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RESEARCH FRONTIERS INC  
Form 10-K  
March 10, 2009

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 AND EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2008

Commission File Number 1-9399

RESEARCH FRONTIERS INCORPORATED  
(Exact name of registrant as specified in its charter)

DELAWARE  
(State or other jurisdiction of  
incorporation or organization)

11-2103466  
(I.R.S. Employer  
Identification No.)

240 CROSSWAYS PARK DRIVE  
WOODBURY, NEW YORK  
(Address of principal executive offices)

11797-2033  
(Zip Code)

Registrant's telephone number, including area code (516) 364-1902

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

| Title of Class                   | Name of Exchange<br>on Which Registered |
|----------------------------------|---|
| Common Stock, \$0.0001 Par Value | The NASDAQ Stock Market                 |

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

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

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

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 [X] 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. [X]

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

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Large accelerated filer [ ] Accelerated filer [ X ]  
Non-accelerated filer [ ] Smaller reporting company [ ]

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act).

Yes [ ] No [X]

As of March 10, 2009 there were 15,742,784 shares of Research Frontiers Incorporated common stock outstanding. The aggregate market value of the voting and non-voting common equity held by non-affiliates was \$91,960,369 computed in accordance with the rules of the SEC by reference to the closing price of the Company's common stock as of June 30, 2008 which was \$6.31. In making this computation, all shares known to be owned by directors and executive officers of the Company and all shares known to be owned by other persons holding in excess of 5% of the Company's common stock have been deemed held by "affiliates" of the Company, and awards of restricted stock subject to vesting are assumed to have been fully issued and outstanding. Nothing herein shall prejudice the right of the Company or any such person to deny that any such director, executive officer, or stockholder is an "affiliate."

PART I

ITEM 1. BUSINESS

General

Research Frontiers Incorporated ("Research Frontiers" or the "Company") develops and licenses its patented suspended particle device ("SPD-Smart") light-control technology to other companies that manufacture and market either the SPD-Smart chemical emulsion, light-control film made from the chemical emulsion, lamination services, electronics to power end-products incorporating the film, or the end-products themselves such as "smart" windows, skylights and sunroofs. Research Frontiers currently has 35 companies that, in the aggregate, are licensed to serve four major SPD-Smart application areas (aerospace, architectural, automotive and marine products) in every country of the world.

Research Frontiers was incorporated in New York in 1965 to continue early work that Dr. Edwin Land, founder of Polaroid Corporation, and others had done in the area of light-control beginning in the 1930s. Research Frontiers was reincorporated in Delaware in 1989. Since 1965, Research Frontiers has actively worked to develop and license its own SPD technology, which it protects using patents, trade secrets and know-how. Although patent and trade secret protection is not a guarantee of commercial success, Research Frontiers currently has over 500 patents and pending patent applications throughout the world protecting its technology, positioning it as a leader of advanced light, glare and heat control for windows and other glazing products.

SPD-Smart products use microscopic light-absorbing particles that are typically suspended in a film. These particles align when an electrical voltage is applied, thus permitting light to pass through the film. Adjustment of the voltage to the SPD

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film gives users the ability to instantly, precisely and consistently regulate the amount of light, glare and heat passing through the window, skylight, sunroof, window shade or other SPD-Smart end-product.

SPD technology is an "enabling" or "transforming" technology that may have wide commercial applicability in many types of products and industries where variable light transmission is desired, such as:

- "smart" windows, skylights, partitions, doors, and sunshades for the architectural, aircraft, marine, automotive and appliance industries;
- variable light transmission sunglasses, goggles, visors and other eyewear;
- self-dimmable automotive sunroofs, sunvisors and rear-view mirrors; and
- flat panel information displays for use in billboards, scoreboards, point-of-purchase advertising displays, traffic signs, computers, telephones, PDAs and other electronic instruments.

Research Frontiers considers the SPD industry to be in the initial phase of growth and sales of SPD-Smart products for aircraft windows, smart windows and skylights for homes and offices, sunroofs and side-and rear-windows for cars, boats, busses and other transportation vehicles. Some of these early sales and uses have been commercial installations and some have involved concept and test installations by licensees and their customers (see "Trends and Recent Developments" below). Some of our licensees consider the stage of development, product introduction strategies and timetables, and other plans to be proprietary or secret, and as such cannot be disclosed by Research Frontiers until such licensees, or their customers, make their own public announcements or product launches.

In addition to the near-term product applications listed above, prototypes of SPD-Smart flat panel displays, eyewear, and self-dimming automotive rear-view mirrors have been developed. These prototypes demonstrate the feasibility and operation of the products they relate to, but in some cases may need additional product design, engineering or testing before commercial products can be introduced.

Recent progress with regard to market development and commercialization activity has been the result of focused and active efforts by Research Frontiers and its key production and end-product licensees who have invested in product development and improvements, production facilities, increased production capacity, durability, performance testing, quality control and assurance, and marketing programs. Licensees supplying chemical emulsion or film to end-product licensees now are increasing production capacity to prepare for potentially large and developing markets for SPD-Smart products. Research Frontiers believes that with the normal progression of product and manufacturing improvements, and as licensees become more experienced at the lamination, fabrication and installation of SPD-Smart products for various applications, the adoption rates for SPD-Smart products will grow and accelerate, resulting in a growing stream of royalty income for the Company.

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As part of their marketing and branding programs, many of our licensees have developed their own trademarks for SPD-Smart emulsion, film, and end-products and these are listed in their respective press releases, product brochures, advertising and other promotional materials. Research Frontiers uses the following trademarks: SPD-Smart(tm), SPD-SmartGlass(tm), VaryFast(tm), SPD-CleanTech(tm), SPD Clean Technology(tm), SmartGlass(tm), The View of the Future - Everywhere you Look(tm), Powered by SPD(tm), Powered by SPD-CleanTech(tm), Powered by SPD Clean Technology(tm), SPD Green and Clean(tm), SPD On-Board(tm), Speed Matters(tm), and Visit SmartGlass.com - to change your view of the world(tm).

In each of the last three fiscal years the Company has devoted substantially all of its time to the development of one class of products, namely SPD-Smart light-control technology, and therefore revenue analysis by class is not provided herein.

The Company does not believe that future sales will be seasonal in any material respect. Due to the nature of the Company's business operations and the fact that the Company is not presently a manufacturer, there is no backlog of orders for the Company's products.

The Company believes that compliance with federal, state and local provisions which have been enacted or adopted regulating the discharge of materials into the environment, or otherwise relating to the protection of the environment, will not have a material effect upon the capital expenditures, earnings and competitive position of the Company. The Company has no material capital expenditures for environmental control facilities planned for the remainder of its current fiscal year or its next succeeding fiscal year.

### Industry Trends

While economic activity around the world is currently in a severe downturn, there are also favorable converging trends in the major near-term markets for SPD-Smart products. These trends are gaining momentum and strength. In both public and private sectors across the world, there are substantial efforts targeted toward the promotion and use of energy efficient materials, including those used in windows and other glazings for homes, buildings, automobiles, aircraft and boats. For example, as part of its sustainable design strategies, the architectural community is actively using "daylight harvesting" systems to more effectively capture and control natural light as part of energy reduction strategies to offset electricity used by artificial lighting. There also is a growing trend toward the use of more glass in all of the near-term SPD markets. In addition to design, aesthetic and other benefits, this expanded use of glass also supports a growing body of research which finds that the presence of natural light improves the well-being and productivity of individuals. Products using SPD-Smart light-control technology can play an important role in supporting these converging global trends.

For architectural applications, a number of market forces are having an upward influence on demand for SPD-Smart glass. Many architects are specifying more glass in their designs

to support building occupants' sense of connectedness to the outside environment. Also significant is the heightened attention to energy efficiency in both commercial and residential buildings. With buildings in the United States and Europe now accounting for an estimated 39-40% of total energy use and upwards of 70% of electricity consumption, many architects and building owners are striving for sustainable, "green" buildings that are highly energy-efficient, reduce environmental impact, and improve occupant health and well-being. In addition, the design community is increasingly interested in advanced daylighting systems in buildings that lower electrical lighting usage and reduce heating and cooling loads. Because of this, the ability to control light, glare and heat in these building applications is very important and advanced solutions often are needed to optimize operating efficiencies. SPD-Smart technology, especially when integrated with intelligent building systems, provides effective shading, glare control and heat management solutions for offices and homes. As a result, architects and developers are now specifying SPD-Smart products in their projects, and both the number and size of these projects are increasing. An example of a recently completed project is the substantial installation of SPD-SmartGlass at Indiana University's Health Information and Translational Sciences Building.

In the automotive industry, global trends include the introduction of larger sunroofs and panoramic roof panels in transportation vehicles, and a higher percentage of these vehicles having a sunroof or using more glass in the roof. In addition, automobile manufacturers are beginning to introduce "cielo" glass systems where the windshield of the vehicle joins with the glass in the roof of the vehicle to form one continuous piece of curved glass. The SPD-Smart component of these cielo systems can start with the blue band on the top of the windshield (the rest of the windshield would not use any kind of dark tint because regulations require that the main part of the windshield not have less than 70% light transmission at all times) and extend back to encompass the entire glass roof. Some automakers have recently begun to incorporate SPD-SmartGlass in concept vehicles, with some of these concept vehicles being exhibited at major auto shows and are developing SPD-Smart glass products for production vehicles as well. SPD-SmartGlass has also been shown in armored automotive glass applications.

In the aerospace industry there is also a trend towards larger windows, most notably in the "transport category" (commercial passenger aircraft) segment. The world's two largest aircraft manufacturers have announced their interest to include electronic smart window shades in their aircraft, and strong interest exists at other OEMs as well. Electronic aircraft window shades may use SPD technology, or may use other smart window technologies such as liquid crystal or electrochromic technology. For use in aircraft, SPD-Smart window shades are made of plastic instead of glass to save weight for a given window thickness, and to avoid breakage risks. The Company believes its SPD technology offers important performance advantages over other technologies including weight-savings and faster, more uniform response time. To date, SPD technology is also the only commercially available light-control smart window technology known to have passed the stringent safety and durability tests required by the

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aviation industry. Today SPD-Smart window shades are flying in various aircraft including those used in general aviation (private and business aircraft) and military aviation. SPD-Smart window shades are also beginning to be used in commercial passenger aircraft.

In the marine application for SPD-Smart technology, to satisfy various objectives, many yacht manufacturers currently employ less than ideal glazing solutions. For example, some report having to use as many as five different types of glass in a typical yacht to satisfy diverse glazing needs. SPD-Smart window technology can reduce the number of different types of glass used in these yachts because of its increased functionality and superior performance and versatility. SPD-SmartGlass has appeared in glass designed for yachts and other marine vessels. Because boat operators experience substantial exposure to direct sunlight, SPD-Smart products provide an innovation that allows these operators to manage incoming light, glare and heat while achieving privacy or maintaining one's view as needed or desired.

Products using SPD-Smart technology continue to be exhibited at trade shows, conferences, and industry events, with such products not only being exhibited by our licensees but also by their customers and by original equipment manufacturers. While there can be no assurance that these trends will continue, to the extent that they do continue, each should have a beneficial effect on future fee income for the Company.

In June 2008, The Freedonia Group, a highly regarded independent market research firm serving the glass industry and others, announced the release of its 2008 Advanced Glass Study. In that study, Freedonia projected a compound annual growth rate in United States smart glass demand through 2017 of 10.2%, a level more than twenty times the rate for flat glass demand overall in the U.S. Further, in the narrative accompanying the release of this study, Freedonia shared these very positive comments about SPD technology:

"[D]emand for smart glass is expected to finally have a significant impact outside of the electrochromic mirrors and liquid crystal display privacy glass that have been available for some years. The much-awaited commercial roll-out of suspended particle device (SPD) smart glass technologies is now expected to occur, sparking well above average growth for the category through 2012."

### Historical Background and Recent Developments

In April 2004, SPD Inc., which at that time was the sole manufacturer of SPD-Smart light control film and a subsidiary of Hankuk Glass Industries, a former licensee of the Company, announced that it was ceasing its business activities. As a result, sales of SPD-Smart products by licensees of the Company during most of 2004, 2005 and 2006 were curtailed as these licensees filled certain customer orders out of limited existing inventory of SPD-Smart light control film made by SPD Inc. while awaiting production of the next-generation, emulsion-based SPD-Smart light control film with its improved performance characteristics.

After this hiatus in SPD film availability, a number of

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significant events began in 2007 and continue through 2009 that have helped the development of the Company's business worldwide.

On February 1, 2007, Hitachi Chemical Company jointly announced with Innovative Glass Corp. that Hitachi Chemical was shipping rolls of wide-width SPD-Smart film from its high-capacity coating lines in Ibaraki, Japan. This film involves next-generation SPD light-control film which has better optical properties, lower haze levels, and a wider range of light transmission than the film previously produced by SPD Inc. The new emulsion-based film uses extraordinarily low amounts of power to operate, further adding to its appeal. This next-generation film is expected to help penetrate markets for SPD-Smart light-control technology.

Research Frontiers licensee InspecTech Aero Service Inc. reported that it received FAA certification for, and has installed SPD-Smart windows on, various aircraft. Initially, these installations involved aftermarket upgrades by select customers to existing aircraft. On February 9, 2007, Raytheon Aircraft Company (now known as the Hawker Beechcraft Corporation) announced that it is offering to its aftermarket customers SPD-Smart electronic window shades, manufactured by InspecTech Aero Service, on Raytheon's Beechcraft(r) King Air aircraft. A Supplemental Type Certificate (STC) was issued by the FAA in January 2007 to InspecTech for all models of King Air aircraft, and additional aircraft manufacturers and their airline customers are currently evaluating SPD-Smart window shades for their aircraft. InspecTech reports having engineered SPD-Smart windows for other aircraft in response to their work with various aircraft manufacturers.

On October 1, 2007, Isoclima S.p.A. launched its marketing program for its CromaLite(tm) brand of SPD-Smart glass. Isoclima featured CromaLite at Vitrum 2007 from October 3-6 in Milan, Italy and at the 47th International Boat Show in Genoa, Italy from October 6-14. Vitrum 2007 is the international trade fair for machinery, equipment and systems for the processing of flat and hollow glass. Isoclima also exhibited SPD-Smart glass to the marine market at the 48th Genoa International Boat Show in Genoa, Italy in October 2008. These boat shows are some of the world's leading marine shows.

Research Frontiers and its licensees are currently working with multiple automotive manufacturers to introduce SPD-Smart windows, sunroofs and roof systems on both concept and production vehicles.

In September 2008, the automotive glass business of PPG Industries (now known as Pittsburgh Glass Works, LLC), was licensed to make SPD-Smart automotive glass products, including windows, sunroofs and roof glass systems. Pittsburgh Glass Works is North America's largest automotive glass producer. With the addition of Pittsburgh Glass Works, the Company's large automotive glass licensees account for the vast majority of all glass produced for the automotive market throughout the world.

At the 40th Tokyo Motor Show 2007, Hino Motors, Ltd., a subsidiary of Toyota Motor Corporation, featured a new

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concept S'elega Premium motorcoach with variable tint side windows using Research Frontiers' patented SPD-Smart light-control technology. The S'elega Premium on display at the Tokyo Motor Show had five large SPD-Smart side window panels with over 11 square meters of curved glass (more than 120 square feet).

On October 30, 2007, Research Frontiers licensee American Glass Products (AGP) introduced its new SPD-Smart products at the SEMA show in Las Vegas. These new SPD-Smart products, introduced initially for the automotive aftermarket and offered under the brand name AGP Vario Plus-Sky, use Research Frontiers' patented SPD-Smart technology that enables users to instantly, precisely and consistently control the amount of light, glare and heat passing through glass or plastic. At the SEMA show, AGP announced that its Vario Plus side- and rear-windows were available for 22 vehicle models in the United States market, with an additional 4 models under development. For the smart sunroof application, AGP announced that its Vario Plus products are under development for over 50 vehicle models in the US market. Additionally, AGP indicated that its Vario Plus windows and sunroofs are also under development for many more vehicle models worldwide, and that AGP can custom manufacture these products for virtually any vehicle. At the SEMA show, AGP also announced the launch of a global marketing campaign for its Vario Plus products. In October 2008, AGP announced a strategic technology partnership with DiMora Motorcar, and its plans to provide its Vario Plus-Sky brand of SPD-SmartGlass(tm) for DiMora Motorcar's Natalia SLS 2 sport luxury sedan.

Within the automotive market, a potentially significant submarket is the armored glass market. Armored glass (sometimes referred to as "transparent armor" and "bullet resistant glass") encompasses the military, non-military government, and civilian markets. While each of these submarkets have their own unique characteristics, some common characteristics include high price points, reduced price sensitivity, fast development cycles to incorporate new glass into vehicles, and the ability to incorporate SPD-Smart glass as an aftermarket upgrade. In addition, SPD-Smart technology in this market not only provides the usual benefits of light-control and UV blockage, but also adds enhanced security by introducing darker tints and privacy. A number of the Company's licensees such as American Glass Products, GKN Aerospace, Isoclima and Pittsburgh Glass Works are recognized industry leaders in the armored glass market and have developed and/or exhibited publicly armored SPD-Smart glass.

Our market research suggests that about 20,000 to 25,000 non-military vehicles (utilizing between approximately 215,000 to 800, 000 square feet of glass) are built annually, either as specialty models by the automobile OEMs or by aftermarket converters, who account for the majority of sales of such vehicles. Given the relatively short development cycles (especially in the aftermarket segment), good price points, and in light of the ongoing work being done by our licensees in this field for specific government and civilian customers, armored vehicles have the potential to become an important source of near-term royalty revenue to Research Frontiers.



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In February 2008, GKN Aerospace Transparency Systems acquired a license covering SPD-Smart armored glass for vehicles. GKN is a world leader in armored transportation vehicles for both military and civilian vehicles.

In October 2008, licensee Isoclima S.p.A. debuted at Security Essen 2008 and at Glasstec 2008 a Fiat Croma automobile outfitted by Isoclima with SPD-SmartGlass(tm). The Fiat Chroma featured five panels of Isoclima S.p.A.'s Cromalite(r) SPD-SmartGlass including two rear sidelites, two rear quarterlites and one backlite. The SPD-Smart glass for this vehicle uses remote control operation to instantly adjust light and glare coming through the windows. Isoclima also had a broader exhibit at these shows demonstrating a BMW Series 7 armored glass rear side window and other automotive products using its Cromalite(r) brand of SPD-Smart glass.

There have been several recent milestones in the architectural application for SPD-Smart technology as well.

In December 2007 AGC Flat Glass Europe (a wholly-owned subsidiary of Asahi Glass, the world's largest glass company) acquired a new license covering SPD-Smart architectural window applications.

In September 2008, Research Frontiers licensee SmartGlass International launched its line of SPD-SmartGlass architectural window products at the 100% Detail show in London, England. The show focuses on the latest developments in sustainability, innovation and design for the building environment, and SmartGlass International exhibited four large SPD-SmartGlass panels that were used in the walls of a circular meeting room at their stand at the show. These panels used second-generation SPD-Smart film supplied by Hitachi Chemical Co., Ltd. with lamination done by SGI at their new and expanded manufacturing facility in Dublin, Ireland which houses the company's design, tempering, laminating and quality control operations, as well as its product showroom. SmartGlass International also announced the recent completion of a multi-panel SPD-Smart roof-lite project in London. At the 100% Details show, SmartGlass International's SPD-Smart products won the show's Most Innovative Building Product Award.

In November 2008, SPD Control Systems Corporation, a licensee of Research Frontiers, was an exhibitor at the 2008 Advanced Energy Conference in Hauppauge, New York, and demonstrated its 8-window Roadrunner controller at the conference. This controller, which was specifically designed for SPD-Smart windows and initially designed for the automotive market, is also being adapted for use in the architectural, marine and aerospace industries. The Roadrunner controller allows for the control of single or multiple SPD-Smart windows by several methods including manual dimmer or slider controls, automatic control from on-board systems, and self-regulated control via sensors. Earlier in the year in February, SPD Control Systems announced that it was awarded a \$580,000 matching funds contract from the New York State Energy Research and Development Authority (NYSERDA) for the development and demonstration of a control system for architectural SPD-Smart window products. SPD Control Systems' Wireless Building Control System include 8-window controllers (leveraging the

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company's controller designs for the automotive industry), advanced sensors, dynamic tinting algorithms and other distinctive operating features including an interface with other building services such as heating, ventilation and air conditioning (HVAC) and lighting.

Activity in the SPD industry continued in 2009. In January 2009, Research Frontiers and its licensee SmartGlass International announced that they will feature SPD-SmartGlass at the Chameleon Materials exhibition hosted by the Technological Institute FCBA of Paris, France. The Chameleon Materials exhibition is open to the public from February through September 2009 and is arranged particularly for architects, designers, interior decorators and others serving the architectural market.

In February 2009, Research Frontiers' licensee Innovative Glass Corp. announced the completion of the world's largest SPD-Smart glass project at Indiana University using next-generation SPD-Smart light control film. The project used almost 800 square feet of SPD-Smart glass in 59 interior and nine large exterior smart glass panels.

In addition to supporting the efforts of its licensees, Research Frontiers also recognizes the need to develop the SPD industry as a whole. As such, the Company continues to plan and execute complementary programs that build awareness and interest in smart glass generally and demand for SPD-Smart technology specifically. These programs include presentations at various general industry conferences, participation in panel presentations and discussions hosted by academia, development of trade association educational materials, and presentations to architects, designers, and other influential specifiers.

The Company's market development department has a number of other initiatives in place. To help guide and prioritize its technical and marketing investments, the Company has also retained outside strategic marketing and other consultants to help generate increased short and medium term market penetrations for each of the major markets for the Company's light-control technology, and to provide support and guidance to the Company's licensees worldwide.

The Company also has emerged as the world's leading resource for market research information on the subject of smart glass. Summary results of several first-of-their-kind research studies have been shared with industry, posted to the Company's website for global dissemination and reference, and used as the basis for media coverage and bylined articles. Examples of the aforementioned activities over the past year include:

- (1) In April, the results of a first-of-its-kind market research study was presented at the 2008 Society of Vacuum Coaters Symposium on Cleantech Energy Conversion and Storage. In addition to summarizing trends in clean technology, Research Frontiers' presentation highlighted the expansion of smart glass into large-format applications, discussed daylighting applications for smart glass, and featured the results of a United States survey of architecture professionals on the subject of smart glass, daylighting and clean technology.

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- (2) In June, Research Frontiers presented the results of a market research study at the Clean Technology 2008 conference in Boston, Massachusetts. The presentation discussed smart glass and its applicability as a clean technology for architectural daylighting. It further summarized the results of a first-of-its-kind nationwide study of architecture professionals on the subject of smart glass, daylighting and sustainability. At this conference, Research Frontiers also served as an industry panelist for a workshop on clean technologies for green buildings.
- (3) In October, Research Frontiers was invited to speak at the Fall Conference of the Fenestration Manufacturers Association in Marco Island, Florida. A presentation entitled "Smart Glass and Sustainable Buildings" was given.

Research Frontiers also maintains an active role with various standards-setting organizations. These organizations include ASTM International and the National Fenestration Rating Council (NFRC), both of which have had or continue to have active committees developing standards for smart glass.

As part of the mission to develop the industry and to support our licensees' acquiring specific SPD projects, in March of 2009 Research Frontiers announced the completion of the SPD-SmartGlass Design Center. Research Frontiers and its licensees have begun to host a series of events at this new facility. This center, which is also configured as an interactive and energy-efficient "smart" executive office and conference room, is located at the Company's corporate headquarters in Woodbury, New York. The SPD-SmartGlass Design Center features leading-edge SPD-Smart windows of different sizes (some floor-to-ceiling) and framing materials. It has a multi-functional electronic controller system for manual, remote, and automatic smart glass switching, and includes a large enclosed area where private meetings and video presentations can be held. Adjacent to the Design Center, an interactive exhibit is being designed to provide guests with a history of smart glass, and also to showcase early generations and state-of-the-art examples of SPD-Smart products. This interactive area will also contain other types of smart glass, such as those using liquid crystal and electrochromic technologies, allowing users to operate and experience first-hand the differences in performance characteristics of different types of smart glass.

### Licensees of Research Frontiers

Currently, the Company's 35 licensees are categorized into four main areas: materials for making films (emulsions); film; lamination of film to glass or plastic, and end-products. Emulsion makers produce and combine the necessary materials (i.e. SPD particles and various liquids and special polymers) from which SPD-Smart films are made. The film makers coat a thin layer of emulsion between two sheets of plastic film, each of which has a transparent conductive coating. This emulsion is then partly solidified to form an SPD film that allows users to control the amount of light, glare and heat passing through this film. The end-product licensees then integrate this film into a variety of SPD-Smart products, or make electronic systems to control such SPD-Smart products. Some of these end-product licensees do their own lamination of the SPD light-control film to glass or plastic, and some outsource this lamination to other

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companies.

The following table summarizes Research Frontiers' existing license agreements and lists the year into which these agreements were entered:

| Licensee  | Products Covered  | Territory                   |
|---|---|-----------------------------|
| American Glass Products                               | Architectural and automotive windows (2002)   | Worldwide<br>(except Korea) |
| Asahi Glass Company                                   | SPD-Smart automotive windows and sunroofs(2006)   | Worldwide                   |
| AGC Automotive Americas<br>(f/k/a AP Technoglass Co.) | Sunroof glass for other licensees (2001)  | Worldwide                   |
| AGC Flat Glass Europe SA<br>(f/k/a Glaverbel SA)      | Architectural windows (2007)  | Worldwide                   |
| Avery Dennison Corp.                                  | SPD displays (2001)   | Worldwide                   |
| BOS GmbH  | Variable light transmission SPD sunshades<br>and sunvisors. (2002)  | Worldwide                   |
| BRG Group, Ltd.                                       | Architectural and automotive windows (2002)   | Worldwide<br>(except Korea) |
| Craftsman Fabricated<br>Glass                         | SPD film lamination for other licensees(2007)   | Worldwide                   |
| Cricursa Cristales Curvados                           | Architectural and automotive windows(2002)  | Worldwide<br>(except Korea) |
| Custom Glass Corporation                              | Windows and sunroofs for mass<br>transit trains/busses; SPD film<br>lamination for other licensees (2003) | Worldwide<br>(except Korea) |
| Dainippon Ink and<br>Chemicals Incorporated           | SPD emulsions (1999) and films (2006)<br>for other licensees  | Worldwide                   |
| E.I. DuPont de Nemours                                | Architectural and automotive windows;SPD<br>emulsions and films for other licensees (2004)                | Worldwide                   |
| Film Technologies<br>International                    | SPD film for other licensees and<br>prospective licensees (2001)  | Worldwide                   |
| GKN Aerospace Transpar-<br>ency Systems Inc.          | Armored vehicle windows (2008)  | Worldwide                   |
| Global Mirror GmbH                                    | Rear-view mirrors and sunvisors (1999)  | Worldwide                   |
| Hotel Technologies LLC                                | SPD-Smart architectural window products<br>for the hotel industry (2004)                                  | Worldwide                   |
| Hitachi Chemical Co.,Ltd                              | SPD emulsions and films for other<br>licensees (1999)   | Worldwide                   |
| Innovative Glass Corp.                                | Architectural windows (2003)  | US,Canada,                  |

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|   |  | and Mexico  |
| InspeTech Aero Service  | Aircraft and marine windows and cabin dividers (2001)  | Worldwide (except Korea)                                      |
| Isoclima S.p.A.   | Architectural and automotive windows; SPD emulsion and film for other licensees (2002)   | Worldwide (except Korea)                                      |
| Kerros Limited  | Automotive windows and sunroofs (2003)   | Worldwide (except Korea) for aftermarket and UK only for OEMs |
| Laminated Technologies Inc.   | SPD film lamination for other licensees (2002)   | Worldwide   |
| Leminur Limited   | Architectural windows (2003)   | Russia and countries of former Soviet Union                   |
| Nippon Sheet Glass Co., Ltd   | SPD film for other licensee (2004)   | Worldwide   |
| Pilkington plc  | SPD film lamination for other licensee (2004)  | Worldwide   |
| Pittsburgh Glass Works, LLC (f/k/a automotive glass business of PPG Industries, Inc.) | SPD-Smart automotive windows and sunroofs(2008)  | Worldwide   |
| Polaroid Corporation  | SPD emulsions and films for other licensees (2000)   | Worldwide   |
| Prelco Inc.   | Architectural windows, train and bus windows (2004)  | US, Canada, and Mexico  |
| Saint-Gobain Glass France   | Architectural windows, automotive and other transportation vehicle windows (other than aircraft and spacecraft), kitchen and laundry home appliance windows, and automotive sunvisors and rear-view mirrors for cars, SUVs, light trucks and other transportation vehicles (other than as original equipment mirrors on heavy trucks, busses, construction vehicles, firetrucks and other vehicles in Class 5-8 or weighing over 16,000 pounds) (2003) | Worldwide (except Korea)                                      |
| SmartGlass International Ltd  | Architectural windows(2007)  | Ireland, United Kingdom                                       |
| SPD Control Systems Corp  | Electronics and building control systems(2005)   | Worldwide   |
| SPD Technologies, Inc. (f/k/a Razor's Edge Technologies, Inc.)                        | Architectural windows (2002)   | Worldwide (except Korea)                                      |
| SPD Systems, Inc.   | Architectural, appliance and marine windows (2002)   | Worldwide (except Korea)                                      |
| ThermoView Industries, Inc.   | Architectural windows (2000)   | Worldwide (except Korea)                                      |

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Traco, Inc.

Architectural windows (2003)

Worldwide  
(except Korea)

Licensees of Research Frontiers who incorporate SPD technology into end-products will pay Research Frontiers a royalty of 5-15% of net sales of licensed products under license agreements currently in effect, and may also be required to pay Research Frontiers fees and minimum annual royalties. Licensees who sell components (such as SPD emulsion or film) or lamination services to other licensees of Research Frontiers do not pay a royalty on such sale or service, and Research Frontiers will collect a royalty from the licensee incorporating these components into their own SPD-Smart end-products. Research Frontiers' license agreements typically allow the licensee to terminate the license after some period of time, and give Research Frontiers only limited rights to terminate before the license expires. The licenses granted by the Company are non-exclusive and generally last as long as our patents remain in effect. Due to their bankruptcy filings or other termination of their general business activities or for other reasons, the Company does not believe that Polaroid Corporation, Kerros Limited, ThermoView Industries, BRG Group, SPD Technologies and Film Technologies International are pursuing business activities with respect to SPD technology. Also the Company and licensee N.V. Bekaert, S.A mutually agreed to terminate their license agreement during 2008 for reasons unrelated to SPD technology. Some of the Company's other licensees are currently inactive with respect to SPD technology, but may hereafter become active again. To date, the Company has not generated sufficient revenue from its licensees to profitably fund its operations.

Although the Company believes based upon the status of current negotiations that additional license agreements with third parties will be entered into, there can be no assurance that any such additional license agreements will be consummated, or of the extent to which any current or future licensee of the Company will produce or sell commercial products using the Company's technology or generate meaningful revenue from sales of such licensed products.

The Company plans to continue to exploit its SPD-Smart light-control technology by entering into additional license and other agreements with end-product manufacturers such as manufacturers of flat glass, flat panel displays and automotive products, and with other interested companies who may wish to acquire rights to manufacture and sell the Company's proprietary emulsions and films.

The Company's plans also call for further development of its technology and the provision of additional technological and marketing assistance to its licensees to develop commercially viable SPD-Smart products, and expand the markets for such products. The Company cannot predict when or if new license agreements will be entered into or the extent to which commercial products will result from its existing or future licensees because of general economic conditions and the risks inherent in the developmental process and because commercialization is dependent upon the efforts of its licensees as well as on the continuing research and development efforts

of the Company.

On March 10, 2009 the Company had twelve full-time employees, five of whom are technical personnel, and the rest of whom perform legal, marketing, investor relations, and administrative functions. Of these employees, two have obtained doctorates in chemistry, one has a masters degree in chemistry, one has extensive industrial experience in electronics and electrical engineering, and one has majored in physics. Three employees also have additional postgraduate degrees in business administration, including one doctorate in organization and management. Also the Company's suppliers and licensees have people on their teams with advanced degrees in a number of areas relevant to the commercial development of products using the Company's technology. The success of the Company is dependent upon, among other things, the services of its senior management, the loss of which could have a material adverse effect upon the prospects of the Company.

#### Competitive Technologies

The Company believes that its SPD light-control technology has certain performance advantages over other "smart glass" technologies which electrically vary the amount of light passing through windows and other smart products. Since the non-SPD technologies listed below do not have published consistent pricing or cost data that can be relied upon, the Company does not describe any relative cost advantages that SPD technology might have over these other technologies.

Variable light transmission technologies can be classified into two basic types: "active" technologies that can be controlled electrically by the user either automatically or manually, and "passive" technologies that can only react to ambient environmental conditions such as changes in lighting or temperature. One type of passive variable light transmission technology is photochromic technology; such devices change their level of transparency in reaction to external ultra-violet radiation. As compared to photochromic technology, the Company's SPD technology permits the user to adjust the amount of light passing through the viewing area of the device, rather than the viewing area of the photochromic device merely reacting to external radiation. In addition, the reaction time necessary to change from light to dark with SPD-Smart technology can be almost instantaneous, as compared to the much slower reaction time for photochromic devices. Also, unlike SPD technology, photochromic technology does not function well at the high and low ends of the temperature range in which smart windows and other devices are normally expected to operate, nor does photochromic technology perform well in vehicles or other enclosed settings where existing glass are blocking incoming ultra-violet light which is required for photochromic devices to operate..

Active, user-controllable technologies, sometimes referred to as "smart" technologies, are generally more useful than passive technologies because they allow the user to actually control the state of the window. This control is achieved with a manual adjustment, or automatically when coupled with a timer or sensing device such as a photocell, motion detector, thermostat or other intelligent building system. There are three main types of active devices which are compared below:

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- Electrochromic devices (EC)
- Liquid crystal devices (LC)
- Suspended-particle devices (SPD)

Electrochromic Technology: Electrochromic windows and rear-view mirrors use a direct current voltage to alter the molecular structure of electrochromic materials (which can be in the form of either a liquid, gel or solid film) causing the material to darken. When compared to electrochromic devices, SPD technology is expected to have numerous potential performance and manufacturing advantages, including some or all of the following:

- faster response time
- ability to precisely "tune" intermediate light-transmission states
- consistent switching speed regardless of size of glazing area
- more reliable performance over a wider temperature range
- higher contrast ratios and the capability of achieving darker shaded states for large area product applications
- default state (state requiring no power) is dark, maximizing solar heat gain benefits
- lower electrical current drain
- higher estimated battery life in applications where batteries are used
- no "iris effect" (where light transmission changes first occur at the outer edges of a window or mirror and then work their way toward the center) when changing from clear to dark and back again
- SPD technology is a film-based technology that can be applied to plastic as well as glass, and which can be applied to curved as well as flat surfaces.

Many companies with substantially greater resources than Research Frontiers such as 3M, Gentex Corp., Pilkington, PPG Industries, Saint-Gobain Glass and other large corporations have pursued or are pursuing projects in the electrochromic area. While some of these companies have reportedly discontinued or substantially curtailed their work on electrochromics due to technical problems and issues relating to the expense of these technologies, at least four companies, Saint-Gobain Glass, Sage Electrochromics, Inc., Gentex Corp. and PPG Industries are currently actively working to commercialize electrochromic window products.

Liquid Crystal Technology: To date, the main types of liquid crystal smart windows have been produced by Taliq Corp. (a subsidiary of Raychem Corp. which has since discontinued its liquid crystal operations and licensed its technology to others), Asahi Glass Co., Nippon Sheet Glass, Saint-Gobain Glass, Polytronix, Inc., DMDDisplays, iGlass Projects Pty Limited, and 3M (which has also reportedly discontinued its liquid crystal film making operations). The first three companies listed above are also licensees of Research Frontiers Inc. for SPD-Smart technology. Liquid crystal windows only change from a cloudy, opaque milky-white to a clear state, are hazy when viewed at an angle and have no useful intermediate states. As compared to liquid crystal windows, SPD smart windows are expected to have some or all of the following advantages:

- have less haze
- operate over a wider temperature range



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- use less power
- have higher contrast ratios
- absorb and shade light, rather than simply scattering it
- permit an infinite number of intermediate states between a transparent state and a dark blue state, rather than being just two states.
- offer superior solar heat gain control

In the flat panel display market, further development (such as the achievement of faster switching speeds sufficient for full-motion video applications) is required if the Company expects to compete against various display technologies that are currently being used commercially such as liquid crystal displays ("LCDs") and organic light-emitting diodes ("OLEDs"). Some of the advantages that SPD displays might have include the ability to make displays without using sheet polarizers or alignment layers, and lower light loss and a corresponding reduction in backlighting requirements. Because of further development work to be done in this area, the Company cannot estimate when, or if, its licensees may begin to penetrate the flat panel display market.

LCDs and other types of displays, liquid crystal windows, as well as electrochromic self-dimmable rear-view mirrors, are already on the market, whereas products incorporating SPD technology (as well as electrochromic windows) have only begun to appear in the marketplace. Therefore, the long-term durability and performance of SPD-Smart displays have not yet been fully ascertained. The companies manufacturing LCD and other display devices, liquid crystal windows, and electrochromic self-dimmable rear-view mirrors and windows, have substantially greater financial resources and manufacturing experience than the Company. There is no assurance that comparable systems having the same advantages of the Company's SPD technology could not be developed by competitors at a lower cost or that other products could not be developed which would render the Company's products difficult to market or technologically or otherwise obsolete.

### Research and Development

As a result of the Company's research and development efforts, the Company believes that its SPD technology is now, or with additional development will become, usable in a number of commercial products. Such products may include one or more of the following fields: "smart" windows, variable light transmission eyewear such as sunglasses and goggles, self-dimmable automotive sunroofs, sunvisors and mirrors, and instruments and other information displays that use digits, letters, graphic images, or other symbols to supply information, including scientific instruments, aviation instruments, automobile dashboard displays and, if certain improvements can be made in various features of the Company's SPD technology, portable computer displays and flat panel television displays. The Company believes that most of its research and development efforts have applicability to products that may incorporate the Company's technology. At its current state of development, the Company's technology has been judged sufficiently advanced by various of its licensees and their customers for them to proceed with the development, introduction and sale of SPD-Smart products. However, the Company is continuously investing in research and

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development because it believes that further improvements will result in accelerated and increased market penetration. The Company intends to continue its research and development efforts for the foreseeable future to improve its SPD light-control technology and thereby assist our licensees in the product development, sales and marketing of various existing and new SPD-Smart products.

During the past year, the Company and/or its licensees have made significant advances relating to materials to enable (1) improved stability of SPD emulsions, (2) a wider range of light transmission, and (3) improved film adhesion and cohesion.

The Company has devoted most of the resources it has heretofore expended to research and development activities with the goal of producing commercially viable SPD products and has developed working prototypes of SPD-Smart products for several different applications, with primary emphasis on smart windows for various industries.

Research Frontiers' main goals in its research and development are:

- developing wider ranges of light transmission and quicker switching speeds
- developing different colored particles
- reducing the voltage required to operate SPDs
- obtaining data and developing improved materials regarding environmental stability and longevity
- quantifying the degree of energy savings expected by users of the Company's technology including the degree that SPD technology can control heat and its contribution to energy savings directly and through daylight harvesting strategies in sustainable building designs.

Excluding non-cash expenses associated with the grant of stock options to the Company's technical personnel, Research Frontiers incurred approximately \$1,470,000, \$1,293,000, and \$1,171,000 during the years ended December 31, 2008, 2007, and 2006, respectively, for research and development. Research Frontiers plans to engage in substantial continuing research and development activities to invest in future improvements in SPD light-control technology and to expand for its licensees the capabilities of SPD-Smart technology and the markets for SPD-Smart products.

### Patents and Proprietary Information

Research Frontiers continues to make substantial investments in improving SPD-Smart light-control technology and to expanding its intellectual property portfolio. The Company has 32 United States patents in force, and four United States patent applications are pending. The Company's United States patents expire at various dates from 2009 through 2025. The Company has approximately 235 issued foreign patents and 249 foreign and international patent applications pending. The Company's foreign patents expire at various dates from 2009 through 2022. The Company believes that its SPD light-control technology is adequately protected by its patent position and by its proprietary technological know-how. However, the validity of the Company's patents has never been contested in any litigation. The Company also possesses know-how and relies on trade secrets and nondisclosure agreements to protect its

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technology. The Company generally requires any employee, consultant, or licensee having access to its confidential information to execute an agreement whereby such person agrees to keep such information confidential.

Research Frontiers' licensees have also directed the Company not to reveal aspects of their activities or those of their customers, which limits the Company's ability to disclose certain information.

### Rights Plan

In February 2003, the Company's Board of Directors adopted a Stockholders' Rights Plan and declared a dividend distribution of one Right for each outstanding share of Company common stock to stockholders of record at the close of business on March 3, 2003. Subject to certain exceptions listed in the Rights Plan, if a person or group has acquired beneficial ownership of, or commences a tender or exchange offer for, 15% or more of the Company's common stock, unless redeemed by the Company's Board of Directors, each Right entitles the holder (other than the acquiring person) to purchase from the Company \$120 worth of common stock for \$60. If the Company is merged into, or 50% or more of its assets or earning power is sold to, the acquiring company, the Rights will also enable the holder (other than the acquiring person) to purchase \$120 worth of common stock of the acquiring company for \$60. The Rights will expire at the close of business on February 18, 2013, unless the Rights Plan is extended by the Company's Board of Directors or unless the Rights are earlier redeemed by the Company at a price of \$.0001 per Right. The Rights are not exercisable during the time when they are redeemable by the Company. The above description highlights some of the features of the Company's Rights Plan and is not a complete description of the Rights Plan. A more detailed description and a copy of the Rights Plan is available from the Company upon request.

### ITEM 1A. RISK FACTORS

In addition to the other information in this Annual Report on Form 10-K, you should carefully consider the following factors in evaluating us and our business. This Annual Report contains, in addition to historical information, forward-looking statements that involve risks and uncertainties. Our actual results could differ materially. Factors that could cause or contribute to such differences include, but are not limited to, those discussed below, as well as those discussed elsewhere in this Annual Report, including the documents incorporated by reference.

There are risks associated with investing in companies such as ours who are engaged in research and development. In addition to risks which could apply to any company or business, you should also consider the business we are in and the following:

Research Frontiers has a history of operating losses, expects to incur additional losses in the future, and consequently will need additional funds in the future to continue its operations. Because we expect that our future revenues will consist primarily of license fees (which have not

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been significant to date), unless our licensees produce and sell products using our technology, Research Frontiers will not be profitable. There is no guarantee that we will ever be profitable. Since Research Frontiers was started in 1965 through December 31, 2008, its total net loss was \$72,396,592. Our net loss was \$2,594,843 in 2008, \$7,565,218 in 2007 (which includes a non-cash accounting charge of \$4,026,855 resulting from the expensing of stock options), and \$3,303,633 in 2006.

We have funded our operations by selling our common stock to investors. If we need additional money, there is no guarantee that it will be available when we need it, or on favorable terms. The Company would have to raise additional capital no later than the first quarter of 2010 if operations, including research and development and marketing, are to be maintained at current levels if its revenues do not increase before then. Eventual success of the Company and generation of positive cash flow will be dependent upon the extent of commercialization of products using the Company's technology by the Company's licensees and payments of continuing royalties on account thereof.

Research Frontiers depends upon the activities of its licensees in order to be profitable. We do not directly manufacture or market products using SPD technology. Although a variety of products have been sold by our licensees, and because it is up to our licensees to decide when and if they will introduce products using SPD technology, we cannot predict when and if our licensees will generate substantial sales of such products. Research Frontiers' SPD technology is currently licensed to 35 companies. Other companies are also evaluating SPD technology for use in various products. In the past, some companies have evaluated our technology without proceeding further. Also, we do not intend to manufacture products using SPD technology. Instead we intend to continue to license our SPD technology to manufacturers of end products, films and emulsion. We expect that our licensees would be primarily responsible for manufacturing and marketing SPD-Smart products and components, but we are also engaging in market development activities to support our licensees and build the smart glass industry.

Products using SPD technology have only recently begun to be introduced into the marketplace. Developing products using new technologies can be risky because problems, expenses and delays frequently occur. Research Frontiers cannot control whether or not its licensees will develop SPD products. Some of our licensees appear to be more active than others, some appear to be better capitalized than others, and some licensees appear to be inactive. There is no guarantee when or if our licensees will successfully produce any commercial product using SPD technology in sufficient quantities to make the Company profitable.

Because SPD technology is the only technology Research Frontiers works with, our success depends upon the viability of SPD technology which has yet to be fully proven. We have not fully ascertained the performance and long-term reliability of our technology, and therefore there is no guarantee that our technology will successfully be incorporated into all of the products which we are targeting for use of SPD technology. We expect that different product applications for SPD technology

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will have different performance and reliability specifications. We expect that our licensees will primarily be responsible for reliability testing, but that we may also continue to do reliability testing so that we can more effectively focus our research and development efforts towards constantly improving the performance characteristics and reliability of products using SPD technology.

### ITEM 1B. UNRESOLVED STAFF COMMENTS

None

### ITEM 2. PROPERTIES

The Company currently occupies approximately 9,500 square feet of space at an annual rental which in 2008 was approximately \$191,000 for its executive office, research facility and SPD-Smart Glass Design Center at 240 Crossways Park Drive, Woodbury, New York 11797 under a lease expiring January 31, 2014. The Company believes that its space, including its laboratory facilities, is adequate for its present needs.

### ITEM 3. LEGAL PROCEEDINGS

There are no legal proceedings pending by or against the Company.

### ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

None

## PART II

### ITEM 5. MARKET FOR THE REGISTRANT'S COMMON EQUITY, RELATED STOCK HOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

#### (a) Market Information

(1) The Company's common stock is traded on the NASDAQ Capital Market. As of March 10, 2009, there were 15,742,784 shares of common stock outstanding.

(2) The following table sets forth the range of the high and low selling prices (as provided by the National Association of Securities Dealers) of the Company's common stock for each quarterly period within the past two fiscal years:

| Quarter Ended      | Low   | High  |
|--------------------|-------|-------|
| March 31, 2007     | 4.93  | 12.33 |
| June 30, 2007      | 9.55  | 14.29 |
| September 30, 2007 | 10.00 | 15.64 |
| December 31, 2007  | 7.90  | 17.40 |
| March 31, 2008     | 4.75  | 10.32 |
| June 30, 2008      | 4.76  | 7.99  |
| September 30, 2008 | 3.90  | 6.21  |
| December 31, 2008  | 1.55  | 4.48  |

These quotations may reflect inter-dealer prices, without retail mark-up, mark-down, or commission, and may not necessarily represent actual transactions.

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(b) Approximate Number of Security Holders

As of March 10, 2009, there were 505 holders of record of the Company's common stock. The Company estimates that there are approximately 7,700 beneficial holders of the Company's common stock.

(c) Dividends

The Company did not pay dividends on its common stock in 2008 and does not expect to pay any cash dividends in the foreseeable future. There are no restrictions on the payment of dividends.

(d) Issuer Purchases of Equity Securities

None.

### ITEM 6. SELECTED FINANCIAL DATA

The following table sets forth selected data regarding the Company's operating results and financial position. The data should be read in conjunction with Management's Discussion and Analysis of Financial Condition and Results of Operations and the consolidated financial statements and notes thereto, all of which are contained in this Annual Report on Form 10-K.

|  | 2008          | 2007          | Year ended December 31, |               | 2004          |
|--|---------------|---------------|-------------------------|---------------|---------------|
|  |               |               | 2006                    | 2005          |               |
| Statement of Operations Data:                              |               |               |                         |               |               |
| Fee income   | \$1,679,919   | \$ 402,359    | \$ 162,639              | \$ 138,742    | \$ 201,321    |
| Operating expenses (1)                                     | 2,959,576     | 5,774,027     | 2,383,856               | 2,624,379     | 2,633,534     |
| Research and development (1)                               | 1,469,760     | 2,529,576     | 1,170,503               | 1,391,657     | 1,682,624     |
| Charge for reduction in value of investment in SPD Inc.(2) | --            | --            | --                      | --            | 165,501       |
|  | 4,429,336     | 8,303,603     | 3,554,359               | 4,016,036     | 4,481,659     |
| Operating loss   | (2,749,417)   | (7,901,244)   | (3,391,720)             | (3,877,294)   | (4,280,338)   |
| Net investment income                                      | 154,574       | 336,026       | 88,087                  | 129,762       | 17,597        |
| Net loss   | \$(2,594,843) | \$(7,565,218) | \$(3,303,633)           | \$(3,747,532) | \$(4,262,741) |
| Basic and diluted net loss per common share                |               |               |                         |               |               |
|  | \$ (.17)      | \$ (.50)      | \$ (.24)                | \$ (.27)      | \$ (.33)      |
| Dividends per share  |               |               |                         |               |               |
|  | --            | --            | --                      | --            | --            |
| Weighted average number of common shares outstanding       |               |               |                         |               |               |
|  | 15,441,789    | 5,278,796     | 14,028,509              | 13,692,011    | 12,792,091    |
|  |               |               | As of December 31,      |               |               |
|  | 2008          | 2007          | 2006                    | 2005          | 2004          |

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### Balance Sheet Data:

|   |             |             |             |             |             |
|---|-------------|-------------|-------------|-------------|-------------|
| Total current assets                          | \$4,937,531 | \$7,469,456 | \$3,126,381 | \$3,823,093 | \$2,716,964 |
| Total assets                                  | 5,283,880   | 7,659,405   | 3,251,637   | 3,957,205   | 2,860,673   |
| Long-term debt, including<br>accrued interest | --          | --          | --          | --          | --          |
| Total shareholders'equity                     | 4,872,185   | 7,330,808   | 2,992,621   | 3,646,254   | 2,392,303   |

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- (1) Reflects a non-cash charge of \$2,790,656 to operating expenses, and a non-cash charge of \$1,236,199 to research and development expenses relating to the issuance of stock options in 2007, which increased the Company's net loss for 2007 by \$4,026,855.
  
- (2) Reflects a non-cash charge against income of \$209,704 recorded by the Company in the first quarter of 2004 to reflect a reduction in the value of its investment in SPD Inc. During the fourth quarter of 2004, the Company received a payment of \$44,203 as part of a liquidation distribution made by SPD Inc. to its shareholders, resulting in a total net non-cash charge against income of \$165,501 in 2004.

### ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

#### Critical Accounting Policies

The following accounting policies are important to understanding our financial condition and results of operations and should be read as an integral part of the discussion and analysis of the results of our operations and financial position. For additional accounting policies, see note 2 to our consolidated financial statements, "Summary of Significant Accounting Policies."

The Company has entered into a number of license agreements covering potential products using the Company's SPD technology. The Company receives fees and minimum annual royalties under certain license agreements and records fee income on a ratable basis each quarter. In instances when sales of licensed products by its licensees exceed minimum annual royalties, the Company recognizes fee income as the amounts have been earned. Certain of the fees are accrued by, or paid to, the Company in advance of the period in which they are earned resulting in deferred revenue.

The Company expenses costs relating to the development or acquisition of patents due to the uncertainty of the recoverability of these items.

All of our research and development costs are charged to operations as incurred. Our research and development expenses consist of costs incurred for internal and external research and development. These costs include direct and indirect overhead expenses.

The Company has historically used the Black-Scholes option-pricing model to determine the estimated fair value of each option grant. The Black-Scholes model includes assumptions regarding dividend yields, expected volatility, expected lives, and risk-free interest rates. These assumptions reflect our best estimates, but these items involve uncertainties

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based on market conditions generally outside of our control. As a result, if other assumptions had been used in the current period, stock-based compensation expense could have been materially impacted. Furthermore, if management uses different assumptions in future periods, stock-based compensation expense could be materially impacted in future years.

On occasion, the Company may issue to consultants either options or warrants to purchase shares of common stock of the Company at specified share prices. These options or warrants may vest based upon specific services being performed or performance criteria being met. In accordance with Emerging Issues Task Force Issue 96-18, Accounting for Equity Instruments that are Issued to Other than Employees for Acquiring, or in Conjunction with Selling, Goods or Services, the Company would be required to record consulting expenses based upon the fair value of such options or warrants on the date that such options or warrants vest as determined using a Black-Scholes option pricing model.

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, and reported amounts of revenues and expenses during the reporting periods. Actual results could differ from these estimates. An example of a critical estimate is the full valuation allowance for deferred taxes that was recorded based on the uncertainty that such tax benefits will be realized in future periods.

### Results of Operations

Year ended December 31, 2008 Compared to the Year ended December 31, 2007

The Company's fee income from licensing activities for 2008 was \$1,679,919, as compared to \$402,359 for 2007. This difference in fee income was primarily the result of the receipt of a one-time payment from a former licensee in full settlement of past due minimum annual royalties for several years and the Company entering into a new agreement with Hitachi Chemical regarding payments made by Hitachi Chemical to the Company for guaranteed access to future improvements in the Company's technology, the timing and amount of minimum annual royalties paid, and the date of receipt of such payment on certain license agreements, by end-product licensees. Certain license fees, which are paid to the Company in advance of the accounting period in which they are earned can result in the recognition of deferred revenue for the current accounting period, which will be recognized as fee income in future periods. Also, licensees may offset some or all of their royalty payments on sales of licensed products for a given period by applying these advance payments towards such earned royalty payments. Because the Company's license agreements typically provide for the payment of royalties by a licensee on product sales within 45 days after the end of the quarter in which a sale of a licensed product occurs (with some of the Company's more recent license agreements providing for payments on a monthly basis), and because of the time period which typically will elapse between a customer order and the sale of the licensed



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product and installation in a home, office building, automobile, aircraft, boat, or any other product, there could be a delay between when economic activity between a licensee and its customer occurs and when the Company gets paid its royalty resulting from such activity.

Operating expenses decreased by \$2,814,451 for 2008 to \$2,959,576 from \$5,774,027 for 2007. This decrease was principally the result of non-cash charges of \$2,790,656 in 2007 relating to primarily fully vested stock options granted by the Company. Additional factors causing this decrease were lower payroll costs (\$41,000), marketing costs (\$81,000), and patent costs (\$13,000) partially offset by increased reserves for uncollectable accounts (\$40,000) and higher insurance costs (\$29,000).

Research and development expenditures decreased by \$1,059,816 to \$1,469,760 for 2008 from \$2,529,576 for 2007. This decrease was principally the result of non-cash charges of \$1,236,199 in 2007 relating to fully vested stock options granted by the Company. Offsetting this decrease were higher payroll costs (\$132,000), and insurance costs (\$29,000).

Investment income for 2008 was \$154,574 as compared to \$336,026 for 2007. The difference was primarily due to lower cash balances available to invest, as well as lower interest rates during 2008.

As a consequence of the factors discussed above, the Company's net loss was \$2,594,843 (\$0.17 per share) for 2008 as compared to \$7,565,218 (\$0.50 per share) for 2007. The difference is primarily due to non-cash accounting charges of \$4,026,855 (\$0.26 per share) in 2007 relating to the issuance of common stock options as well as \$1,277,560 (\$0.08 per share) in higher fee income in 2008.

Year ended December 31, 2007 Compared to the Year ended December 31, 2006

The Company's fee income from licensing activities for 2007 was \$402,359, as compared to \$162,639 for 2006. This difference in fee income was primarily the result of the Company entering into a new agreement with Hitachi Chemical regarding payments made by Hitachi Chemical to the Company for guaranteed access to future improvements in the Company's technology, the timing and amount of minimum annual royalties paid, and the date of receipt of such payment on certain license agreements, by end-product licensees, and an amendment to an existing license agreement with American Glass Products ("AGP"), which, among other things, increased the percentage royalty due from AGP from 5% to 15%. Certain license fees, which are paid to the Company in advance of the accounting period in which they are earned resulting in the recognition of deferred revenue for the current accounting period, will be recognized as fee income in future periods. Also, licensees may offset some or all of their royalty payments on sales of licensed products for a given period by applying these advance payments towards such earned royalty payments. Because the Company's license agreements typically provide for the payment of royalties by a licensee on product sales within 45 days after the end of the quarter in which a sale of a licensed product occurs (with some of the Company's more recent license agreements providing for payments on a monthly

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basis), and because of the time period which typically will elapse between a customer order and the sale of the licensed product and installation in a home, office building, automobile, aircraft, boat or any other product, there could be a delay between when economic activity between a licensee and its customer occurs and when the Company gets paid its royalty resulting from such activity.

Operating expenses increased by \$3,390,171 for 2007 to \$5,774,027 from \$2,383,856 for 2006. This increase was primarily the result of non-cash charges of \$2,790,656 relating to primarily fully vested stock options granted by the Company during the year. Additional factors causing this increase were higher payroll costs (\$151,000), and marketing costs (\$158,000), patent costs (\$113,000) and insurance costs (\$59,000).

Research and development expenditures increased by \$1,359,073 to \$2,529,576 for 2007 from \$1,170,503 for 2006. This increase was primarily the result of non-cash charges of \$1,236,199 relating to fully vested stock options granted by the Company during the year. Additional factors causing this increase were higher payroll costs (\$52,000), insurance (\$55,000) and consulting costs (\$25,000).

Investment income for 2007 was \$336,026 as compared to \$88,087 for 2006. The difference was primarily due to higher cash balances available to invest, partially offset by lower interest rates during 2007.

As a consequence of the factors discussed above, the Company's net loss was \$7,565,218 (\$0.50 per share) for 2007 as compared to \$3,303,633 (\$0.24 per share) for 2006. The difference is primarily due to non-cash accounting charges of \$4,026,855 (\$0.26 per common share) resulting from the issuance of stock options during 2007.

### Financial Condition, Liquidity and Capital Resources

During 2008, the Company's cash and cash equivalents balance decreased \$4,892,680 principally as a result of cash used to fund operations of \$2,414,276 as well as net purchases of US Treasury Securities (\$2,259,496), fixed assets (\$76,220) and \$112,500 invested in SPD Control Systems. At December 31, 2008, the Company had working capital of \$4,525,836 and shareholders' equity of \$4,872,185.

During 2007, the Company's cash and cash equivalent balance increased by \$4,259,671 principally as a result of net proceeds received from the issuance of common stock and on the exercise of options and warrants of \$7,876,550 partially offset by cash used to fund operations of \$3,517,185.

During 2006, the Company's cash and cash equivalent balance decreased by \$644,164 principally as a result of cash used to fund the Company's operating activities of \$3,265,358 partially offset by \$2,650,000 of net proceeds received from the issuance of common stock.

The Company occupies premises under an operating lease agreement which expires on January 31, 2014 and requires minimum annual rent which rises over the term of the lease to

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approximately \$176,669, plus tenant's share of applicable taxes.  
These lease obligations are summarized over time as of  
December 31, 2008:

Payments due by period