in the statements of operations over the vesting period of the stock. The Company did not grant any options to non-employees, excluding board members, in 2002, 2001 or 2000.

### Warrants

On September 23, 1999, the Chief Executive Officer of the Company, Irwin J. Gruverman, was granted warrants to purchase up to 100,000 shares of the Company's common stock at a price of \$0.52 per share, having an expiration date of July 2, 2004. As of December 31, 2002, there were 100,000 warrants outstanding.

### Employee Stock Purchase Plan

The Company has an employee stock purchase plan (the Purchase Plan). Under the Purchase Plan, participants are granted options to purchase the Company's common stock twice a year at the lower of 85% of market value at the beginning or end of each period. Calculation of the number of options granted, and subsequent purchase of these shares, is based upon voluntary payroll deductions during each six-month period. The number of options granted to each employee under this plan is limited to a maximum amount of 1,000 shares for each six-month period. The number of shares issued pursuant to this plan totaled 29,207, 30,658, and 27,641 in 2002, 2001 and 2000, respectively.

### Note 10 COMMITMENTS

The Company leases its facilities under non-cancelable operating leases expiring through August 2006. Future minimum rental payments under the operating leases at December 31, 2002 are approximately as follows:



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2003	413,000
2004	358,000
2005	373,000
2006	170,000
<b>Total Lease Payments</b>	<b>\$ 1,314,000</b>

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Rent expense for 2002, 2001, and 2000 was approximately \$402,000, \$415,000, and \$405,000, respectively. A portion of the space is sublet to non-affiliated companies for a total of \$84,000 per annum.

**Note 11 RELATED PARTY TRANSACTIONS**

During 2001 and 2000, the Company and G&G Corporation (G&G), an entity controlled by Mr. Gruverman, the Company's Chairman, entered into an arrangement whereby G&G reimbursed the Company for certain administrative expenses incurred for services performed by the Company. The Company was reimbursed approximately \$0, \$30,407 and \$75,780 by G&G during 2002, 2001 and 2000, respectively. At December 31, 2002, 2001, and 2000, G&G owed the Company \$0, \$0 and \$18,525, respectively.

As discussed in Notes 6 and 12, the Company owed the former Principals of Morehouse and Epworth \$156,250, \$237,500 and \$300,000 at December 31, 2002, 2001, and 2000, respectively. Interest capitalized on the \$300,000 note in connection with the Settlement Agreement discussed in Note 12 amounted to \$88,750 and is being amortized over 5 years. Total payments in 2002 and 2001 were \$21,989 and \$25,449, respectively.

**Note 12 SETTLEMENT AGREEMENT, DEBT RESTRUCTURING AND REFINANCING**

On December 20, 1999 the Company signed an agreement in principle (the Agreement In Principle) with J.B. Jennings and Bret A. Lewis, the former owners of the Epworth Mill and Morehouse-COWLES businesses (the Sellers), Lake Shore Industries, Inc., and JLJ Properties, Inc., entities owned and controlled by the Sellers. The Agreement In Principle sets forth understandings among the parties concerning restructuring of the Company's subordinated debt and resolution of various disputes. On January 17, 2000 a definitive settlement agreement incorporating these subject matters was executed between the parties (the Settlement Agreement). In connection with the closing of the Credit Facility, and pursuant to a Settlement Agreement dated January 17, 2000 with the Company's subordinated debt holders, the subordinated debt of the Company was restructured in the following manner. The outstanding August 14, 1998 \$500,000 subordinated promissory note, having a remaining \$475,000 principal balance together with accrued interest at the Closing Date in the approximate amount of \$77,500, and accrued interest on the August 14, 1998 \$300,000 subordinated note were converted to 500,000 shares of MFIC restricted common stock (the Conversion Shares). The fair market value of the Company's Common Stock on the date of the Agreement In Principle was \$0.31 per share. MFIC was granted the right for a three-year period to repurchase the Conversion Shares at a purchase price of \$1.75 per share. The August 14, 1998 \$300,000 subordinated note was replaced with a new \$300,000 subordinated promissory note dated February 28, 2000 (the 2000 Subordinated Note). The 2000 Subordinated Note has a maturity date of February 28, 2005 and bears interest at a rate of ten percent (10%) per annum. The note is payable interest only in its first year and then is payable in equal quarterly installments of principal together with outstanding interest thereon until maturity.

A disputed lease between the Company and one of the Seller's entities for property located in South Haven, Michigan, which was the subject of a suit to terminate filed by the Company, was voluntarily dismissed in return for the payment by the Company of a total of \$58,000. The initial payment in the amount of \$30,000 was paid on January 19, 2000 upon execution of the Settlement Agreement and the balance on February 28, 2000. The Company and the Sellers executed a mutual release of liability related to the August 14, 1998 Asset Purchase Agreement. As a result of the debt

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restructuring and refinancing, the Company recorded an extraordinary gain of approximately \$195,000 in the first quarter of 2000.

**Note 13 QUARTERLY RESULTS OF OPERATIONS 2002**

Summarized unaudited consolidated quarterly financial data are as follows:

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Fiscal 2002 Quarters

	First	Second	Third	Fourth
Revenues	\$ 3,581,320	\$ 3,644,754	\$ 3,599,687	\$ 3,747,621
Gross income	1,670,945	1,551,016	1,570,439	1,716,224
Net income (loss) before cumulative effect of accounting change	100,247	55,431	13,686	(21,929)
Cumulative effect of accounting change	(2,661,409)			
Net (loss) income	\$ (2,561,162)	\$ 55,431	\$ 13,686	\$ (21,929)
Net income (loss) per share:				
Basic income per share before cumulative effect of accounting change	\$ .01	\$ .01		
Cumulative effect of accounting change	\$ (.36)			
Net (loss) income per share	\$ (.35)	\$ .01		
Diluted income per share before cumulative effect of accounting change	\$ .01	\$ .01		
Cumulative effect of accounting change	\$ (.36)			
Diluted (loss) income per share	\$ (.35)	\$ .01		

Fiscal 2001 Quarters

	First	Second	Third	Fourth
Revenues	\$ 4,449,624	\$ 3,436,749	\$ 3,753,750	\$ 3,870,891
Gross income	2,227,086	1,472,388	1,649,237	1,264,548
Net income (loss)	497,055	(285,573)	(240,165)	(496,503)
Net income (loss) per share	\$ .07	\$ (.04)	\$ (.03)	\$ (.07)
Diluted net income (loss) per share	\$ .07	\$ (.04)	\$ (.03)	\$ (.07)

**Item 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE**

None.

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**PART III**

**Item 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT**

The information concerning directors and executive officers of the Company required under this item is incorporated herein by reference to the Company's definitive proxy statement pursuant to Regulation 14A, to be filed with the Commission not later than 120 days after the close of the Company's fiscal year ended December 31, 2002.

**Item 11. EXECUTIVE COMPENSATION**

The information required under this item is incorporated herein by reference to the Company's definitive proxy statement pursuant to Regulation 14A, to be filed with the Commission not later than 120 days after the close of the Company's fiscal year ended December 31, 2002.

**Item 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT**

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The information required under this item is incorporated herein by reference to the Company's definitive proxy statement pursuant to Regulation 14A, to be filed with the Commission not later than 120 days after the close of the Company's fiscal year ended December 31, 2002.

### **Item 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS**

The information required under this item is incorporated herein by reference to the Company's definitive proxy statement pursuant to Regulation 14A, to be filed with the Commission not later than 120 days after the close of the Company's fiscal year ended December 31, 2002.

### **Item 14. Controls and Procedures**

(a) *Evaluation of disclosure controls and procedures.* Based on his evaluation as of a date within 90 days prior to the filing date of this Annual Report on Form 10-K, our principal executive officer and principal financial officer have concluded that our disclosure controls and procedures (as defined in Rules 13a-14(c) and 15d-14(c) under the Securities Exchange Act of 1934) are effective to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms.

(b) *Changes in internal controls.* There were no significant changes in our internal controls or in other factors that could significantly affect these controls subsequent to the date of their evaluation, including any corrective actions with regard to significant deficiencies and material weaknesses.

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## **PART IV**

### **Item 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES AND REPORTS ON FORM 8-K**

#### **(a)(1.) Consolidated Financial Statements.**

The following Consolidated Financial Statements are included in Item 8:

Reports of Independent Auditors

Consolidated Balance Sheets as of December 31, 2002 and 2001

Consolidated Statements of Operations for the years ended December 31, 2002, 2001, and 2000

Consolidated Statements of Cash Flows for the years ended December 31, 2002, 2001, and 2000

Consolidated Statements of Changes in Stockholders' Equity for the years ended December 31, 2002, 2001, and 2000

Notes to Consolidated Financial Statements

#### **(a)(2.) Financial Statement Schedules.**

The following Consolidated Financial Statement Schedule of the Registrant is filed as part of this report:

Schedule II Valuation and Qualifying Accounts and Reserves

#### **(a)(3.) List of Exhibits.**

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Exhibit Index

Exhibit Number	Description of Exhibit
3(a)	Certificate of Incorporation for the Company, as amended (filed as Exhibit 2A to Registration Statement No. 0-11625 on Form 8-A and as Exhibit 3.1(a) to the Company's Report on Form 10-Q for the quarterly period ended September 30, 1999 and incorporated herein by reference).
3(b)	Amended and Restated By-Laws for the Company (filed as Exhibit 3.3(b) to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1996 and incorporated herein by reference).
10.1	1987 Stock Plan (filed as Exhibit 10(g) to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1987 and incorporated herein by reference).
10.2	1988 Stock Plan (filed as Exhibit 10(g) to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1988 and incorporated herein by reference).
10.3	1989 Non-Employee Directors Stock Option Plan (filed as Exhibit 10.1 to the Company's registration statement on Form S-8 filed October 22, 1996 and incorporated herein by reference).
10.4	Lease for 30 Ossipee Road, Newton, Massachusetts dated May 23, 1997 between Microfluidics International Corporation and J. Frank Gerrity, Trustee of 1238 Chestnut Street Trust under Declaration of Trust dated May 23, 1969, recorded with Middlesex South Registry of Deeds in Book 11682, Page 384 (filed as Exhibit 3.10(a) to the Company's form 10-Q for the quarterly period ended June 30, 1997 and incorporated herein by reference).
10.5	Letter of Understanding between Microfluidics International Corporation and Worcester Polytechnic Institute dated as of April 3, 1992 (filed as Exhibit 3.10(f) to the Company's Form 10-K for the fiscal year ended December 31, 1993 and incorporated herein by reference).
10.6	Agreement between Microfluidics International Corporation and Catalytica, Inc. dated as of October 18, 1993 (filed as Exhibit 3.10(g) to the Company's Form 10-K for the fiscal year ended December 31, 1993 and incorporated herein by reference) with amendments dated September 1, 1994 and March 31, 1995.
10.7	Amendment to agreement dated September 1, 1994 between Microfluidics International Corporation and Catalytica, Inc. dated as of October 18, 1993 (filed as Exhibit 3.10(g) to the Company's Form 10-K for the fiscal year ended December 31, 1993, and incorporated herein by reference).
10.8	Amendment to agreement dated March 31, 1995 between Microfluidics International Corporation and Catalytica, Inc. dated as of October 18, 1993 (filed as Exhibit 3.10(g) to the Company's Form 10-K for the fiscal year ended December 31, 1993, and incorporated herein by reference)
10.9	License Agreement among Microfluidics International Corporation, Worcester Polytechnic Institute and Catalytica, Inc. dated as of October 18, 1993 (filed as Exhibit 3.10(h) to the Company's Form 10-K for the fiscal year ended December 31, 1993 and incorporated herein by reference).
10.10	Amendment to agreement dated September 1, 1994 between Microfluidics International Corporation and Catalytica, Inc. dated as of October 18, 1993 (filed as Exhibit 3.10(g) to the Company's Form 10-K for the fiscal year ended December 31, 1993, and incorporated herein by reference).
10.11	Letter, dated August 15, 1995, from Microfluidics International Corporation to Michael T. Rumley. (filed as Exhibit 3.10(j) to the Company's Form 10-K for fiscal year ended December 31, 1995 and incorporated herein by reference).

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- 10.12 Letter, dated December 31, 1995 from Microfluidics International Corporation to Irwin J. Gruverman. (filed as Exhibit 3.10(k) to the Company's Form 10-K for fiscal year ended December 31, 1996 and incorporated herein by reference).
- 10.13 Warrant for the Purchase of Shares of Common Stock, dated July 14, 1993, in favor of Ladenburg, Thalmann & Co. Inc. (filed as Exhibit 3.10(l) to the Company's Form 10-K or fiscal year ended December 31, 1996 and incorporated herein by reference).
- 10.14 Letter, dated December 31, 1996, from Microfluidics International Corporation to Irwin J. Gruverman. (filed as Exhibit 3.10(o) to the Company's Form 10-K for fiscal year ended December 31, 1996 and incorporated herein by reference).
- 10.15 Agreement between Microfluidics International Corporation and Catalytica, Inc. dated January 1, 1995 regarding participation in and management of the Advanced Technology Program (ATP). (filed as Exhibit 3.10(p) to the Company's Form 10-K for fiscal year ended December 31, 1996 and incorporated herein by reference).
- 10.16 Consulting Agreement with James Little. (filed as Exhibit 3.10(q) to the Company's Form 10-K for fiscal year ended December 31, 1996 and incorporated herein by reference).
- 10.17 Supplemental Agreement between Catalytica Advanced Technologies, Inc. and Microfluidics International Corporation dated December 31, 1997.
- 10.18 Letter dated December 31, 1997, from Microfluidics International Corporation to Irwin J. Gruverman and G & G Diagnostics Corp.
- 10.19 1988 Stock Plan as amended (filed as Exhibit 10(a) to the Company's Form 10-Q for the quarterly period ended March 31, 1997 and incorporated herein by reference).
- 10.20 Asset Purchase Agreement, dated as of June 19, 1998, by and among the Company, Epworth Manufacturing Company and Morehouse-COWLES, Inc.(filed as Exhibit 2.1 to Schedule 13D of Bret A. Lewis, File No. 005-35850, and incorporated herein by Reference).
- 10.21 Stockholders Agreement, dated August 14, 1998, by and among the Company and J.B. Jennings and Bret A. Lewis (filed as exhibit 2.2 to Schedule 13D of Bret A. Lewis, File No. 005-35850, and incorporated herein by reference).
- 10.22 \$500,000 Subordinated Promissory Note issued by the Company to Epworth Manufacturing Company (filed as exhibit 99.2 to the Company's Form 8-K on August 27, 1998, File No. 000-11625, and incorporated herein by reference).
- 10.23 \$300,000 Subordinated Promissory Note issued by the Company to Epworth Manufacturing Company (filed as exhibit 99.2 to the Company's Form 8-K on August 27, 1998, File No. 000-11625, and incorporated herein by reference).
- 10.24 Revolving credit loan between Comerica Bank and the Company dated August 12, 1998 (filed as Exhibit 10.1 to the Company's form 10-Q for the quarterly period ended September 30, 1998 and incorporated herein by reference).
- 10.25 Letter dated December 31, 1998 from Microfluidics International Corporation To Irwin J. Gruverman. (Filed as exhibit 3.10(2) to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 1998 and incorporated herein by reference.)

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- 10.26 Revolving Credit and Term Loan Agreement among MFIC Corporation and National Bank of Canada dated February 28, 2000. (Filed as exhibit 10.26 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.27 Revolving Credit Note of the Company in favor of National Bank of Canada in the amount of \$4,000,000.00 dated February 28, 2000. (Filed as exhibit 10.27 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.28 Term Note of the Company in favor of National Bank of Canada in the amount of \$475,000.00 dated February 28, 2000. (Filed as exhibit 10.28 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and

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incorporated herein by reference.)

- 10.29 Security Agreement of the Company in favor of National Bank of Canada dated February 28, 2000. (Filed as exhibit 10.29 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.30 Trademark and Trademark Applications Security Agreement of the Company in favor of National Bank of Canada, dated February 28, 2000. (Filed as exhibit 10.30 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.31 Patent and Patent Applications Security Agreement of the Company in favor of National Bank of Canada, dated February 28, 2000. (Filed as exhibit 10.31 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.32 Unlimited Guaranty of Microfluidics Corporation in favor of National Bank of Canada Dated February 28, 2000. (Filed as exhibit 10.32 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.33 Stock Pledge Agreement between the Company and National Bank of Canada dated February 28, 2000. (Filed as exhibit 10.33 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.34 Subordination Agreement among the Company, Lake Shore Industries, Inc. and National Bank of Canada dated as of February 28, 2000. (Filed as exhibit 10.34 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.35 Subordinated Promissory Note on the Company in favor of Lake Shore Industries, Inc. in the amount of \$300,000.00 dated February 28, 2000. (Filed as exhibit 10.35 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.36 Forbearance Agreements with Comerica. (Filed as exhibit 10.36 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.37 Settlement Agreement, dated January 17, 2000 by and among the Company, Bret A. Lewis, J. B. Jennings, Lake Shore Industries, Inc., and JIJ Properties, Inc., with \$300,000 Subordinated Promissory Note dated February 28, 2000, issued by the Company to Lake Shore Industries, Inc. (FKA Epworth Manufacturing Company, Inc). (Filed as exhibit 10.37 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)

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- 10.38 Letter, dated December 31, 1999, from MFIC Corporation to Irwin J. Gruverman and G&G Diagnostics Corp. (Filed as exhibit 10.38 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.39 Letter, dated December 31, 1999, from MFIC Corporation to Irwin J. Gruverman. (Filed as exhibit 10.39 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.40 First Amendment to Revolving Credit and Term Loan Agreement between the Company and National Bank of Canada dated March 30, 2000. (Filed as exhibit 10.40 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.41 Lease between ABB and Microfluidics dated April 14, 2000 for space at Lampertheim, Germany. (Filed as exhibit 10.41 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.42 Security Agreement between MFIC Corporation and J.M. Huber Corporation dated October 18, 2000. (Filed as exhibit 10.42 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.43 Settlement agreement between MFIC Corporation and J.M. Huber Corporation dated December 18, 2000. (Filed as exhibit 10.43 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)

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reference.)

- 10.44 Termination agreement between Michael A. Lento and MFIC Corporation dated December 14, 2000. (Filed as exhibit 10.44 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.45 Letter, dated December 31, 2000, from MFIC Corporation to Irwin J. Gruverman and G&G Diagnostics Corporation. (Filed as exhibit 10.45 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.46 Letter, dated December 31, 2000, from MFIC Corporation to Irwin J. Gruverman. (Filed as exhibit 10.46 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2000, and incorporated herein by reference.)
- 10.47 Lease for 30 Ossipee Road, Newton, Massachusetts dated October 19, 2001, between Microfluidics International Corporation and King Real Estate Corp., Trustee of 1238 Chestnut Street Trust under Declaration of Trust dated May 23, 1969, recorded with Middlesex South Registry of Deeds in Book 11682, Page 384. (Filed as Exhibit 10.47 to the Company's Annual Report on Form 10-K for fiscal year ended December 21, 2001, and incorporated herein by reference.)
- 10.48 Consulting agreement with Vincent Cortina dated January 2, 2002. (Filed as Exhibit 10.48 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2001, and incorporated herein by reference.)
- 10.49 Letter dated December 31, 2001 from MFIC Corporation to Irwin J. Gruverman. (Filed as Exhibit 10.49 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2001, and incorporated herein by reference.)
- 10.50 Second amendment to Revolving Credit and Term Loan Agreement between the Company and PNC Bank, N.A. dated March 29, 2002. (Filed as Exhibit 10.50 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2001, and incorporated herein by reference.)

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- 10.51 1986 Employee Stock Purchase Plan as Amended. (Filed as Exhibit 10.51 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2001, and incorporated herein by reference.)
- 10.52 1988 Stock Plan as Amended. (Filed as Exhibit 10.52 to the Company's Annual Report on Form 10-K for fiscal year ended December 31, 2001, and incorporated herein by reference.)
- \*10.53 Letter dated December 31, 2002 from MFIC Corporation to Irwin J. Gruverman.
- \*10.54 Third Amendment to Revolving Credit and Term Loan Agreement between the Company and PNC Bank N.A. dated February 19, 2003.
- \*23(a) Consent of Brown & Brown LLP
- \*23(b) Consent of Deloitte & Touche LLP
- \*99.1 Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
- \*99.2 Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

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\*  
Filed herewith

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Management contracts or compensatory plan or arrangement required to be filed as an exhibit to this Form 10-K pursuant to of this report.

**SIGNATURES**

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized, in the city of Newton, Commonwealth of Massachusetts, on the 24<sup>th</sup> day of March 2003.

By:           /s/ IRWIN J. GRUVERMAN          

Irwin J. Gruverman  
*Chief Executive Officer*

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

Signature	Title	Date
<u>          /s/ IRWIN J. GRUVERMAN          </u> Irwin J. Gruverman	Chief Executive Officer (Principal Executive Officer), Chairman of the Board of Directors and Secretary	March 24 2003
<u>          /s/ JAMES N. LITTLE          </u> James N. Little	Director	March 24, 2003
<u>          /s/ VINCENT CORTINA          </u> Vincent Cortina	Director	March 24, 2003
<u>          /s/ LEO PIERRE ROY          </u> Leo Pierre Roy	Director	March 24,2003
<u>          /s/ EDWARD T. PASLAWSKI          </u> Edward T. Paslawski	Director	March 24, 2003

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**SCHEDULE II****MFIC CORPORATION**

Valuation and Qualifying Accounts and Reserves  
For the years ended December 31, 2002, 2001, and 2000

	Balance at Beginning of Period	Additions Charged to Costs and Expenses	Deductions and Adjustments	Balance at End of Period
<b>ALLOWANCE FOR DOUBTFUL ACCOUNTS</b>				
For the year ended December 31, 2002	\$ 38,248	\$ 6,985		\$ 45,233
For the year ended December 31, 2001	55,570		(17,322)	38,248



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	Balance at Beginning of Period	Additions Charged to Costs and Expenses	Deductions and Adjustments	Balance at End of Period
For the year ended December 31, 2000	65,321	58,280	(68,031)	55,570
<b>INVENTORY RESERVE</b>				
For the year ended December 31, 2002	\$ 96,837	\$ 12,431	\$	\$ 109,268
For the year ended December 31, 2001	194,044	34,727	(131,934)	96,837
For the year ended December 31, 2000	157,034	59,010	(22,000)	194,044
<b>ACCUMULATED AMORTIZATION RELATED TO GOODWILL AND IMPAIRMENT CHARGES</b>				
For the year ended December 31, 2002	\$ 1,403,050	\$ 2,661,409	\$	\$ 4,064,459
For the year ended December 31, 2001	981,050	422,000		1,403,050
For the year ended December 31, 2000	554,329	426,721		981,050
<b>ACCUMULATED AMORTIZATION RELATED TO OTHER INTANGIBLES</b>				
For the year ended December 31, 2002	\$ 662,085	\$ 87,900	\$ 450,000	\$ 299,985
For the year ended December 31, 2001	567,321	94,764		662,085
For the year ended December 31, 2000	467,389	99,932		567,321

**CERTIFICATIONS**

I, *Irwin J. Gruverman*, certify that:

1. I have reviewed this annual report on Form 10-K of MFIC Corporation;
2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this annual report;
3. Based on my knowledge, the financial statements, and other financial information included in this annual report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report;
4. The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-14 and 15d-14) for the registrant and we have:
  - a) designed such disclosure controls and procedures to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;
  - b) evaluated the effectiveness of the registrant's disclosure controls and procedures as of a date within 90 days prior to the filing date of this annual report (the Evaluation Date); and
  - c) presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures based on our evaluation as of the Evaluation Date;
5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent function):

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- a) all significant deficiencies in the design or operation of internal controls which could adversely affect the registrant's ability to record, process, summarize and report financial data and have identified for the registrant's auditors any material weaknesses in internal controls; and
- b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal controls; and

6.

The registrant's other certifying officers and I have indicated in this annual report whether or not there were significant changes in internal controls or in other factors that could significantly affect internal controls subsequent to the date of our most recent evaluation, including any corrective actions with regard to significant deficiencies and material weaknesses.

Date: March 21, 2003

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Chief Executive Officer (Principal Executive Officer)

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I, *Dennis P. Riordan*, certify that:

I have reviewed this annual report on Form 10-K of MFIC Corporation;

2.

Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this annual report;

3

Based on my knowledge, the financial statements, and other financial information included in this annual report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report;

4.

The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-14 and 15d-14) for the registrant and we have:

- a) designed such disclosure controls and procedures to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;
- b) evaluated the effectiveness of the registrant's disclosure controls and procedures as of a date within 90 days prior to the filing date of this annual report (the Evaluation Date); and
- c) presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures based on our evaluation as of the Evaluation Date;

5.

The registrant's other certifying officers and I have disclosed, based on our most recent evaluation, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent function):

- a) all significant deficiencies in the design or operation of internal controls which could adversely affect the registrant's ability to record, process, summarize and report financial data and have identified for the registrant's auditors any material weaknesses in internal controls; and
- b)

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any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal controls; and

6.

The registrant's other certifying officers and I have indicated in this annual report whether or not there were significant changes in internal controls or in other factors that could significantly affect internal controls subsequent to the date of our most recent evaluation, including any corrective actions with regard to significant deficiencies and material weaknesses.

Date: March 21, 2003

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Corporate Controller (Principal Accounting Officer)

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