

# nanophase technologies corporation

DRIVING PRODUCT **INNOVATION**



>>> **2006 ANNUAL REPORT**



letter to **shareholders**

in the **news**

**products**

**officers**

board of **directors**

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>>> anti-microbial



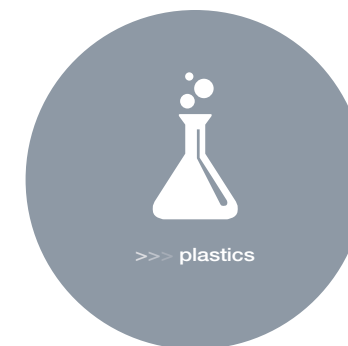
>>> architectural coatings



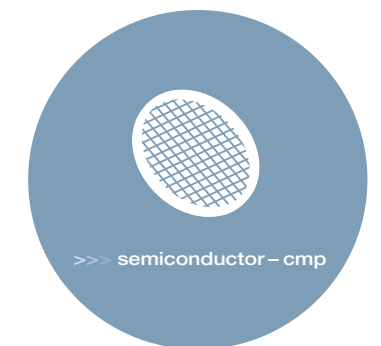
>>> industrial coatings



>>> personal care



>>> plastics



>>> semiconductor-cmp

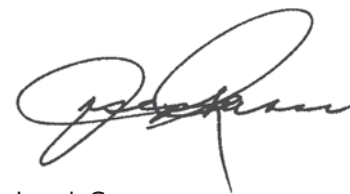
2006 was another excellent year of growth and performance for Nanophase. Continuing our focus on revenue growth, margin expansion, operational and technical improvement, and customer performance, the Company demonstrably performed in each area.

Nanophase achieved double-digit year-over-year revenue growth in each quarter of 2006 and, by the end of the year, grew annual revenue 32% over 2005. Revenue growth occurred primarily in sunscreens, personal care, and architectural coatings, a relatively new and growing market for the Company. In tandem, gross margin growth continued and increased to approximately 22% of sales, growing over 50% from 2005 levels.

Again this year, we made significant progress evolving our technologies and manufacturing processes focused on continuous improvement for manufacturing cost, variable margin expansion, and continually improving product quality. Nanophase's facilities were also recertified to ISO 14001:2000, the international environmental management standard, as well as ISO 9001:2000, an international standard of manufacturing and quality excellence. For the fifth consecutive year, the Company achieved essentially 100% customer service levels with zero customer complaints—a continuing testament to our commitment to our customers and world-class performance.

As we enter 2007, we believe that Nanophase is well positioned for continuing revenue growth and financial performance. We anticipate growth in all of our market segments, especially

industrial coatings, architectural coatings, and plastics, as well as addressing new opportunities and markets. We continue to be confident that Nanophase is and remains at the leadership forefront in nanomaterial solutions.



**Joseph Cross**  
President & CEO  
June 1, 2007



letter to **shareholders**

in the **news**

**products**

**officers**

board of **directors**

**10k**

# nanophase technologies corporation

## IN THE NEWS

Nanophase Technologies is a nanotechnology company—a technology that the US Government says is “likely to change the way almost everything...is designed and made.”

Founded in 1989, Nanophase has traded on the Nasdaq Stock Exchange under the symbol NANX since 1997.

>>> Nanophase Technologies Announces Architectural Coating Order ... Nanophase expects to begin delivering its advanced nanoengineered product during 2006. “We are pleased with this series of orders and the launch of this new consumer product which we expect to grow into an increased revenue stream as the market rollout matures.”

**NANOPHASE PRESS RELEASE**  
APRIL 10, 2006

>>> Nanophase announced a new mutually exclusive supply agreement with BASF to supply patent-pending surface engineered nanoparticles for current and future products for BASF’s Z-COTE® MAX brand ... “We are honored to be designated a strategic development partner for BASF and proud of our mutual collaboration on this new line of BASF products.”

**NANOPHASE PRESS RELEASE**  
March 16, 2005

>>> Nanophase Technologies announced that eleven new nanoparticle products have been added to Alfa Aesar’s distribution for research quantities of Nanophase’s materials. Alfa Aesar, the research chemicals unit of Johnson Matthey, now distributes 33 Nanophase-branded products as nanoparticles and nanoparticle dispersions to a global customer base ... “Alfa’s powerful global marketing and distribution capabilities, including a full Internet ecommerce system, Internet advertising, and print catalogues and brochures, are a significant addition to Nanophase’s marketing initiatives.”

**NANOPHASE PRESS RELEASE**  
July 17, 2006

>>> Nanophase announces extended exclusive partnership and \$5 million investment by Rohm and Haas Electronic Materials. The partnership will collaborate in developing innovative nanomaterials-based slurries for current and future technology nodes in semiconductor fabrication.

**NANOPHASE PRESS RELEASE**  
August 28, 2006

>>> Nanophase Technologies announced the Company was issued a new patent entitled “Nanostructured Compositions” ... “We regard this patent as seminal technology in the coating field and it is significant for the Company and our partnership with ALTANA Chemie AG, one of the world’s leading suppliers of paint and plastic additives for coatings, printing inks, and plastics. Substantially transparent, abrasion and wear resistant nanoparticle coatings have numerous potential applications in many commercial markets.”

**NANOPHASE PRESS RELEASE**  
March 26, 2007



letter to **shareholders**

in the **news**

**products**

**officers**

board of **directors**

**10k**



## PRODUCTS



Creating nanomaterials involves altering metal oxides and other compounds at a molecular level, resulting in compounds with enhanced or entirely new characteristics and capabilities. Nanophase's proprietary formulations are used in a variety of applications including Anti-microbial, Architectural and Industrial Coatings, Textiles, Personal Care, Plastics and Semiconductor polishing.

### >>> Anti-microbial

Products from Nanophase Technologies can be useful in anti-microbial products in applications including wood preservation, marine antifouling systems, various textile fibers, thermoplastics, surface cleaners and permanent coatings. The small particle size of our products results in little influence on the final formulation in terms of clarity, rheology, surface texture, and gloss or physical/mechanical properties.

### >>> Architectural Coatings

The need for scratch, mar and abrasion resistance is well established in various markets, including paints, fingernail polishes, flooring, plastic glazing, headlamp covers and other automotive parts, transportation windows and optical lenses, where clear scratch-resistant coatings are used. Our products can also be surface treated through proprietary technology to ensure compatibility with a variety of coating systems.

### >>> Industrial Coatings

Long term anti-microbial activity can be imparted in many coating formulations through the incorporation of nanomaterials. The desire for permanent coatings to impart long-term antimicrobial or bacteria-stat properties to coated products can be useful in industrial applications such as healthcare, industrial and institutional cleaning, food processing and food service.

### >>> Personal Care

The personal care industry is addressing heightened concerns regarding protection from ultra-violet light and providing anti-microbial functionality, while maintaining products that are mild and non-irritating. Our products are produced according to cGMP standards in an ISO 9001:2000 certified facility and are FDA approved for use as active ingredients in personal care products. Current personal care applications where uv-attenuation, anti-microbial activity, odor control, and/or anti-irritating functionality are sought include sunscreen formulations, foot powder, shaving cream, oral care and deodorants/antiperspirants.

### >>> Plastics

Long-term antimicrobial needs in various plastic, rubber and composite materials have been increasing in recent years.

Nanomaterials can provide cost-effective longevity of activity even in harsh environments and after significant thermal history, separating them from the more unstable organic biocides. Applications for antimicrobial plastic parts include children's toys, refrigerator liners and other appliance parts, interior and exterior wall coverings, adhesives, caulks and sealants and food processing and food service equipment.

### >>> Semiconductor – CMP

As the semiconductor industry continues to move forward to smaller chip architecture, the need for advanced CMP slurries becomes a requirement that cannot be met by the slurries provided in the past. Nanophase's dispersions are on the forefront of providing high planarity surfaces and efficient removal rates. These high purity dispersions feature particles less than 100 nanometers in size with uniform morphology for critical electronic polishing applications. The unique surface chemistry of these nanomaterials allows formulation of highly concentrated dispersions at a variety of pH.



letter to **shareholders**

in the **news**

**products**

**officers**

board of **directors**

**10k**

## OFFICERS

### >>> JOSEPH E. CROSS

#### President & Chief Executive Officer

Mr. Cross joined Nanophase as President and Chief Operating Officer in November 1998. He was promoted to Chief Executive Officer in December 1998. From 1993–1998, Mr. Cross served as President and CEO of APTECH, Inc., an original equipment manufacturer of metering and control devices for the utility industry, and as President of Aegis Technologies, an interactive telecommunications company. He holds a B.S. in chemistry and attended the M.B.A. program at Southwest Missouri University. He brings a background of successfully directing several high-technology start-ups, rapid growth and turnaround operations.

### >>> KEVIN J. WENTA

#### Executive Vice President— Sales & Marketing

Mr. Wenta joined the Company in January 2007. He brings twenty years of business development, sales, marketing, finance and operations experience to Nanophase. Prior to joining the Company, Mr. Wenta was a Partner at Accenture, a global consultancy. Previous to that he was a General Manager at Eastman

Chemical Company, successfully leading a turnaround of their \$520 million resins, monomers and textiles businesses. In addition, he held the position of Director of Corporate Strategy for the \$5.5 billion parent company. Previous experience includes VP of Business Development at ChemConnect (formerly CheMatch), a global electronic chemical exchange, financial positions at ARCO and he began his career at Shell Chemical in sales. Mr. Wenta holds a B.S. degree in Chemical Engineering from the University of Texas at Austin and a M.B.A. degree from the University of Chicago.

### >>> DR. RICHARD W. BROTZMAN

#### Vice President—Research & Development

Dr. Brotzman joined Nanophase in 1994 as a Senior Scientist and was promoted to his present position in 1996. He has more than 15 years of experience in the research and development of advanced materials leading to new products—and is the inventor of the Company's coating technology. From 1991–1994, Dr. Brotzman served as Director of Research at TPL, Inc., an advanced materials company. He earned his B.S.

in chemical engineering from Lafayette College, an M.S. in engineering and applied science from the University of California at Davis, and a Ph.D. in chemistry from the University of Washington.

### >>> ROBERT HAINES

#### Vice President—Operations

Mr. Haines joined Nanophase Technologies in January 2001 as Vice President—Operations. Beginning in 1996 and prior to joining Nanophase, he served as Corporate Director of Quality at Legrand North America. Previous experience includes two years as Vice President of Operations for Aegis Technologies and eight years with Digital Equipment Corporation. Mr. Haines has a B.S. in Chemistry/Engineering Physics from East Tennessee State University.

### >>> JESS A. JANKOWSKI,

#### Chief Financial Officer

Mr. Jankowski has served as Controller of the Company since joining in 1995. He was elected Secretary and Treasurer in November 1999, Acting Chief Financial Officer in January 2000, Vice President in April 2002 and Vice President of Finance and Chief Financial Officer in April 2004.

From 1990–1995 he served as Controller for two building contractors in the Chicago area, also serving in the business development function. From 1986 to 1990 he worked for Kemper Financial Services in their accounting control corporate compliance unit, serving as unit supervisor during his last two years. He holds a B.S. in accountancy from Northern Illinois University, an M.B.A. from Loyola University of Chicago and received his certified public accountant certificate from the State of Illinois.

Mr. Jankowski has served on the advisory board of WESTEC, an Illinois Technology Enterprise Center focusing on the commercialization of advanced manufacturing technologies, since 2003. He was also recently elected to the Romeoville Economic Development Commission, an organization focused on fostering new business growth in Romeoville, Illinois which resides in Will County, the twelfth fastest growing county in the U.S.



letter to **shareholders**

in the **news**

**products**

**officers**

board of **directors**

**10k**



## BOARD OF DIRECTORS

### >>> DONALD S. PERKINS

#### Chairman of the Board

Donald S. Perkins is the former Chairman of Jewel Companies, Inc., a food and drug store chain. Mr. Perkins graduated from Yale University and the Harvard Business School. He served in the U.S. Merchant Marine in the mid 1940s and the Air Force in the early 1950s. Starting as a trainee with the then Jewel Tea Company in 1953, he was elected Vice President in 1960, Executive Vice President three years later, President in 1965 and Chairman and Chief Executive Officer in 1970.

He retired from Jewel Companies, Inc. in 1983. Mr. Perkins currently serves as a Director of Cantilever Technologies LLC, LaSalle Hotel Properties, LaSalle U.S. Realty Income and Growth Funds I, II and III and Nanophase Technologies Corporation, where he is Chairman. For more than 30 years, he has served on Corporate Boards including AT&T, Aon, Coming, Cummins Engine, Eastman Kodak, Firestone, Inland Steel Industries, Kmart, Lucent Technologies, The Putnam Funds, Springs Industries and Time Warner. He is a Life Trustee and was Vice Chairman of Northwestern University. He co-chaired Campaign Northwestern,

a university-wide effort which has raised more than \$1.5 billion. He is Honorary Chairman of The Illinois Coalition and Protector of the Thyssen-Bornemisza Continuity Trust. He has served as a Trustee of The Ford Foundation and The Brookings Institution and as a member of The Business Council. He is also a member of the Civic Committee of The Commercial Club of Chicago, a Director of Leadership for Quality Education, and a member of the Advisory Boards of RoundTable Healthcare Partners L.P., Northwestern University's School of Communication and its School of Education and Social Policy.

### >>> JOSEPH E. CROSS

*(See biography under Officers)*

### >>> JAMES A. HENDERSON

#### Director

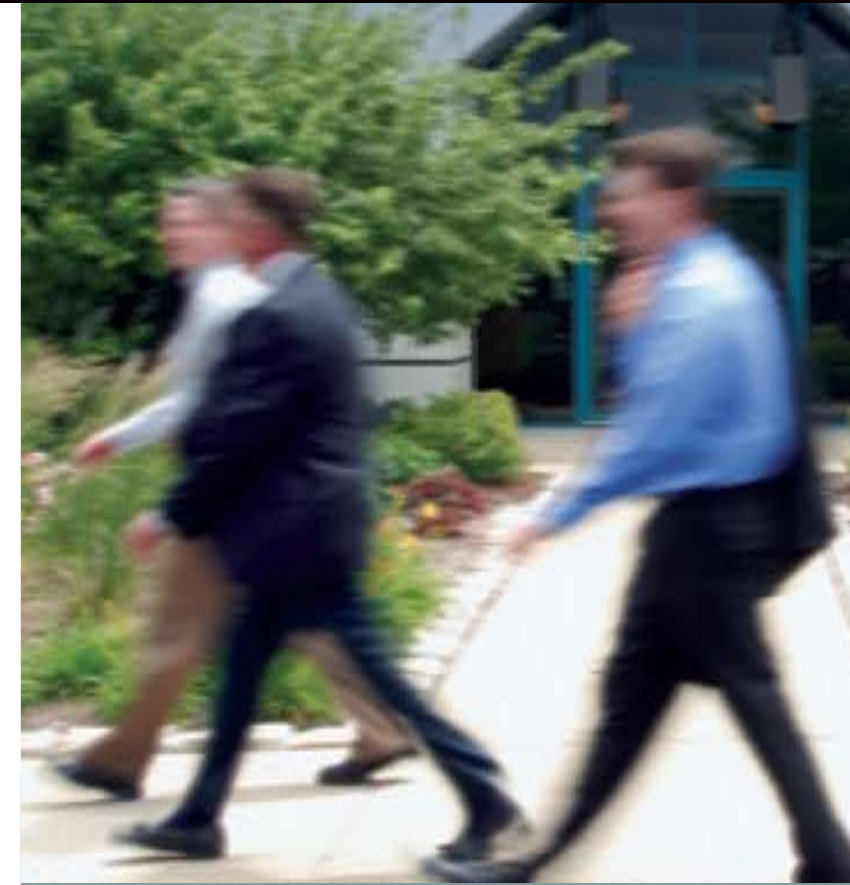
Mr. Henderson has served as a director of the Company since July 2001. He retired as Chairman and Chief Executive Officer of Cummins Engine Company in December 1999, after joining the company in 1964. Mr. Henderson became President and Chief Operating Officer of Cummins, Inc. in 1977, was promoted to President and Chief

Executive Officer in 1994 and served as Chairman and Chief Executive Officer from 1995 until his retirement in 1999. Mr. Henderson attended Culver Military Academy, holds an A.B. in public and international affairs from Princeton University and an M.B.A. from Harvard Business School. Mr. Henderson currently serves as Chairman of the Board of The Culver Education Foundation, member of the Board of Directors of International Paper, Ryerson Tull, Inc., SBC Communications, Inc., and is a member of the Washington, D.C. Business Council.

### >>> JAMES A. McCLUNG

Mr. McClung has served as a director of the Company since February 2000. He is currently Vice Chairman of Charter Consulting and former Senior Vice President and executive officer for FMC Corporation, a leading producer of a diversified portfolio of chemicals and machinery. He has over 30 years of international business development in over 75 countries, having managed and developed new technologies and production processes for diversified global businesses, including specialized chemicals and machinery, while living in the United States, Europe and Africa.

Mr. McClung currently serves as Corporate Director of Alticor (Amway), Beaulieu of America Corporation, NCCI Holdings, Turtle Wax and Hu-Friedy. He was a founding member of the U.S. Russia Business Council and is active in other international business organizations, such as the Japan American Society, Chicago Council of Foreign Relations and the Economic Club of Chicago. He serves as a board director at Thunderbird: The Garvin School of International Management, and the College of Wooster (Ohio). Mr. McClung earned a Bachelor's degree from the College of Wooster, a Master's degree from the University of Kansas, and a Doctorate from Michigan State University.



letter to **shareholders**

in the **news**

**products**

**officers**

board of **directors**

**10k**

## BOARD OF DIRECTORS

### >>> JERRY K. PEARLMAN

Mr. Pearlman has served as a director of the Company since April 1999. Mr. Pearlman retired as Chairman of Zenith Electronics Corporation in November 1995. He joined Zenith as Controller in 1971 and served as Chief Executive Officer from 1983 through April 1995. Mr. Pearlman is a director of Smurfit-Stone Container Corporation and Ryerson-Tull, Inc. He is a trustee of Northwestern University and a director and past Chairman of the Board of Evanston Northwestern Healthcare. Mr. Pearlman graduated from Princeton with honors from the Woodrow Wilson School and from Harvard Business School with highest honors.

### >>> DR. RICHARD W. SIEGEL

Dr. Siegel is a co-founder of the Company and has served as a director of the Company since 1989. Dr. Siegel also served as a consultant to the Company from 1990 to 2002 with regard to the application and commercialization of nanocrystalline materials. Dr. Siegel is an internationally recognized scientist in the field of nanocrystalline materials. During his tenure on the research staff at Argonne National Laboratory from July

1974 to May 1995, he was the principal scientist engaged in research with the laboratory-scale synthesis process that was the progenitor of the Company's physical-vapor-synthesis production system.

Dr. Siegel has been the Robert W. Hunt Professor in Materials Science and Engineering at Rensselaer Polytechnic Institute since June 1995, and served as Department Head from 1995 to 2000. In April 2001, Dr. Siegel became the founding Director of the newly created Rensselaer Nanotechnology Center at the Institute. During 1995–1998, he was also a visiting professor at the Max Planck Institute for Microstructure Physics in Germany on an Alexander von Humboldt Research Prize received in 1994. During 2003–2004 he was a visiting professor in Japan on a RIKEN Eminent Scientist Award. He chaired the World Technology Evaluation Center worldwide study of nanostructure science and technology for the U.S. government, has served on the Council of the Materials Research Society and as Chairman of the International Committee on Nanostructured Materials. He also served on the Committee on Materials with Sub-Micron Sized Microstructures of the National Materials Advisory Board

and was the co-chairman of the Study Panel on Clusters and Cluster-Assembled Materials for the U.S. Department of Energy. He currently serves on the Nanotechnology Technical Advisory Group to the U.S. President's Council of Advisors on Science and Technology. Dr. Siegel holds an A.B. degree in physics from Williams College and an M.S. degree and Ph.D. from the University of Illinois at Urbana-Champaign.

### >>> JANET WHITMORE

Ms. Whitmore joined the board in November, 2003. She is currently a director for Silverleaf Resorts, Inc., where she serves as Chairman of the Compensation Committee and as a member of the Audit and Finance Committee. Ms. Whitmore is Founder of Benton Consulting, LLC, which specializes in business development and processes. From 1976 through 1999, Ms. Whitmore held numerous engineering and finance positions at Mobil Corporation, including Mobil's Chief Financial Analyst and Controller of Mobil's Global Petrochemicals Division. Ms. Whitmore holds a Bachelor of Science degree in Chemical Engineering from Purdue University and an M.B.A. from Lewis University.

>>> Independent Auditors  
**MCGLADREY & PULLEN LLP**  
20 North Martingale Rd., Suite 500  
Schaumburg, Illinois 60173

>>> Transfer Agent  
**LASALLE NATIONAL ASSOCIATION**  
Corporate Trust Department  
135 South LaSalle Street, Room 1960  
Chicago, Illinois 60603  
800-246-5761

>>> Stock Listing  
Nanophase Technologies Corporation's common stock is traded on the Nasdaq National Market under the symbol NANX.

>>> Annual Meeting  
**JULY 30, 2007**  
at Nanophase Technologies Corporation  
1319 Marquette Drive  
Romeoville, Illinois 60446

>>> Form 10-K  
Nanophase Technologies Corporation will send a copy of its Form 10-K report for fiscal 2006 as filed with the Securities and Exchange Commission upon written request to Investor Relations at the corporate office.



letter to **shareholders**

in the **news**

**products**

**officers**

board of **directors**

**10k**

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SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

**FORM 10-K**

**[X] ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(D)  
OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2006 Commission File Number 0-22333

**NANOPHASE TECHNOLOGIES CORPORATION**

(Exact name of registrant as specified in its charter)

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

**36-3687863**  
(I.R.S. Employer Identification No.)

**1319 Marquette Drive, Romeoville, Illinois 60446**  
(Address of principal executive offices) (zip code)

Registrant's telephone number, including area code: **(630) 771-6708**

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

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

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

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

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

Indicate by check mark 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. Yes  No

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

Large accelerated filer  Accelerated filer  Non-accelerated filer



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

The aggregate market value of the registrant's voting stock held by non-affiliates of the registrant based upon the last reported sale price of the registrant's common stock on June 30, 2006 was \$91,844,642 as of such date.

The number of shares outstanding of the registrant's common stock, par value \$.01, as of March 12, 2007 was 19,001,509.

**DOCUMENTS INCORPORATED BY REFERENCE**

None.

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## **PART I**

### **Item 1. Business**

#### **General**

Nanophase Technologies (“Nanophase” or the “Company”) is a nanomaterials developer and commercial manufacturer and produces engineered nanomaterial products for diverse markets – sunscreens, personal care, architectural coatings, industrial coating ingredients, plastic additives, water filtration, DNA bio-sensors, semiconductor polishing, optics polishing and other markets. Additionally, new markets and applications are constantly emerging and being developed on a global scale. Nanophase markets its products globally – U.S, Europe and Asia. The Company was incorporated in Illinois on November 25, 1989, and became a Delaware corporation on November 30, 1997. The Company’s common stock trades on the NASDAQ Global Market under the symbol NANX.

Nanophase has created a leading commercial platform of integrated nanomaterials technologies that are designed to deliver an optimal engineered nanomaterial ‘solution’ for a target market or specific customer application. The Company has complete capability from application development and laboratory samples through pilot production and, finally, commercial production in metric ton(s) capacity. Nanophase has development and application laboratories and manufacturing capacity in two locations in the Chicago area. The Company’s manufacturing is based on Lean Six Sigma discipline and is certified to ISO 9001, American National Standard, Quality Management System Requirements; ISO 14001, American National Standard, Environmental Management System Requirements; and is compliant with cGMP for products under FDA regulation.

Most of the raw materials used in the Company’s various processes are commercially available. In some cases, Nanophase relies on sole-source processors of materials who utilize an array of worldwide sources for the materials that they process to the Company’s specifications.

#### **Nanomaterials**

Nanomaterials are generally comprised of particles (nanoparticles) that are less than 100 nanometers in diameter, which have a wide range of unique properties owing to their very small size. A nanometer is one-billionth of a meter, or about 100,000 times smaller in size than the width of a human hair. To give another perspective, a six-foot tall person is around two-billion nanometers in height.

Nanotechnology involves manipulating the properties of materials, made up of basic elements or combinations thereof, at the 100-nanometer level or below. At this scale, the relatively small number of constituent atoms, the large proportion of these atoms on surfaces, and their confined dimensions lead materials to exhibit unique properties that can be used in many applications.

Nanomaterials are an important and enabling part of the diverse field of nanotechnology. The properties of nanomaterials, and hence their ultimate application performance and value, depend on the composition, size, shape, structure and surface chemistry of their constituent nanoparticles, as well as the production process used in their fabrication and other key parameters. The Company’s technologies for engineering and manufacturing nanomaterials control these critical parameters resulting in nanomaterials that Nanophase believes demonstrably offer superior performance in many applications.

Nanomaterials have applications in diverse global markets where they are incorporated into a process, such as semiconductor polishing, or a product, such as an industrial coating to prevent UV degradation or significantly improve wear resistance. Multiple markets exist for Nanophase’s products

since nanomaterials offer advantages in many applications, such as improved performance, longer wear or product life, lower overall product cost, or in the development of new products or processes.

## **The Company's Technologies**

Nanophase has created an integrated platform of commercial nanomaterial technologies that are patented, patent-pending, or proprietary and designed to deliver a nanomaterial solution for a targeted market or a specific customer application. The Company's platform provides flexibility and capability to engineer nanomaterials that meet a customer's performance requirements and deliver its nanomaterial solutions in a readily usable format. Nanophase's technologies have been demonstrably scalable and robust, having produced over 400 metric tons annually.

The Company's nanomaterials platform begins with two distinct manufacturing processes (PVS and NanoArc™ Synthesis) to make nanomaterials or nanoparticles. These technologies allow Nanophase to control critical nanomaterial properties (composition, size, shape, structure, surface chemistry) and engineer those to meet application performance. Compared to other major known global nanoparticle processes, the Company believes that its plasma-produced particles have a unique set of bulk and surface properties and are produced as nonporous, dense, discrete single crystals. Nanophase currently has the capacity to produce over a million pounds of nanomaterials annually

Nanophase has developed patented and proprietary technology to coat or surface treat nanoparticles to further engineer surface chemistry by two main processes. For performance in many applications, such as sunscreens, this technology is vital to ensure formulation compatibility and, in some cases, optimal application performance. The Company has the capacity to coat or surface treat nanoparticles at a rate of about a ton every eight hours and delivers over 300 tons of surface engineered nanoparticles to its customers annually. As an example, Nanophase sells coated nanomaterials that are used by major global consumer products companies for sunscreens and personal care products.

Nanophase also has developed proprietary technology to disperse nanoparticles in both aqueous and several organic solvent systems. Due to its technologies, the Company is able to achieve highly stable dispersions at high weight loading (18-50% by weight), which are both market advantages. Dispersed nanomaterials are desired by many customers for use in their processes or products due to the ease of handling. As examples, dispersed nanomaterials are used in architectural coatings, industrial coatings, plastic additives and semiconductor polishing.

As markets continue to develop and grow, the Company believes that customers' preferred delivery formats will likely be coated or dispersed nanomaterials. Nanophase believes it is well positioned with its platform of integrated commercial nanomaterial technologies. The Company plans to maintain and evolve its intellectual property and technologies to remain at the forefront of nanomaterials development.

Nanophase has steadily expanded both its patented technologies in the U.S. and internationally, and its ability to commercially utilize these technologies. Through large-scale manufacturing of nanomaterials utilized in the manufacture of consumer sunscreen and personal care products, the Company has developed production expertise that has allowed it to improve processes relating to those nanomaterials, as well as processes relating to other nanomaterials. This experience has translated into additional patents, pending patents and improvement of the Company's technologies and manufacturing processes to reduce variable manufacturing cost and improve gross margins.



## Marketing

Nanophase sells its products to markets using a dual strategy of market partners and customers. Markets are selected based on the Company's assessment of the amount of market-pull and the product value proposition for its nanomaterial products to avoid situations that are actually a technology-push with an accompanying unacceptable probability of market success.

Nanophase's *market partners* currently include BASF Corporation ("BASF"), a \$50+ billion global chemical company; Rohm & Haas Electronic Materials CMP Technologies, part of an \$8 billion global chemical company; Altana Chemie, a \$1+ billion chemical company who is a leader in coating and plastic additives; and Alfa Aesar, a division of Johnson Matthey. Each *market partner* is viewed as a leader in its respective markets with recognized brands and global sales reach. Nanophase has long-term exclusive relationships with each of its *market partners*. *Market partners* incorporate the Company's nanomaterial products into their own products and/or sell Nanophase's nanomaterial products into specific markets.

*Market partners* offer Nanophase several advantages. Nanophase is able to leverage its sales and distribution capabilities by using those of its *market partners* to sell its products globally and reach markets that would be difficult or unattainable for the Company alone. The Company is also able to leverage its new nanomaterial product development capabilities by collaborating with *market partners'* application development scientists and engineers. Nanophase has current products with each *market partner*, in some cases multiple products, and has focused new nanomaterial product development based on the *market partners'* knowledge and expertise in each market and product application. Nanophase anticipates that revenue generation from current products will continue growing while new revenues will be generated in the future through focused new product development and market introduction through its *market partners*. Nanophase also anticipates developing new markets with new *market partners*.

BASF markets and distributes Nanophase's nanomaterials for sunscreens (beach wear and daily wear products) and personal care under the Z-Cote brand to consumer products companies globally. The Company's revenues from these nanomaterial products grew 23% in 2005 and 13% in 2006 and continuing growth is expected. Nanophase has manufactured and shipped over 1,500 metric tons of Z-Cote products.

During 2005, Nanophase was designated a 'BASF Strategic Development Partner' for new products. In the same year, BASF and Nanophase launched a second line of sunscreen and personal care nanomaterials under the Z-Cote MAX brand specifically targeted for European and Asian markets. During 2006, BASF and Nanophase launched a new product, T-Lite MAX, for the sunscreen market and anticipates launching another new sunscreen product during 2007. Additional new product development is also underway for potential personal care products.

During 2000, BASF loaned Nanophase \$1.3 million to purchase and install production equipment to produce nanomaterial products for the Z-Cote brand. As part of Nanophase's business model, the Company expects its *market partners* to fund equipment that is primarily dedicated to produce their products. Nanophase typically repays such loans through a sales discount on product over time. The BASF note was retired in 2006.

Rohm & Haas Electronic Materials CMP Inc. ("RHEM") uses the Company's nanomaterial products to manufacture slurry to polish semiconductors for the STI, SOL, and ILD0 technology nodes. RHEM's slurry products are marketed and used globally by semiconductor manufacturers. In 2005, RHEM awarded Nanophase its "Excellence in Partnership" award and during 2006 made a \$5 million equity investment in the Company for its exclusive use of nanomaterial products for semiconductor slurries.

Altana Chemie, and its subsidiary BYK Chemie, uses Nanophase's nanomaterial products as ingredients and additives for paints, coatings, polymers, plastics, inks and sealants under its NanoBYK brand. Entering 2007, there are approximately eighteen products being distributed globally to companies in these markets with plans to introduce more new products during 2007. Altana Chemie made a \$10 million equity investment in Nanophase during 2004 to exclusively obtain the Company's nanomaterial products for the noted markets, with limited exceptions. Altana Chemie also loaned Nanophase \$1.6 million to purchase and install nanomaterials production equipment during 2006 to support capacity requirements related to volume growth.

Alfa Aesar is a global distributor of Nanophase-branded nanomaterials and nanomaterial dispersions to the research and development community. Through catalogs, websites, and a dedicated nanomaterials brochure, Alfa Aesar markets approximately 33 Nanophase nanomaterial products to the global development community. Nanophase anticipates that as new products or processes are developed using the Company's nanomaterial products, increasing demand may have a positive impact on revenue growth.

In addition to the Company's market partners, Nanophase utilizes market-focused business development to drive new product applications and customers. Business development includes evaluation and qualification of potential markets, identification of potential lead customers, and developing a strategy for successful market penetration.

Nanophase collaborates with potential customers to develop a nanomaterials solution for their specific application. This approach increases the probability of application success, allows the Company to use its integrated platform of nanomaterial technologies to optimize a nanomaterial solution for the product application, and reduces the time-to-market. Nanophase's application scientists work along with the business development and sales team and the customer's new product developers to develop a nanomaterial solution to meet performance demands.

In addition to the applications with market partners, Nanophase currently has customers using its nanomaterial products for DNA Bio-Sensors, water filtration, textile coatings, architectural coatings, optics polishing, LCD screen polishing and other applications.

## **Technology and Engineering**

Consisting of research and development, process engineering and advanced engineering groups, the Company's focus is in three major areas: 1) application development for its nanomaterial products; 2) creating or obtaining additional core nanomaterial technologies, or nanomaterials, that have the capability to serve multiple markets; 3) continuing to improve the Company's core technologies to improve operations and reduce costs.

Most of the research and development at Nanophase is directly related to product development for applications. The Company endeavors to either meet specific customer needs or to develop applications solutions to unmet needs in a particular market where its materials may offer a distinct performance advantage. The Company believes that aggressively pursuing applications, inventions and patents will help Nanophase maintain its position as a technical and commercial innovator in nanomaterials.

Nanophase's total research and development expense, which includes all expenses relating to the technology and advanced engineering groups, during the years ended December 31, 2006, 2005 and 2004 was \$2,127,862, \$1,934,528 and \$1,929,348, respectively. This represents the Company's share of these expenses only and does not take into account amounts spent by our largest customers in support of our partnerships. The Company's future success will depend in large part upon its ability to keep pace with evolving advanced materials technologies and industry standards. Through the five-year period ended

December 31, 2006, the Company has had cumulative research and development expenses of approximately \$9.5 million and cumulative expenditures on equipment and leasehold improvements of approximately \$4.7 million. These investments in technology and production capacity and capability have helped to take Nanophase from a development stage company to full commercialization.

### **Manufacturing Operations**

The Company has manufacturing capacity based in two locations in the Chicago area. At each of these facilities, Nanophase is able to develop and supply nanomaterials in quantities ranging from grams to metric tons. Nanophase's facilities are certified to ISO 9001:2000 international standards and are current Good Manufacturing Practices (cGMP) compliant for applicable bulk pharmaceutical manufacturing. The Company's facilities are also certified to the international standard for environmental management, ISO 14001:2004.

All processes are controlled under Lean Six-Sigma discipline with the capability to manufacture precisely to application requirements. Unlike traditional quality control systems, Lean Six Sigma provides methods to re-engineer processes to eliminate non-value added steps and create a system that minimizes errors and defects. The Company's Director of Quality is a certified Six Sigma Master Black Belt. Nanophase requires that its manufacturing supervisors, engineers and technicians are trained and become, at minimum, certified Green Belts.

Nanophase's operations employ a cellular, team-based manufacturing approach, where workers operate in work "cells," under a Lean Manufacturing environment to continuously advance and improve production capabilities. The Company's manufacturing approach and targeted engineering actions have resulted in continuing process innovations and improvements that have reduced the variable manufacturing cost significantly over the past four years. Using Lean Six Sigma discipline, Nanophase has been able to achieve 99% customer service levels with no customer returns over the last four years.

Management is committed to a Lean Manufacturing approach, to the extent possible given a certain measure of irregular demand, where the Company is able to reduce excess labor and manage the lowest practical inventory and supply levels in order to minimize working capital demands. This approach complements two of the Company's major operational goals which are to increase nanomaterials output without adding to existing equipment and to continually reduce production costs.

### **Intellectual Property and Proprietary Rights**

Nanophase relies primarily on a combination of patent, trademark, copyright, trade secret and other intellectual property law, nondisclosure agreements and other protective measures to protect its intellectual property. In addition to obtaining patent and trademarks based on the Company's inventions and products, Nanophase also licenses certain third-party patents from time-to-time to expand its technology base.

During 2006, the Company re-evaluated its intellectual property strategy in view of changes at the USPTO and the increasing cost of obtaining and maintaining patents. Based on this analysis, Nanophase elected to abandon some patents and forgo continuation of some patent applications since the Company had already improved or surpassed the intellectual property described.

As of the date of this report, Nanophase owns or licenses 18 US patents and patent applications consisting of 10 issued or allowed US patents, 7 pending US patent applications, and 1 licensed US patent. The 10 owned US patents consist of 4 for its nanoparticle synthesis technologies, 2 for its surface treatment technologies and 4 for its nanoparticle applications. The Company's pending US patents consist of 3 in nanoparticle synthesis, 1 in nanoparticle surface treatments, and 3 in nanoparticle applications. Correspondingly, the Company owns 48 foreign patents and patent applications consisting



of 23 issued or allowed foreign patents and 25 pending foreign patents applications. All of the pending and owned foreign patents are counterparts to domestic filings covering its platform of nanotechnologies. The Company's oldest issued patents will begin to expire in 2009.

Nanophase has licensed its PVS technology for certain specific markets and certain geographies to C.I. Kasei, a division of Itochu Corporation ("CIK"). Under this agreement, the Company earns royalties on net sales of manufactured products containing nanocrystalline materials. The agreement provides for minimum royalty payments to maintain exclusivity. The agreement expires on March 31, 2013 unless earlier terminated as provided therein. Upon the expiration, the license will become non-exclusive.

See "Item 1A. Risk Factors" for a discussion of risks related to our intellectual property and proprietary rights.

## **Competition**

Within each of its targeted markets and product applications, Nanophase faces potential competition from advanced materials and chemical companies and suppliers of traditional materials. In many markets, the Company's potential competitors are larger and more diversified than the Company; although management believes its materials and related technologies are superior to those of its competitors in terms of Nanophase's ability to produce highly engineered products to meet specific performance requirements.

With respect to traditional suppliers, the Company may compete against lower priced traditional materials for certain customer applications. In some product or process applications the benefits of using nanomaterials do not always outweigh their typically higher costs.

With respect to larger producers of nanomaterials, while many of these producers do not currently offer directly competitive products, these companies have greater financial and technical resources, larger research and development staffs and greater manufacturing and marketing capabilities and could begin to compete directly against Nanophase. In addition, the number of development-stage companies involved in nanocrystalline materials continues to grow on a global basis, posing increasing competitive risks. Many of these companies are associated with university or national laboratories and use chemical and physical methods to produce nanocrystalline materials. Management believes that most of these companies are engaged primarily in funded research and is not aware that any of them have commercial production capabilities; however, they may represent competitive risks in the future. Some development stage companies, especially in other countries, receive significant government assistance. Management anticipates that foreign competition may play a greater role in the nanomaterials arena in the future.

Nanophase believes that its nanomaterial technology platform is currently at the forefront of nanomaterials. Relative to potential competition, Nanophase believes it is well positioned with its platform of integrated commercial nanomaterial technologies and its current plans for continual technology improvement and evolution.

## **Governmental Regulations**

The manufacture and use of certain of the products that contain the Company's nanocrystalline materials are subject to governmental regulations. As a result, the Company is required to adhere to the current Good Manufacturing Practices (cGMP) requirements of the U.S. Food and Drug Administration ("FDA") and similar regulations that include testing, control and documentation requirements enforced by periodic inspections.

Nanophase is committed to environmental health and safety (“EH&S”). We comply with all permissible exposure limits standards issued by OSHA. Because nanotechnology remains an emerging and evolving science, there are no currently accepted standards, measurements or personal protective equipment available that are specific to nanoparticle safety. Accordingly, Nanophase relies on nuisance dust standards and general chemical safety to identify safe personal protective equipment and appropriate handling protocols. The Company believes that it has taken a leadership position on EH&S in its operations and fugitive emissions, and has internal and external review and monitoring of its practices.

In addition, the Company’s facilities and all of its operations are subject to the plant and laboratory safety requirements of various environmental and occupational safety and health laws. We believe we are in compliance with all such laws and regulations and to date, those regulations have not materially restricted or impeded operations.

Nanophase has taken a responsible, proactive approach to Environmental Health and Safety by implementing appropriate procedures and processes to have its facilities certified to ISO 14001, American National Standard, Environmental Management System Requirements. The Company is also involved with leading industry groups that are defining nanomaterial standards and protocols. These currently include the ASTM International Committee on Nanotechnology, the National Pollution Prevention and Toxics Advisory Committee – TSCA Voluntary Program, the American National Standards Institute (ANSI), and participate in FDA reviews relative to cosmetic applications. The Company has a fulltime, advanced degreed professional to manage government regulation compliance and EH&S.

## **Employees**

On January 8, 2007, the Company hired Kevin J. Wenta as its Executive Vice President of Sales and Marketing. He brings twenty years of business development, sales, marketing, finance and operations experience to Nanophase. Prior to joining the company, Mr. Wenta was a Partner at Accenture, a global consultancy. Previous to that he was a General Manager at Eastman Chemical Company and held the position of Director of Corporate Strategy. Previous experience also includes positions at ChemConnect (formerly CheMatch), ARCO and Shell Chemical. Mr. Wenta holds a B.S. degree in Chemical Engineering from the University of Texas at Austin and a M.B.A. degree from the University of Chicago.

On December 31, 2006, the Company had a total of 60 full-time employees, 11 of who hold advanced degrees. Nanophase has no collective bargaining agreements or relationships.

## **Backlog**

Nanophase does not believe that a backlog as of any particular date is indicative of future results. The Company’s sales are made primarily pursuant to purchase orders for delivery of nanomaterials. Nanophase has some agreements that give customers the right to purchase a specific quantity of nanomaterials during a specified time period. These agreements, however, often do not obligate the customers either to purchase any particular quantity of such nanomaterials at all, or in the case where an obligation exists, the risk to the customer for not purchasing nanomaterials is the loss of exclusivity. The quantities actually purchased by the customer, as well as the shipment schedules, are frequently revised during the agreement term to reflect changes in the customer’s needs. The Company does not believe that such agreements are meaningful for determining backlog amounts.

## **Business Segment and Geographical Information**

See Note 16 to the Financial Statements for additional information.

### **Key Customers**

A limited number of key customers account for a substantial portion of the Company's commercial revenue. In particular, revenue from BASF, the Company's new significant customer in architectural coatings and RHEM constituted approximately 56.1%, 22.1% and 9.5%, respectively, of the Company's 2006 total revenue. The Company's customers are significantly larger than the Company and are able to exert a high degree of influence over the Company. While the Company's agreements with two customers are long-term agreements, they may be terminated by the customer with reasonable notice and do not provide any guarantees that these customers will continue to buy the Company's products. The loss of one of these key customers or the failure to attract new customers could have a material adverse effect on the Company's business, results of operations and financial condition. See Item 1A. Risk factors for additional discussion.

### **Forward-Looking Statements**

Nanophase wants to provide investors with more meaningful and useful information. As a result, this Annual Report on Form 10-K (the "Form 10-K") contains and incorporates by reference certain "forward-looking statements", as defined in Section 21E of the Securities Exchange Act of 1934, as amended. These statements reflect the Company's current expectations of the future results of its operations, performance and achievements. Forward-looking statements are covered under the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. The Company has tried, wherever possible, to identify these statements by using words such as "anticipates", "believes", "estimates", "expects", "plans", "intends" and similar expressions. These statements reflect management's current beliefs and are based on information now available to it. Accordingly, these statements are subject to certain risks, uncertainties and contingencies that could cause the Company's actual results, performance or achievements in 2007 and beyond to differ materially from those expressed in, or implied by, such statements. These risks, uncertainties and factors include, without limitation: a decision by a customer to cancel a purchase order or supply agreement in light of the Company's dependence on a limited number of key customers; uncertain demand for, and acceptance of, the Company's nanocrystalline materials; the Company's manufacturing capacity and product mix flexibility in light of customer demand; the Company's limited marketing experience; changes in development and distribution relationships; the impact of competitive products and technologies; the Company's dependence on patents and protection of proprietary information; the resolution of litigation in which the Company may become involved; and other risks set forth under the caption "Risk Factors" below. Readers of this Annual Report on Form 10-K should not place undue reliance on any forward-looking statements. Except as required by federal securities laws, the Company undertakes no obligation to update or revise these forward-looking statements to reflect new events or uncertainties.

### **Investor Information**

The Company is subject to the informational requirements of the Securities Exchange Act of 1934 (the Exchange Act) and, accordingly, files periodic reports, proxy statements and other information with the Securities and Exchange Commission (the SEC). Such reports, proxy statements and other information may be obtained by visiting the Public Reference Room of the SEC at 450 Fifth Street, NW, Washington, DC 20549 or by calling the SEC at 1-800-SEC-0330. In addition, the SEC maintains an Internet site (<http://www.sec.gov>) that contains reports, proxy and information statements and other information regarding issuers that file electronically.



Financial and other information may also be accessed at the Company's web site. The address is [www.nanophase.com](http://www.nanophase.com). The Company makes available, free of charge, copies of its annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after filing such material electronically with, or otherwise furnishing it to, the SEC, and intends to make all such reports and amendments to reports available free of charge on its web site.

## **Item 1A. Risk Factors**

The following risks, uncertainties, and other factors could have a material adverse effect on our business, financial condition, operating results and growth prospects.

*We have a limited operating history and may not be able to address difficulties encountered by companies in new and rapidly evolving markets.*

We have only a limited operating history. We were formed in November 1989 and began our commercial nanomaterials operations in January 1997. We have not yet generated a significant amount of revenue from our nanomaterials operations. Because of our limited operating history and the early stage of development of our rapidly evolving market, we have limited insight into trends that may emerge and adversely affect our business and cannot be certain that our business strategy will be successful or that it will successfully address these risks. In addition, our efforts to address any of these risks may distract personnel or divert resources from other more important initiatives, such as attracting and retaining customers and responding to competitive market conditions.

*We have a history of losses that may continue in the future.*

We have incurred net losses in each year since our inception with net losses of \$6.45 million in 2004, \$5.38 million in 2005 and \$5.18 million in 2006. As of December 31, 2006, we had an accumulated deficit of approximately \$62.74 million and could expect to continue to incur losses on an annual basis through at least the end of 2007. We believe that our business depends, among other things, on our ability to significantly increase revenue. If revenue fails to grow at anticipated rates or if operating expenses increase without a commensurate increase in revenue, or if we fail to adjust operating expense levels accordingly, then the imbalance between revenue and operating expenses will negatively impact our cash balances and our ability to achieve profitability in future periods.

*We depend on a small number of customers for a high percentage of our sales, and the loss of orders from a significant customer could cause a decline in revenue and/or increases in the level of losses incurred.*

Sales to our customers are executed pursuant to purchase orders and long-term supply contracts; however, customers can cease doing business with us at any time with limited advance notice. We expect a significant portion of our future sales to remain concentrated within a limited number of strategic customers. We may not be able to retain our strategic customers, such customers may cancel or reschedule orders, or in the event of canceled orders, such orders may not be replaced by other sales or by sales that are on as favorable terms. In addition, sales to any particular customer may fluctuate significantly from quarter to quarter, which could affect our ability to achieve anticipated revenues on a quarterly basis.

Revenue from BASF Corporation, the Company's new significant customer in architectural coatings and Rohm and Haas Electronic Materials CMP Inc. ("RHEM") (formerly known as "Rodel"), accounted for approximately 88% of total revenue for the year ended December 31, 2006, and revenue from the same three customers accounted for approximately 79% of total revenue in 2005. For the years

ended December 31, 2006 and 2005, BASF accounted for 56% and 66% of our total revenue, respectively. If we were to lose, or receive significantly decreased orders from, any of these three customers, then our results of operations would be materially harmed. While our agreements with our largest customers are long-term agreements, they may be terminated by the customer with reasonable notice and do not provide any guarantees that these customers will continue to buy our products. In addition, while our agreements with BASF contain certain order requirements, the only repercussion under the agreements for missing the order requirements is that we would be freed from the exclusivity obligations under the BASF contracts.

We have been consistently expanding both our marketing and business development efforts and our production efficiency in order to address the issues of our dependence upon a limited amount of customers, enhancement of gross profit and operating cash flows, and the achievement of profitability. We currently have customers that may grow to the point where they generate significant revenues and margins as relationships expand. Given the special nature of our products, and the fact that markets for them are not yet fully developed, it is difficult to accurately predict when additional large customers will materialize. Going forward, the Company's margins, as a percentage of revenue, will be dependent upon revenue mix, revenue volume and the Company's ability to continue to cut costs. The extent of the growth in revenue volume and the related gross profit that this revenue generates, will be the main drivers in generating positive operating cash flows and, ultimately, net income.

*Any downturn in the markets served by us would harm our business.*

A majority of our products are incorporated into products such as sunscreens, architectural coatings, polishing slurries, personal care, and to a lesser extent, medical diagnostics, abrasion-resistant coatings for flooring, and other products. These markets have from time to time experienced cyclical, depressed business conditions, often in connection with, or in anticipation of, a decline in general economic conditions. These industry downturns have resulted in reduced product demand and declining average selling prices. Our business would be harmed by any future downturns in the markets that we serve.

*Our products often have long adoption cycles, which could make it difficult to achieve market acceptance and makes it difficult to forecast revenues.*

Due to their often novel characteristics and the unfamiliarity with them that exists in the marketplace, our nanomaterials often require longer adoption cycles than existing materials technologies. Our nanomaterials have to receive appropriate attention within any potential customer's organization, then they must be tested to prove a performance advantage over existing materials, typically on a systems-cost basis. Once we have proven initial commercial viability, pilot scale production runs must be completed by the customer, followed by further testing. Once production-level commercial viability is established, then our nanomaterials can be introduced, often to a downstream marketplace that needs to be familiarized with them. If we are unable to demonstrate to our potential customers the performance advantages and economic value of our nanomaterials over existing and competing materials and technologies, we will be unable to generate significant sales. Our long adoption cycle makes it difficult to predict when sales will occur.

*We frequently depend on collaborative development relationships with our customers and do not have a substantial direct sales force or an established distribution network apart from the distribution networks of our strategic partners. If we are unable to initiate or sustain such collaborative relationships or if the terms of these relationships limit the distribution of our products or if our strategic partners are unable to distribute our products efficiently, then we may be unable to independently develop, manufacture or market our current and future nanomaterials or applications.*

We have established, and will continue to pursue, strategic relationships with many of our

customers and do not have a substantial direct sales force or an established distribution network (other than distribution arrangements for research samples). Through these relationships, we seek to develop new applications for our nanomaterials and share development and manufacturing resources. We also seek to coordinate the development, manufacture and marketing of our nanomaterials products. Future success will depend, in part, on our continued relationships with these customers and our ability to enter into similar strategic relationships with other customers. Our customers may not continue in these collaborative development relationships, may not devote sufficient resources to the development or sale of our materials or may enter into strategic development relationships with our competitors. These customers may also require a share of control of these collaborative programs. Some of our agreements with these customers limit our ability to license our technology to others and/or limit our ability to engage in certain product development or marketing activities with others. These relationships generally can be terminated unilaterally by customers.

Additionally, except for our research quantities distribution agreement with Alfa Aesar, these customers generally require exclusive distribution arrangements within the field of application covered by our agreement with these customers, and the very nature of these strategic relationships limits the distribution of our products to the distribution networks available to our strategic relationship partners. In addition, the development agreements with some of our larger customers contain provisions that require us to license our intellectual property to these customers on disadvantaged terms and/or sell equipment to these customers in the event that we materially breach these agreements or fail to satisfy certain financial covenants. For example, see “Risk Factors—We may need to raise additional capital in the future.”

If we are unable to initiate or sustain such collaborative relationships or if the terms of these relationships materially limit our access to distribution channels for our products, then we may be unable to independently develop, manufacture or market our current and future nanomaterials or applications.

*If commodity metal prices increased at such a rate that we are unable to recover lost margins on a timely basis or that our products became uncompetitive in their current marketplaces, our financial and liquidity position and results of operations would be substantially harmed.*

Many of our significant raw materials come from commodity metal markets that may be subject to rapid price increases. While we generally pass commodity price increases on to our customers, it is possible that, given our limited customer base and the limited control we have over it, commodity metal prices could increase at such a rate that could hinder our ability to recover lost margins from our customers on a timely basis. It is also possible that such drastic cost increases could render some of our materials uncompetitive in their current marketplaces when considered relative to other materials on a cost benefit basis. If either of these potential results occurred, our financial and liquidity position and results of operations would be substantially harmed.

*If a catastrophe strikes either of our manufacturing facilities or if we were to lose our lease for either facility due to non-renewal or other unforeseen events, we may be unable to manufacture our materials to meet customers’ demands.*

Our manufacturing facilities are located in Romeoville and Burr Ridge, Illinois. These facilities and some of our manufacturing and testing equipment would be difficult to replace in a timely manner. Therefore, any material disruption at one of our facilities due to a natural or man-made disaster or a loss of lease due to non-renewal or other unforeseen events could have a material adverse effect on our ability to manufacture products to meet customers’ demands. While we maintain customary property insurance, this insurance may not adequately compensate us for all losses that we may incur and would not compensate us for any interruption in our business.

*If we are unable to expand our production capabilities to meet unexpected demand, we may be unable to manage our growth and our business would suffer.*

Our success will depend, in part, on our ability to manufacture nanomaterials in significant quantities, with consistent quality and in an efficient and timely manner. We expect to continue to expand our current facilities or obtain additional facilities in the future in order to respond to unexpected demand for existing materials or for new materials that we do not currently make in quantity. Such unplanned demand, if it resulted in rapid expansion, could create a situation where growth could become difficult to manage, which could cause us to lose potential revenue.

*Protection of our intellectual property is limited and uncertain*

Our intellectual property is important to our business. We seek to protect our intellectual property through patent, trademark, trade secret protection and confidentiality or license agreements with our employees, customers, suppliers and others. Our means of protecting our intellectual property rights in the United States or abroad may not be adequate and others, including our competitors, may use our proprietary technology without our consent. We may not receive the necessary patent protection for any applications pending with the U.S. Patent and Trademark Office (“USPTO”) and any of the patents that we currently own or license may not be sufficient to keep competitors from using our materials or processes. In addition, patents that we currently own or license may not be held valid if subsequently challenged by others and others may claim rights in the patents and other proprietary technology that we own or license. Additionally, others may have already developed or may subsequently develop similar products or technologies without violating any of our proprietary rights. If we fail to obtain patent protection or preserve our trade secrets, we may be unable to effectively compete against others offering similar products and services. In addition, if we fail to operate without infringing the proprietary rights of others or lose any license to technology that we currently have or will acquire in the future, we may be unable to continue making the products that we currently make.

Moreover, at times, attempts may be made to challenge the prior issuance of our patents. For example, the USPTO has granted a third-party request for re-examination with respect to one patent relating to one of our nanoparticle manufacturing processes. On September 7, 2005, our representatives conducted an interview with the Examiner assigned to the re-examination at the USPTO, resulting in the Examiner preparing an interview summary indicating that rejections to issued claims may be formally withdrawn. However, prior to the USPTO issuing a formal notice confirming patentability, the same third party filed a second request for re-examination of the patent (which second request, the USPTO has since denied). Nonetheless, a second interview was conducted, resulting in an amendment to all patent claims. Thereafter, a third request for re-examination was filed and granted by the USPTO. We subsequently conducted a third interview with the Examiner and responded to the third request. While we will continue to vigorously defend our patent position, we may not be successful in maintaining the scope of the claims of this patent during re-examination. While the Company intends to vigorously defend its patent protection against such claims, it does not believe that these patent claims pose a risk of material harm to the Company’s business prospects or competitive positions. If the scope of the Company’s claims protected by the patent in question were ultimately reduced through the pending re-examination proceedings before the USPTO, the Company would still continue to be able to conduct its business as currently conducted, including the use of the technology that is the subject of the patented claims. A reduction in the scope of the claims protected by the Company’s patent in question would limit the Company’s ability to assert infringement claims and suits against other parties using the same or sufficiently similar technology. The Company believes that while patent protection is a valuable asset, a reduction in the scope of the claims protected by the Company’s patent in question would not materially alter the competitive environment in which the Company operates or result in a material loss.

Furthermore, litigation may be necessary to enforce our intellectual property rights, to protect our trade secrets, to determine the validity and scope of the proprietary rights of others, or to defend against claims of infringement or invalidity. Such litigation could result in substantial costs and diversion of resources and could harm our business, operating results and financial condition. In addition, if others assert that our technology infringes their intellectual property rights, resolving the dispute could divert our



management team and financial resources.

In the future, we may license certain of our intellectual property, such as trademarks or copyrighted material, to third parties. While we would attempt to ensure that any licensees maintain the quality and value of our brand, these licenses might diminish this quality and value.

We may be subject to claims that one or more of the business methods used by us infringe upon patents held by others. The defense of any claims of infringement made against us by third parties could involve significant legal costs and require our management to divert time and other resources from our business operations. Either of these consequences of an infringement claim could have a material adverse effect on our operating results. If we are unsuccessful in defending any claims of infringement, we may be forced to obtain licenses or pay royalties to continue to use our technology. We may not be able to obtain any necessary licenses on commercially reasonable terms or at all. If we fail to obtain necessary licenses or other rights, or if these licenses are costly, our operating results may suffer either from reductions in revenue through our inability to serve clients or from increases in costs to license third-party technology.

*Our industry is experiencing rapid changes in technology. If we are unable to keep pace with these changes, our business will not grow.*

Rapid changes have occurred, and are likely to continue to occur, in the development of advanced materials and processes. Our success will depend, in large part, upon our ability to keep pace with advanced materials technologies, industry standards and market trends and to develop and introduce new and improved products on a timely basis. We expect to commit substantial resources to develop our technologies and product applications and, in the future, to expand our commercial manufacturing capacity as volume grows. Our development efforts may be rendered obsolete by the research efforts and technological advances of others and other advanced materials may prove more advantageous than those we produce.

*The markets we serve are highly competitive, and if we are unable to compete effectively, then our business will not grow.*

The advanced materials industry is new, rapidly evolving and intensely competitive, and we expect competition to intensify in the future. The market for materials having the characteristics and potential uses of our nanomaterials is the subject of intensive research and development efforts by both governmental entities and private enterprises around the world. We believe that the level of competition will increase further as more product applications with significant commercial potential are developed. The nanomaterials product applications that we are developing will compete directly with products incorporating both conventional and advanced materials and technologies. While we are not currently aware of the existence of commercially available competitive products with the same attributes as those we offer, other companies may develop and introduce new or competitive products. Our competitors may succeed in developing or marketing materials, technologies and better or less expensive products than the ones we offer. In addition, many of our potential competitors have substantially greater financial and technical resources, and greater manufacturing and marketing capabilities than we do. If we fail to improve our current and potential nanomaterials product applications at an acceptable price, or otherwise compete with producers of conventional materials, we will lose market share and revenue to our competitors.

*We may need to raise additional capital in the future. If we are unable to obtain adequate funds, we may be required to delay, scale-back or eliminate some of our manufacturing and marketing operations or we may need to obtain funds through arrangements on less favorable terms or we may be required to sell equipment to our largest customer.*

We expect to expend significant resources on research, development and product testing, and in expanding current capacity or capability for new business. In addition, we may incur significant costs in preparing, filing, prosecuting, maintaining and enforcing our patents and other proprietary rights. If necessary, we may seek funding through public or private financing and through contracts with government or other companies. Additional financing may not be available on acceptable terms or at all. If we are unable to obtain adequate funds, we may be required to delay, scale-back or eliminate some of our manufacturing and marketing operations or we may need to obtain funds through arrangements on less favorable terms. If we obtain funding on unfavorable terms, we may be required to relinquish rights to some of our intellectual property.

To raise additional funds in the future, we would likely sell our equity or debt securities or enter into loan agreements. To the extent that we issue debt securities or enter into loan agreements, we may become subject to financial, operational and other covenants that we must observe. In the event that we were to breach any of these covenants, then the amounts due under such loans or debt securities could become immediately payable by us, which could significantly harm us. To the extent that we sell additional shares of our equity securities, our stockholders may face economic dilution and dilution of their percentage of ownership.

We currently have supply agreements with BASF and RHEM that contain provisions which could potentially result in a mandatory license of technology and sale of production equipment to the customer providing capacity sufficient to meet its production needs. Under our supply agreement with BASF, a “triggering event” also would occur if:

- our earnings for a twelve month period ending with our most recently published quarterly financial statements are less than zero and our cash, cash equivalents and investments are less than \$2,000,000, or
- the acceleration of any debt maturity having a principal amount of more than \$10,000,000, or we become insolvent as defined in the supply agreement.

In the event of a triggering event where we are required to sell to BASF production equipment providing capacity sufficient to meet BASF’s production needs, the equipment would be sold at 115% of the equipment’s net book value.

We believe that we have sufficient cash balances to avoid the first triggering event for the foreseeable future. If a triggering event were to occur and BASF elected to proceed with the license and related sale mentioned above, we would lose both significant revenue and the ability to generate significant revenue to replace that which was lost in the near term. Replacement of necessary equipment that would be purchased and removed by BASF pursuant to this triggering event could take six months to a year. Any additional capital outlays required to rebuild capacity would probably be greater than the proceeds from the purchase of the assets pursuant to our agreement with BASF. This shortfall might put us in a position where it would be difficult to secure additional funding given what would then be an already tenuous cash position. Such an event would also result in the loss of many of our key staff and line employees due to economic realities. We believe that our employees are a critical component of our success and would be difficult to quickly replace and train. Given the occurrence of such an event, we might not be able to hire and retrain skilled employees given the stigma relating to such an event and its impact on us. We might elect to effectively reduce our size and staffing to a point where we could remain a going concern in the near term.

*We depend on key personnel, and their unplanned departure could harm our business.*

Our success will depend, in large part, upon our ability to attract and retain highly qualified research and development, management, manufacturing, marketing and sales personnel on favorable

terms. Due to the specialized nature of our business, we may have difficulty locating, hiring and retaining qualified personnel on favorable terms. If we were to lose the services of any of our key executive officers or other key personnel, or if we are unable to attract and retain other skilled and experienced personnel on acceptable terms in the future, or if we are unable to implement a succession plan to prepare qualified individuals to assume key roles upon any loss of our key personnel, then our business, results of operations and financial condition would be materially harmed. In addition, we do not currently have “key-man” life insurance policies covering all of our executive officers or key employees, nor do we presently have any plans to purchase such policies.

*We face potential product liability risks which could result in significant costs that exceed our insurance coverage, damage our reputation and harm our business.*

We may be subject to product liability claims in the event that any of our nanomaterials product applications are alleged to be defective or cause harmful effects to humans or physical environments. Because our nanomaterials are used in other companies’ products, to the extent our customers become subject to suits relating to their products, such as cosmetic, skin-care, architectural coatings and personal-care products, these claims may also be asserted against us. We may incur significant costs including payment of significant damages, in defending or settling product liability claims. We currently maintain insurance coverage in the amount of \$10 million for product liability claims, which may prove not to be sufficient. Even if a suit is without merit and regardless of the outcome, claims can divert management time and attention, injure our reputation and adversely affect demand for our nanomaterials.

*We are subject to governmental regulations. The costs of compliance and liability for noncompliance with governmental regulations could have a material adverse effect on our business, results of operations and financial condition.*

Current and future laws and regulations may require us to make substantial expenditures for preventive or remedial action. Our operations, business or assets may be materially and adversely affected by governmental interpretation and enforcement of current or future environmental, health and safety laws and regulations. In addition, our coating and dispersion operations pose a risk of accidental contamination or injury. The damages in the event of an accident or the costs to prevent or remediate a related event could exceed both the amount of our liability insurance and our resources or otherwise have a material adverse effect on our business, results of operations and financial condition.

In addition, both of our facilities and all of our operations are subject to the plant and laboratory safety requirements of various occupational safety and health laws. We believe we have complied in all material respects with governmental regulations applicable to us. However, we may have to incur significant costs in defending or settling future claims of alleged violations of governmental regulations and these regulations may materially restrict or impede our operations in the future. In addition, our efforts to comply with or contest any regulatory actions may distract personnel or divert resources from other important initiatives.

The manufacture and use of certain products that contain our nanomaterials are subject to extensive governmental regulation, including regulations promulgated by the U.S. Food and Drug Administration, the U.S. Environmental Protection Agency and the U.S. Occupational Safety and Health Administration. As a result, we are required to adhere to the requirements of the regulations of governmental authorities in the United States and other countries. These regulations could increase our cost of doing business and may render some potential markets prohibitively expensive.

*We have implemented anti-takeover provisions which could discourage or prevent a takeover, even if an acquisition could be beneficial to our stockholders.*

In October 1998, we entered into a Rights Agreement, commonly referred to as a “poison pill.”

The provisions of this agreement and some of the provisions of our certificate of incorporation, our bylaws and Delaware law could, together or separately:

- discourage potential acquisition proposals;
- delay or prevent a change in control; and
- limit the price that investors might be willing to pay in the future for shares of our common stock.

In particular, our board of directors is authorized to issue up to 24,088 shares of preferred stock (less any outstanding shares of preferred stock) with rights and privileges that might be senior to our common stock, without the consent of the holders of the common stock, including up to 2,500 shares of Series A Junior Participating Preferred Stock issuable under the 1998 Rights Agreement.

In addition, Section 203 of the Delaware General Corporations Law relating to business combinations with related stockholders and the terms of our stock option plans relating to changes of control may discourage, delay or prevent a change in control of our company.

*Future sales of our common stock by existing stockholders could negatively affect the market price of our stock and make it more difficult for us to sell stock in the future.*

Sales of our common stock in the public market, or the perception that such sales could occur, could result in a decline in the market price of our common stock and make it more difficult for us to complete future equity financings. A substantial number of shares of our common stock and shares of common stock subject to outstanding warrants and options may be resold pursuant to currently effective registration statements. As of March 1, 2007, there are:

- 15,991,308 shares of common stock that have been issued in registered offerings, upon the exercise of options under our equity incentive plan or in private placements and are freely tradable in the public markets,
- 1,481,290 shares of common stock that may be issued on the exercise of stock options outstanding and exercisable under our equity incentive plan;
- 906,002 shares of common stock that were issued pursuant to our September 8, 2003 private placement and the related warrant which was exercised on September 2, 2004. The resale of these shares has been registered pursuant to a Registration Statement on Form S-3 which was declared effective by the Securities and Exchange Commission on August 13, 2004; and
- 1,256,281 shares of common stock that were issued pursuant to our March 23, 2004 private placement and may be registered for resale after March 23, 2006 pursuant to a Registration Statement on Form S-3 which was filed with the Securities and Exchange Commission on February 5, 2007.
- 847,918 shares of common stock that were issued pursuant to our August 25, 2006 private placement and may be registered for resale after August 25, 2008 pursuant the terms of the Registration Rights Agreement executed in connection with this private placement.

We cannot estimate the number of shares of common stock that may actually be resold in the



public market because this will depend on the market price for our common stock, the individual circumstances of the sellers, and other factors. If stockholders sell large portions of their holdings in a relatively short time, for liquidity or other reasons, the market price of our common stock could decline significantly.

*Bradford T. Whitmore has significant influence on all matters requiring stockholder approval because he beneficially owns a large percentage of our common stock, and he may vote the common stock in ways with which our other stockholders disagree.*

As of March 1, 2007, Bradford T. Whitmore, together with his affiliates, Grace Brothers, Ltd. and Grace Investments, Ltd., beneficially owned approximately 19% of the outstanding shares of our common stock. As a result, he has significant influence on matters submitted to our stockholders for approval, including proposals regarding:

- any merger, consolidation or sale of all or substantially all of our assets;
- the election of members of our board of directors; and
- any amendment to our certificate of incorporation.

The ownership position of Mr. Whitmore could delay, deter or prevent a change of control or adversely affect the price that investors might be willing to pay in the future for shares of our common stock. Mr. Whitmore's interests may be significantly different from the interests of our other stockholders and he may vote the common stock he beneficially owns in ways with which our other stockholders disagree. Investors in the Company should also note that R. Janet Whitmore, one of our directors, is the sister of Mr. Whitmore.

*We have been involved in litigation. If we are involved in similar litigation in the future, the expense of defending such litigation and the potential costs of judgments against us and the costs of maintaining insurance coverage could have a material adverse effect on our financial performance.*

We have been involved in three securities class action lawsuits, one of which was a consolidation of several related lawsuits. While all of these lawsuits have been settled and dismissed with all settlements funded by our directors and officers liability insurance, we may be the target of additional securities lawsuits in the future. If we are involved in similar litigation in the future, the expense of defending such litigation, the potential costs of judgments against us, the costs of maintaining insurance coverage and the diversion of management's attention could have a material adverse effect on our financial performance.

*Our stock price is volatile.*

The stock markets in general, and the stock prices of technology-based companies in particular, have experienced extreme volatility that often has been unrelated to the operating performance of any specific public company. The market price of our common stock has fluctuated in the past and is likely to fluctuate in the future as well. Our future financial performance and stock price may be subject to significant volatility, particularly on a quarterly basis. Shortfalls in our revenues in any given period relative to the levels expected by investors could immediately, significantly and adversely affect the trading price of our common stock.

*Dilutive Effect of Private Placements*

On September 8, 2003 we sold 453,001 shares of our common stock to Grace Brothers, Ltd. at a purchase price of \$4.415 per share together with a warrant to purchase a like number of shares of

common stock during the next twelve months also at a price of \$4.415 per share. This warrant was exercised on September 2, 2004 to acquire 453,001 newly issued shares of common stock. The share price for the common stock was determined based on the fifteen-day market closing average for our stock ending September 5, 2003. On September 8, 2003 and September 2, 2004 the closing sale price of our common stock as reported on NASDAQ, was \$5.50 and \$5.49 respectively, per share. On March 23, 2004 we sold 1,256,281 shares of our common stock to Altana at a purchase price of \$7.96 per share. The share price for the common stock was determined based on the ten-day market closing average for our stock ending March 18, 2004. On March 23, 2004 the closing sale price of our common stock, as reported on NASDAQ, was \$8.26 per share. On August 25, 2006 we sold 847,918 shares of our common stock to Rohm and Haas Electronics Materials CMP Holdings, Inc. at a purchase price of \$5.8968 per share. The share price for the common stock was determined based on the twenty-five-day market closing average for our stock ending August 21, 2006. On August 25, 2006 the closing price of our common stock, as reported on NASDAQ, was \$6.71 per share. Each of these averages was negotiated with the respective investors in an effort to approximate a market price, given volatility. Each of these issuances of stock, at their respective subsequent closing dates, represented below then-current market pricing (looking only at that closing date for this measurement) and, in that context, had a dilutive effect on existing common stockholders.

*We have never paid dividends.*

We currently intend to retain earnings, if any, to support our growth strategy. We do not anticipate paying dividends on our stock in the foreseeable future.

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

None.

#### **Item 2. Properties**

Nanophase operates a 36,000 square-foot production, research and headquarters facility in Romeoville, Illinois and a 20,000 square-foot production facility in Burr Ridge, Illinois. Both locations are in Chicago suburbs. The Company also leases a 9,000 square-foot offsite warehouse in the same vicinity.

The Company's manufacturing operations in Burr Ridge are certified under ISO 9001:2000, and the Company's management believes that its manufacturing operations are within the current Good Manufacturing Practices (cGMP) requirements of the FDA for products that require such compliance. The Company's facilities are also ISO 14001:2004 certified which is the international standard for environmental management. The Burr Ridge facility has a quality control laboratory designed for the dual purposes of validating operations to cGMP and ISO standards and production process control. This laboratory is equipped to handle many routine analytical and in-process techniques the Company currently requires.

The Romeoville facility houses the Company's headquarters, advanced engineering, manufacturing (nanoparticle coating, nanoparticle dispersion, and pilot-scale manufacturing) and three research and development laboratories, and was used for additional commercial manufacturing space in 2005. All Romeoville manufacturing processes are certified to ISO 9001:2000 and ISO 14001:2004, and the Company's management believes that the nanoparticle coating used for sunscreens and personal care is in compliance with the cGMP requirements of the FDA.

Nanophase leases both its Romeoville and Burr Ridge facilities. On October 18, 2005 Nanophase entered into a Lease Amendment amending its current lease for its facilities in Romeoville, Illinois, which, among other things, extended the term of such lease through December 31, 2015 (with the option

to extend the term for two additional five year periods) and granted Nanophase an option to purchase such facility in certain instances. The Company renewed its Burr Ridge facility lease in September 2004. The initial term of the lease expires in September 2007, but the Company has options to extend the lease for up to three additional one-year terms.

Management believes that the Company's leased facilities provide sufficient capacity to fulfill current known customer demand as well as additional space to enable expansion of key production processes. Management also believes that the Company's capital expenditures made in 2006, and budgeted for 2007, will support currently anticipated demand from existing customers. The Company's actual future capacity requirements will depend on many factors, including new and potential customer acceptance of the Company's current and potential nanomaterials and product applications, unknown and currently unplanned growth from existing customers, continued progress in the Company's research and development activities and product testing programs and the magnitude of these activities and programs.

### **Item 3. Legal Proceedings**

None.

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

No matters were submitted to a vote of the Company's security holders during the fourth quarter of 2006.

## PART II

### Item 5. Market for Registrant's Common Equity and Related Stockholder Matters

The Company's common stock is traded on the NASDAQ Global Market under the symbol NANX. The following table sets forth, for the periods indicated, the range of high and low sale prices for the common stock on the NASDAQ Global Market:

	<u>High</u>	<u>Low</u>
Fiscal year ended December 31, 2006:		
First Quarter .....	\$ 8.31	\$ 5.46
Second Quarter .....	8.42	5.10
Third Quarter .....	7.15	5.50
Fourth Quarter .....	7.35	5.90
Fiscal year ended December 31, 2005:		
First Quarter .....	\$ 9.20	\$ 5.32
Second Quarter .....	7.07	4.75
Third Quarter .....	7.65	5.50
Fourth Quarter .....	6.96	5.05

On March 1, 2007, the last reported sale price of the common stock was \$5.71 per share, and there were approximately 156 holders of record of the common stock.

The Company has never declared or paid any cash dividends on its common stock and does not currently anticipate paying any cash dividends or other distributions on its common stock in the foreseeable future. The Company intends instead to retain any future earnings for reinvestment in its business. Any future determination to pay cash dividends will be at the discretion of the Company's Board of Directors and will be dependent upon the Company's financial condition, results of operations, capital requirements and such other factors deemed relevant by the Board of Directors.

On August 25, 2006, the Company sold, in a private placement to Rohm and Haas Electronic Materials CMP Holdings, Inc., 847,918 shares of common stock at \$5.8968 per share and received gross proceeds of \$5.0 million. On March 23, 2004, the Company sold, in a private placement to Altana Chemie AG ("Altana"), 1,256,281 shares of common stock at \$7.96 per share and received gross proceeds of \$10.0 million. In accordance with the terms of such private placement, on February 5, 2007, the Company filed a registration statement for such 1,256,281 shares of common stock. On January 22, 2004, the Company filed a universal shelf registration statement with the Securities and Exchange Commission to allow Nanophase to offer up to \$15.0 million of Nanophase securities, in the form of common stock or various types of debt securities, in the future. In August 2004, the Company withdrew its universal shelf offering due to unfavorable market conditions and the Company's adequate cash position to cover expected growth through 2006.

On September 8, 2003, the Company secured equity funding through a private placement offering with Grace Brothers, Ltd., its largest investor. The Company issued 453,001 shares of additional common stock at \$4.415 per share and received gross proceeds of \$2.0 million. Grace Brothers, Ltd. also had the right to purchase an additional 453,001 shares for an additional \$2.0 million pursuant to the terms of a warrant issued in such private placement. In accordance with the terms of such private placement, on June 7, 2004, the Company filed a registration statement for such 453,001 shares and the additional 453,001 shares issuable upon exercise of the warrant which registration statement was declared effective on August 13, 2004. On September 2, 2004, Grace Brothers, Ltd. exercised its warrant rights to acquire 453,001 newly issued shares of common stock and the Company received \$2.0 million in gross proceeds.



## Equity Compensation Plan Information

The following table gives information about our common stock that may be issued upon the exercise of options, warrants, and rights under all of our existing compensation plans on December 31, 2006, including the 1992 Amended and Restated Stock Option Plan and the 2001 and the Amended 2004 Equity Compensation Plan and the 2005 Non-Employee Director Restricted Stock Plan.

Plan Category	(a) Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights	(b) Weighted Average Exercise Price of Outstanding Options, Warrants, and Rights	(c) Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a))	(d) Total of Securities Reflected in Columns (a) and (c)
Plans Approved by Shareholders	1,784,183(1)	\$ 6.14	1,126,476(2)	2,910,659
Plans Not Approved by Shareholders	None	\$ -	None	-

- (1) Consists of the 1992 Amended and Restated Stock Option Plan, the 2001 and the Amended 2004 Equity Compensation Plan, and shares of authorized but unissued Preferred Stock
- (2) Consists of shares available for future issuance under the Amended 2004 Equity Compensation Plan and the 2005 Non-Employee Director Restricted Stock Plan.

## PERFORMANCE GRAPH

The following graph shows a comparison of cumulative total returns for the Company, the NASDAQ Market Composite Index and an index of peer companies selected by the Company during the period commencing on January 1, 2002 and ending on December 31, 2006. The comparison assumes \$100 was invested on January 1, 2002 in the Common Stock, the NASDAQ Market Composite Index and the peer companies selected by the Company and assumes the reinvestment of all dividends, if any.

### Comparison of Cumulative Total Returns

	<u>1/1/2002</u>	<u>12/31/2002</u>	<u>12/31/2003</u>	<u>12/31/2004</u>	<u>12/31/2005</u>	<u>12/31/2006</u>
<sup>^</sup> IXIC	1,950.40	1,335.51	2,003.37	2,175.44	2,205.32	2,415.29
NANX	5.8900	2.8200	8.0900	8.8700	5.6500	5.9700
WSCI	1.3200	1.1100	2.1800	2.3600	3.6600	3.1500
LNDC	3.7500	2.0000	6.5900	6.8400	7.7500	10.7600
	<u>1/1/2002</u>	<u>12/31/2002</u>	<u>12/31/2003</u>	<u>12/31/2004</u>	<u>12/31/2005</u>	<u>12/31/2006</u>
<sup>^</sup> IXIC	0.051	\$ 68.47	\$ 102.72	\$ 111.54	\$ 113.07	\$ 123.84
NANX	16.978	\$ 47.88	\$ 137.35	\$ 150.59	\$ 95.93	\$ 101.36
WSCI	75.758	\$ 84.09	\$ 165.15	\$ 178.79	\$ 277.27	\$ 238.64
LNDC	26.667	\$ 53.33	\$ 175.73	\$ 182.40	\$ 206.67	\$ 286.93

Peer Avg.	\$ 100.00	\$ 68.71	\$ 170.44	\$ 180.59	\$ 241.97	\$ 262.78
	<u>1/1/2002</u>	<u>12/31/2002</u>	<u>12/31/2003</u>	<u>12/31/2004</u>	<u>12/31/2005</u>	<u>12/31/2006</u>
^IXIC	100.00%	68.47%	102.72%	111.54%	113.07%	123.84%
NANX	100.00%	47.88%	137.35%	150.59%	95.93%	101.36%
WSCI	100.00%	84.09%	165.15%	178.79%	277.27%	238.64%
LNDG	100.00%	53.33%	175.73%	182.40%	206.67%	286.93%
Avg.	100.00%	68.71%	170.44%	180.59%	241.97%	262.78%

Measurement Date	1/1/02	12/31/02	12/31/03	12/31/04	12/31/05	12/31/06
Nanophase Technologies Corporation	\$100.00	47.88	137.35	150.59	95.93	101.36
NASDAQ	\$100.00	68.47	102.72	111.54	113.07	123.84
Peer Group	\$100.00	68.71	170.44	180.59	241.97	262.78

The companies in the peer group, both of which are advanced materials or advanced technologies companies, are Landec Corporation and WSI Industries, Inc. The Company believes these companies are compatible to Nanophase with respect to their businesses, stages of development and market capitalization.

## Item 6. Selected Financial Data

The following selected financial data is qualified by reference to, and should be read in conjunction with, the financial statements and related notes thereto appearing elsewhere in this Form 10-K and “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations.” The selected financial data set forth below as of, and for, each of the years in the five-year period ended December 31, 2006 have been derived from the audited financial statements of the Company.

	Years Ended December 31,				
	2006	2005	2004	2003	2002
<b>Statement of Operations Data:</b>					
Product revenue .....	\$8,612,705	\$6,444,444	\$4,253,478	\$4,880,313	\$5,002,986
Other revenue .....	<u>378,133</u>	<u>357,463</u>	<u>954,456</u>	<u>566,348</u>	<u>398,229</u>
Total revenue .....	8,990,838	6,801,907	5,207,934	5,446,661	5,401,215
Cost of revenue .....	<u>7,057,707</u>	<u>5,827,719</u>	<u>5,125,216</u>	<u>5,205,065</u>	<u>5,095,019</u>
Gross profit .....	1,933,131	974,188	82,718	241,596	306,196
Research and development expense .....	2,127,862	1,934,528	1,929,348	1,906,791	1,572,997
Selling, general and administrative expense .....	5,302,836	4,422,011	4,361,357	4,095,877	3,854,051
Lease accounting adjustment .....	-	<u>279,810</u>	-	-	-
Loss from operations .....	<u>(5,497,567)</u>	<u>(5,662,161)</u>	<u>(6,207,987)</u>	<u>(5,761,072)</u>	<u>(5,120,852)</u>
Interest income .....	366,701	295,935	171,582	67,992	152,626
Interest expense .....	(52,469)	(50,273)	(74,277)	(109,889)	(125,181)
Other, net .....	5,505	32,888	(306,273)	5,319	6,844
Provision for income taxes .....	-	-	<u>(30,000)</u>	<u>(30,000)</u>	<u>(68,674)</u>
Net loss .....	<u>\$(5,177,830)</u>	<u>\$(5,383,611)</u>	<u>\$(6,446,955)</u>	<u>\$(5,827,650)</u>	<u>\$(5,155,237)</u>

Net loss per share-basic and diluted .....	\$ (0.28)	\$ (0.30)	\$ (0.37)	\$ (0.38)	\$ (0.35)
Weighted average number of basic and diluted common shares outstanding.....	<u>18,344,334</u>	<u>17,937,932</u>	<u>17,266,228</u>	<u>15,391,537</u>	<u>14,551,479</u>

	As of December 31,				
	2006	2005	2004	2003	2002
<b>Balance Sheet Data:</b>					
Cash and cash equivalents .....	\$ 132,387	\$ 340,860	\$ 475,185	\$ 399,999	\$ 445,684
Investments.....	8,434,793	8,168,092	11,155,126	4,562,364	7,062,808
Working capital .....	9,201,677	9,210,435	11,953,699	5,313,781	7,380,051
Total assets .....	19,743,745	18,173,344	21,792,295	16,242,819	20,012,970
Long-term obligations .....	1,434,259	1,265,875	—	263,669	364,563
Total stockholders' equity .....	15,825,447	14,920,012	19,982,490	13,719,087	16,832,965

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

*The following discussion and analysis should be read in conjunction with "Item 6. Selected Financial Data," risks discussed in other filings made by the Company with the Securities and Exchange Commission, and the financial statements and related notes thereto appearing elsewhere in this Form 10-K. When used in the following discussions, the words "anticipates," "believes," "estimates," "expects," "plans," "intends" and similar expressions are intended to identify forward-looking statements. Such statements are subject to certain risks, uncertainties and contingencies that could cause actual results, performance or achievements to differ materially from those expressed in, or implied by, such statements. See the "Forward Looking Statements" section in Part I, Item 1.*

### Overview

Nanophase Technologies is a nanomaterials developer and commercial manufacturer with an integrated family of nanomaterial technologies. Nanophase produces engineered nanomaterials for use in a variety of diverse markets: sunscreens, architectural coatings, industrial coatings, ingredients, personal care, abrasion-resistant applications, antimicrobial products, plastics additives, water filtration, DNA biosensors and a variety of polishing applications, including semiconductors and optics. The Company targets markets in which it feels practical solutions may be found using nanoengineered products. The Company works closely with leaders in these target markets to identify their material and performance requirements. Newer developed technologies have made certain new products possible and opened potential new markets. With the commercialization of the Company's NanoArc™ synthesis and new dispersion technologies in 2002, and the expansion of these capabilities in 2003 and 2004, Nanophase is focusing on penetrating the chemical-mechanical-planarization ("CMP") and fine polishing markets. CMP is the process of polishing various types of integrated circuits or chips to be used in various commercial electronics applications. Management believes that the Company's inroads in the CMP and fine polishing markets would have been very difficult without the Company being able to produce its materials to exacting specifications verified by in-house and customer-based testing. Management expects growth in end-user (customers of Nanophase's customers) adoption in 2007 and revenue growth to continue in both of these areas. Additionally, the Company feels that its exclusive relationship with Altana Chemie ("Altana"), a global ingredients supplier to various coatings industries, will lead to growth in several of its abrasion-resistant applications in the marketplace. Management expects this relationship to continue to develop in 2007. In May of 2005, BASF announced the introduction of a new coated sunscreen material. This material incorporated a new coating developed by Nanophase which, management believes, should help to expand sales in the European and Asian markets with future revenue growth expected. Management further expects that we will develop additional customers to help us achieve growth in 2007 and beyond.

On August 25, 2006, the Company sold, in a private placement to Rohm and Haas Electronic Materials CMP Holdings, Inc., 847,918 shares of common stock at \$5.8968 per share and received gross proceeds of \$5.0 million.

On November 3, 2005, BYK-Chemie USA, a subsidiary of Altana and a customer of Nanophase, lent \$1,597,420 to Nanophase pursuant to the terms of a Promissory Note received effective October 27, 2005. This loan was for the purchase and installation of additional dispersion capacity and an additional NanoArc™ synthesis reactor to allow both for quicker material and application development, which should help to speed market penetration, and the ability to fulfill orders on a commercial scale for additional materials in varying media. The equipment was commissioned on November 1, 2006.

From its inception in November 1989 through December 31, 1996, the Company was in the development stage. During that period, the Company primarily focused on the development of its manufacturing processes in order to transition from laboratory-scale to commercial-scale production. As a result, the Company developed an operating capacity to produce significant quantities of its nanomaterials for commercial sale. The Company was also engaged in the development of commercial applications and formulations and the recruiting of marketing, technical and administrative personnel. Since January 1, 1997, the Company has been engaged in commercial production and sales of its nanomaterials, and the Company no longer considers itself in the development stage. From inception through December 31, 2006, the Company was primarily capitalized through the private offering of approximately \$32.0 million of equity securities prior to its initial public offering, its initial public offering of \$28.8 million of common stock in November of 1997, its private offering of \$6.2 million of common stock in May of 2002, its private offering of \$1.95 million of common stock in September of 2003, its equity investment of \$9.3 million in March 2004 and its private offering of \$1.95 million of common stock in September of 2004 (through the conversion of warrants that were attached to its September 2003 offering) and its equity investment of \$4.9 million in August 2006, each net of issuance costs. The Company has incurred cumulative losses of \$62.7 million from inception through December 31, 2006.

## **Results of Operations**

### **Years Ended December 31, 2006 and 2005**

Total revenue increased to \$8,990,838 in 2006, compared to \$6,801,907 in 2005. A substantial majority of the Company's revenue for the year ended December 31, 2006 is from the Company's three largest customers. See Note 15 to the Financial Statements for additional information regarding the revenue the Company derived from these three customers for the year ended December 31, 2006. Product revenue increased to \$8,612,705 in 2006, compared to \$6,444,444 in 2005. The increase in product revenue was primarily attributed to increased sales to a new significant customer in architectural coatings as well as increased sales of sunscreen and personal care materials to BASF, the Company's largest customer. The Company and its largest customer currently have a technology agreement in place that has led to the joint development of the second generation of sunscreen nanomaterials for other potential personal care applications. Management anticipates the launch of one or more new sunscreen or personal care applications in the near future, with related revenue subsequently to begin building.

Other revenue increased to \$378,133 in 2006, compared to \$357,463 in 2005. This increase was primarily attributed to the Company recognizing deferred revenue in connection with its promissory note to BYK Chemie and increases in shipping revenue partially offset by decreases in purchased supplies.

The majority of the total revenue generated during the year ended December 31, 2006 was from the Company's largest customers in the healthcare (sunscreens) and its new significant customer (2006's second largest customer) for application in architectural coatings as described above.

Cost of revenue generally includes costs associated with commercial production and customer development arrangements. Cost of revenue increased to \$7,057,707 in 2006, compared to \$5,827,719 in 2005. The increase in cost of revenue was generally attributed to increased revenue volume and increases in commodity metals pricing and was partially offset by the Company's continued efficiencies in reducing its remaining variable manufacturing costs on nanomaterials. Improvements to gross margins were primarily due to increased revenue volume, favorable product mix and the completion of a series of process improvements that increased PVS reactor output by 38% in conjunction with a re-engineering program that had reduced the expected operational labor cost by 24% on high volume PVS-produced nanomaterials in 2005. These gains were somewhat offset by increases in commodity metal prices, a major component of the Company's raw material costs. Nanophase expects to continue new nanomaterial development, primarily using its NanoArc™ synthesis and dispersion technologies, for targeted applications and new markets in 2007. At current revenue levels the Company has generated a positive gross margin. The Company's margins have been somewhat impeded by not having enough revenue to absorb the manufacturing overhead that is required to work with current customers and the new ones the Company expects to have. Management believes that the current fixed manufacturing cost structure is sufficient to support significantly higher levels of production and resultant product revenue. The extent to which the Company's margins continue to grow, as a percentage of total revenue, will be dependent upon revenue mix, revenue volume, the Company's ability to continue to cut costs and the Company's ability to pass market raw materials increases on to its customers. As product revenue volume increases, this will result in more of the Company's fixed manufacturing costs being absorbed, leading to increased margins. The Company expects to continue reducing its variable product manufacturing costs in 2007, with potential offsetting increases in the commodity metals markets but may or may not continue to see gross margin growth in 2007, dependent upon the factors discussed above.

Research and development expense, which includes all expenses relating to the technology and advanced engineering groups, primarily consists of costs associated with the Company's development or acquisition of new product applications and coating formulations and the cost of enhancing the Company's manufacturing processes. The May 2005 development of BASF's new sunscreen was an example of this work. In another example, the Company has been and continues to be engaged in research to enhance its ability to disperse its material in a variety of organic and inorganic media for use as coatings and polishing materials. Much of this work has led to several new products and additional potential new products for use by Altana. Now that the Company has demonstrated the capability to produce pilot quantities of mixed-metal oxides in a single crystal phase, the Company does not expect development of further variations on these materials to present material technological challenges. Many of these materials exhibit performance characteristics that can enable them to serve in various catalytic applications. This development has been driven largely by customer demand. Management is now working on several related commercial applications. The Company expects that this technique should not be difficult to scale to large quantity commercial volumes once application viability and firm demand are established.

The Company also has an ongoing advanced engineering effort that is primarily focused on the development of new nanomaterials as well as the refinement of existing nanomaterials. The Company is not certain when or if any significant revenue will be generated from the production of the materials described above.

Research and development expense increased to \$2,127,862 in 2006, compared to \$1,934,528 in 2005. The increase in research and development expense was largely attributed to stock compensation expense (non-cash), the enhancement of existing processes and outside testing expenses. These increases were partially offset by the capitalization of payroll related to the installation of dispersion equipment and a NanoArc Synthesis Reactor supported by the previously discussed loan from BYK-Chemie USA and decreases in materials and supplies expense. The Company does not expect research and development expense to increase significantly in 2007.



Selling, general and administrative expense increased to \$5,302,836 in 2006, compared to \$4,422,011 in 2005. The net increase was primarily attributed to increases in stock compensation expense (non-cash), compensation expense, the abandonment of three United States patent applications and professional fees. These increases were partially offset by decreases in directors and officers insurance and audit fees.

A lease accounting adjustment of \$279,810 was made in the third quarter of 2005. This charge was due to the Company correcting an error in its prior accounting practices to conform the lease term used in calculating straight-line rent expense with the useful lives used to amortize improvements on leased property. See Note 19 to the Financial Statements for additional information.

Interest income increased to \$366,701 in 2006, compared to \$295,935 in 2005. These increases were primarily due to increases in investment yields in 2006.

### **Years Ended December 31, 2005 and 2004**

Total revenue increased to \$6,801,907 in 2005, compared to \$5,207,934 in 2004. A substantial majority of the Company's revenue for the year ended December 31, 2005 is from the Company's three largest customers. See Note 15 to the Financial Statements for additional information regarding the revenue the Company derived from these three customers for the year ended December 31, 2005. Product revenue increased to \$6,444,444 in 2005, compared to \$4,253,478 in 2004. The increase in product revenue was primarily attributed to increased sales of sunscreen and personal care materials to BASF, the Company's largest customer, increased sales of CMP materials to Rohm and Haas Electronic Materials CMP Inc. ("RHEM," formerly known as Rodel, Inc.) and a new customer for application in medical devices in the second quarter of 2005. The Company and its largest customer currently have a technology agreement in place that led to the joint development of the second generation of sunscreen nanomaterials for other potential personal care applications.

Other revenue decreased to \$357,463 in 2005, compared to \$954,456 in 2004. This decrease was primarily attributed to no technology payments being received in 2005, compared to \$600,000 in 2004 from RHEM. These payments from RHEM were part of its \$600,000 commitment in 2004 as described below which was amended for 2005.

In February of 2004, the Company amended its original agreement with RHEM. This amendment allows RHEM to maintain exclusivity based upon it purchasing lower dollar amounts of nanomaterials, while extending the agreement through 2009. This amendment did not require RHEM to purchase any materials from the Company in 2004, but it did require an aggregate of \$600,000 be paid to Nanophase in four equal quarterly installments in 2004 to support on-going efforts in joint slurry product development with RHEM during 2004. This \$600,000 was fully earned in 2004. In October of 2004, the Company amended its original agreement with RHEM a second time. This amendment reduced the minimum purchase requirements necessary to maintain the Company's exclusivity obligations to RHEM by approximately 44% during 2005. The reduction reflected the parties' recognition of the difficulty in precisely estimating the timing of product development and sales in the semiconductor polishing market. On August 25, 2006, the Company further amended and restated its original agreement with RHEM in conjunction with Rohm and Haas Electronic Materials CMP Holdings, Inc.'s concurrent purchase of 847,918 shares of the Company's common stock for an aggregate gross consideration of \$5,000,000. The August 2006 amendment expanded the parties' mutually exclusive relationship as to certain nanomaterials for CMP applications and extended the relationship through 2019. This amendment eliminated any specific minimum annual purchase requirements necessary for RHEM to maintain the Company's exclusivity obligations. However, the August 2006 amendment also provided that the

Company can end its exclusivity if RHEM does not purchase any nanomaterials for CMP applications for two consecutive years.

The majority of the total revenue generated during the year ended December 31, 2005 was from the Company's largest customers in the healthcare (sunscreens) and CMP markets and its new customer (second largest customer in the second quarter of 2005) for application in medical devices as described above.

Cost of revenue generally includes costs associated with commercial production and customer development arrangements. Cost of revenue increased to \$5,827,719 in 2005, compared to \$5,125,216 in 2004. The increase in cost of revenue was generally attributed to increased revenue volume somewhat offset by decreases in depreciation and the Company's continued efficiencies in reducing its variable manufacturing costs on nanomaterials. Improvements to gross margins were primarily due to increased revenue volume, favorable product mix and the completion of a series of process improvements that increased PVS reactor output by 38% in conjunction with a re-engineering program that had reduced the expected operational labor cost by 24% on high volume PVS-produced nanomaterials. Nanophase maintained an aggressive schedule for new nanomaterial development, primarily using its NanoArc™ synthesis and dispersion technologies, for targeted applications and new markets throughout 2006. At then-current revenue levels the Company generated a modest positive gross margin. The Company's margins were impeded by not having enough revenue to absorb the manufacturing overhead that is required to work with current customers and the new ones the Company expects to have. Management believes that the current fixed manufacturing cost structure is sufficient to support significantly higher levels of production and resultant product revenue. The extent to which the Company's margins remain positive, as a percentage of total revenue, will be dependent upon revenue mix, revenue volume and the Company's ability to continue to cut costs. As product revenue volume increases, this will result in more of the Company's fixed manufacturing costs being absorbed, leading to increased margins.

Research and development expense, which includes all expenses relating to the technology and advanced engineering groups, primarily consists of costs associated with the Company's development or acquisition of new product applications and coating formulations and the cost of enhancing the Company's manufacturing processes. The May 2005 roll-out of BASF's new sunscreen was an example of this work. In another example, the Company has been engaged in research to enhance its ability to disperse its material in a variety of organic and inorganic media for use as coatings and polishing materials. Much of this work led to new potential products for use by Altana. Now that the Company has demonstrated the capability to produce pilot quantities of mixed-metal oxides in a single crystal phase, the Company does not expect development of further variations on these materials to present material technological challenges. Many of these materials exhibit performance characteristics that can enable them to serve in various catalytic applications. This development has been driven largely by customer demand. The Company expects that this technique should not be difficult to scale to large quantity commercial volumes once application viability and firm demand are established. The Company also has an ongoing advanced engineering effort that is primarily focused on the development of new nanomaterials as well as the refinement of existing nanomaterials. The Company is not certain when or if any significant revenue will be generated from the production of the materials described above. Research and development expense increased to \$1,934,528 in 2005, compared to \$1,929,348 in 2004. This modest increase in research and development expense was mainly attributed to salary expenses.

Selling, general and administrative expense increased to \$4,422,011 in 2005, compared to \$4,361,357 in 2004. This modest net increase was primarily attributed to increases in compensation, consulting expenses and audit fees. These increases were partially offset by decreases in directors and officers and business insurance expenses and legal fees.

A lease accounting adjustment of \$279,810 was made in the third quarter of 2005. This charge was due to the Company correcting an error in its prior accounting practices to conform the lease term

used in calculating straight-line rent expense with the useful lives used to amortize improvements on leased property. See Note 19 to the Financial Statements for additional information.

Interest income increased to \$295,935 in 2005, compared to \$171,582 in 2004. These increases were primarily due to increased investment yields in 2005, along with an increase of funds available for investment, largely composed of the March 23, 2004 equity investment from Altana, which resulted in net proceeds of approximately \$9.3 million.

Other income increased to \$32,888 in 2005, compared to \$306,273 of other expenses in 2004. This net increase was primarily due to the Company taking a one-time charge in the amount of \$279,000 for accounting and legal costs associated with the withdrawal of the Company's universal shelf registration in August 2004.

### **Liquidity and Capital Resources**

The Company's cash, cash equivalents and investments amounted to \$8,567,180 on December 31, 2006, compared to \$8,508,952 on December 31, 2005. The net cash used in the Company's operating activities was \$3,186,096, \$4,408,535 and \$4,866,797 for the years ended December 31, 2006, 2005 and 2004, respectively. Net cash used in investing activities, which is due to purchases of securities and capital expenditures and partially offset by sales of securities, amounted to \$2,445,690 for the year ended December 31, 2006 compared to \$2,440,792 of net cash provided by and \$7,277,355 of net cash used in investing activities for the years ended December 31, 2005 and 2004, respectively. Capital expenditures amounted to \$2,013,810, \$292,692 and \$529,498 for the years ended December 31, 2006, 2005 and 2004, respectively. The majority of the capital spending for the year ended December 31, 2006 relates to the \$1,597,420 loan from BYK-Chemie USA for the purchase and installation of additional dispersion capacity and an additional NanoArc™ synthesis reactor. During the second quarter in 2005 the Company completed implementation of a PVS process innovation started in late 2003, within the current capital budget, that has increased PVS reactor output by approximately 38% in conjunction with a re-engineering program that had reduced the expected operational labor cost by 24% on high volume PVS-produced nanomaterials. The Company expects that this innovation should result in the need for less future capital as the Company's PVS reactor-produced business grows. Currently, all sunscreen and personal care nanomaterials are manufactured via the PVS process. Net cash provided by financing activities is primarily due to the Company securing financing through an equity investment in August 2006 and, to a lesser extent, by the issuance of shares of common stock pursuant to the exercise of stock options and borrowings for equipment, partially offset by principal payments on debt and capital lease obligations amounting, in total, to \$5,423,313 for the years ended December 31, 2006. Net cash provided by financing activities, is primarily due to a loan from BYK-Chemie (See discussion below), the issuance of shares of common stock pursuant to the exercise of options, partially offset by principal payments on debt and capital lease obligations, amounting, in total, to \$1,833,418 for the year ended December 31, 2005. Net cash provided by financing activities for the year ended December 31, 2004 was primarily due to the Company securing financing through an equity investment in March 2004 and, to a lesser extent, by the issuance of shares of common stock pursuant to the exercise of warrants and options, partially offset by principal payments on debt and capital lease obligations, amounting, in total, to \$12,219,318.

On August 25, 2006, the Company sold, in a private placement to Rohm and Haas Electronic Materials CMP Holdings, Inc., 847,918 shares of common stock at \$5.8968 per share and received gross proceeds of \$5.0 million.

On November 3, 2005, BYK-Chemie USA, a customer of Nanophase, lent \$1,597,420 to Nanophase pursuant to the terms of a Promissory Note received effective October 27, 2005. The proceeds of the Promissory Note were used to buy, install and commission certain equipment which now is being

used for fulfillment of orders by BYK-Chemie USA and other uses. The outstanding principal balance of the Promissory Note is payable in three equal installments on January 30, 2009, April 30, 2009 and December 31, 2009. Interest accrues and is payable on a quarterly basis one year after the equipment referenced above is installed and commissioned at the rate of 100 basis points over the average daily London Inter-Bank Offered Rate for the preceding quarter. See Note 7 to the Financial Statements for a discussion on the computation of interest relating to this note.

On March 23, 2004, the Company sold, in a private placement to Altana Chemie AG (“Altana”), 1,256,281 shares of common stock at \$7.96 per share and received gross proceeds of \$10.0 million. In accordance with the terms of such private placement, on February 5, 2007, the Company filed a registration statement for such 1,256,281. Such registration statement has not yet been declared effective by the SEC. While the Company has obligations to Altana with respect to the effectiveness of this registration statement, Altana would not have the ability to settle such shares in cash if such registration statement is not declared effective and, accordingly, the Company has treated the shares purchased by Altana as permanent equity on its balance sheet (i.e., as additional paid-in capital). On September 8, 2003, the Company secured equity funding through a private placement offering with Grace Brothers, Ltd., its largest investor. The Company issued 453,001 shares of additional common stock at \$4.415 per share and received gross proceeds of \$2.0 million. Grace Brothers, Ltd. also had the right to purchase an additional 453,001 shares for an additional \$2.0 million pursuant to the terms of a warrant issued in such private placement. In accordance with the terms of such private placement, on June 7, 2004, the Company filed a registration statement for such 453,001 shares and the additional 453,001 shares issuable upon exercise of the warrant which registration statement was declared effective on August 13, 2004. On September 2, 2004, Grace Brothers, Ltd. exercised its warrant rights to acquire 453,001 newly issued shares of common stock and the Company received \$2.0 million in gross proceeds. On May 29, 2002, the Company secured equity funding through a private placement offering. The Company issued 1.37 million shares of additional common stock at \$5.00 per share and received gross proceeds of \$6.85 million. Net proceeds were approximately \$6.2 million after commissions, legal, accounting and other costs. The Company used the remaining proceeds from the foregoing offerings to fund expected growth in new markets as well as to provide for expanded working capital needs expected to arise as sales volume grows and pay existing debts.

The Company’s supply agreement with its largest customer contains several financial covenants which could potentially impact the Company’s liquidity. The most restrictive financial covenants under this agreement require the Company to maintain a minimum of \$2.0 million in cash, cash equivalents and investments and that the Company not have the acceleration of any debt maturity having a principal amount of more than \$10,000,000, in order to avoid triggering a transfer of technology and equipment to the Company’s largest customer. The Company had approximately \$8.6 million in cash, cash equivalents and investments and debt net of unamortized debt discount of less than \$1.5 million on December 31, 2006. This supply agreement and its covenants are more fully described in Note 15 to the Company’s Financial Statements. See “Risk Factors—We may need to raise additional capital in the future”.

In November 2000, the Company executed a three-year promissory note, held by the Company’s largest customer, in the amount of \$1,293,895 for the construction of additional production capabilities at the Company’s Romeoville, Illinois facility. This debt was fully paid in the second quarter in 2006.

The Company believes that cash from operations, the proceeds of \$5 million equity investment from RHEM and the \$1,597,420 loan from BYK-Chemie USA (subject to the restrictions on the use of such proceeds set forth in the Promissory Note evidencing such loan), and cash, cash equivalents and investments on hand and interest income thereon, will be adequate to fund the Company’s operating plans for the foreseeable future. The Company’s actual future capital requirements in 2007 and beyond will depend, however, on many factors, including customer acceptance of the Company’s current and potential nanomaterials and product applications, continued progress in the Company’s research and development activities and product testing programs, the magnitude of these activities and programs, and the costs

necessary to increase and expand the Company's manufacturing capabilities and to market and sell the Company's materials and product applications. Other important issues that will drive future capital requirements will be the development of new markets and new customers as well as the potential for significant unplanned growth with the Company's existing customers. The Company expects that capital spending relating to currently known capital needs for 2007 will be approximately \$2,500,000, but could be even greater due to the factors discussed above.

Should events arise that make it appropriate for the Company to seek additional financing, it should be noted that additional financing may not be available on acceptable terms or at all, and any such additional financing could be dilutive to the Company's stockholders. Such a financing could be necessitated by such things as the loss of existing customers; currently unknown capital requirements in light of the factors described above; new regulatory requirements that are outside the Company's control; the need to meet previously discussed cash requirements to avoid a triggering event; or various other circumstances coming to pass that are currently not anticipated by the Company.

On December 31, 2006, the Company had a net operating loss carryforward of approximately \$70 million for income tax purposes. Because the Company may have experienced "ownership changes" within the meaning of the U.S. Internal Revenue Code in connection with its various prior equity offerings, future utilization of this carryforward may be subject to certain limitations as defined by the Internal Revenue Code. If not utilized, the carryforward expires at various dates between 2007 and 2026. As a result of the annual limitation and uncertainty as to the amount of future taxable income that will be earned prior to the expiration of the carryforward, the Company has concluded that it is likely that some portion of this carryforward will expire before ultimately becoming available to reduce income tax liabilities. During the year ended December 31, 2006, the Company's foreign tax credit carryforward of \$156,000 expired.

### Contractual Obligations

The following table highlights the Company's contractual obligations as of December 31, 2006:

	Payments due by period				
	Total	Less than 1 Year	1-3 Years	3-5 Years	More than 5 Years
Long-term debt obligations	\$1,597,420	\$ -	\$1,597,420	\$ -	\$ -
Operating Leases	\$7,124,079	398,344	1,021,600	986,400	4,717,735
Capital Leases	\$ 83,525	32,973	50,552	-	-
Unfulfilled Purchase Orders	\$ 346,799	346,799	-	-	-
<b>Totals</b>	<b>\$9,151,823</b>	<b>\$778,116</b>	<b>\$2,669,572</b>	<b>\$986,400</b>	<b>\$4,717,735</b>

### Off-Balance Sheet Arrangements

The Company has not created, and is not party to, any special-purpose or off-balance sheet entities for the purposes of raising capital, incurring debt or operating the Company's business. Nanophase does not have any off-balance sheet arrangements or relationships with entities that are not consolidated into the Company's financial statements that are reasonably likely to materially affect Nanophase's liquidity or the availability of capital resources.



**Item 7A. Quantitative and Qualitative Disclosures About Market Risk**

The only financial instruments that the Company holds are investments of a short-term duration. Management does not believe that the Company currently has material market risk relating to its investments.

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

The financial statements and financial statement schedule, with the report of independent auditors, listed in Item 15 are included in this Form 10-K.

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

None.

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

An evaluation was conducted under the supervision and with the participation of the Company's management, including the Chief Executive Officer (CEO) and Chief Financial Officer (CFO), of the effectiveness of the design and operation of the Company's disclosure controls and procedures as of December 31, 2006. Based on that evaluation, the CEO and CFO concluded that the Company's disclosure controls and procedures were effective as of such date to ensure that information required to be disclosed in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms and that the Company's disclosure controls and procedures are effective to ensure that material information required to be disclosed by the Company in reports that it files or submits under the Exchange Act is made known to management and others, as appropriate, to allow timely decisions regarding required disclosures.

**Internal control over financial reporting**

The Company's management, including the CEO and CFO, confirm that there was no change in the Company's internal control over financial reporting during the quarter ended December 31, 2006 that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

**Management's report**

Management's report and the Report of independent registered public accounting firm on internal control over financial reporting are set forth in Part IV, Item 15 of this Form 10-K.

**Item 9B. Other Information**

None.

## PART III

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

#### DIRECTORS

Set forth below is certain information regarding the directors of the Company.

<u>Name</u>	<u>Age</u>	<u>Position with Company</u>	<u>Served as Director Since</u>	<u>Term Expires</u>	<u>Class</u>
James A. Henderson	72	Director	2001	2007	I
James A. McClung, Ph.D.	69	Director	2000	2007	I
R. Janet Whitmore	52	Director	2003	2007	I
Richard W. Siegel, Ph.D.	69	Director	1989	2008	II
Joseph E. Cross	59	Director, President and Chief Executive Officer	1998	2008	II
Donald S. Perkins	79	Chairman of the Board of Directors	1998	2009	III
Jerry K. Pearlman	67	Director	1999	2009	III

**Mr. Henderson** has served as a director of the Company since July 2001. He retired as Chairman and Chief Executive Officer of Cummins Engine Company in December 1999, after joining the company in 1964. Mr. Henderson became President and Chief Operating Officer of Cummins in 1977, was promoted to President and Chief Executive Officer in 1994 and served as Chairman and Chief Executive Officer from 1995 until his retirement in 1999. Mr. Henderson attended Culver Military Academy, holds an A.B. in public and international affairs from Princeton University and an M.B.A. from Harvard Business School. Mr. Henderson currently serves as a member of the Board of Directors of ATT Inc. and Ryerson Inc. He serves as Chairman of the Board of the Culver Education Foundation and is a past Chair of the Executive Committee of the Princeton University Board of Trustees.

**Mr. McClung** has served as a director of the Company since February 2000. He retired as Senior Vice President and executive officer for FMC Corporation, a leading producer of a diversified portfolio of chemicals and machinery. He has over 30 years of international business development experience in over 75 countries, having managed and developed new technologies and production processes for diversified global businesses, including specialized chemicals and machinery, while living in the United States, Europe and Africa. Mr. McClung currently serves as Corporate Board member of Alticor (Amway), NCCI, Hu-Friedy and 7 M Group.. He was a founding member of the U.S.-Russia Business Council and is active in other international business organizations, such as the Japan American Society, Chicago Council of Foreign Relations and the Economic Club of Chicago. He serves as a board director at Thunderbird School of Global Management and the College of Wooster (Ohio). Mr. McClung earned a Bachelor's degree from the College of Wooster, a Master's degree from the University of Kansas and a Doctorate from Michigan State University.

**Ms. Whitmore** joined the board in November 2003. She is currently a director of Silverleaf Resorts, Inc., where she serves as Chairman of the Compensation Committee and as a member of the Audit Committee. She is a former director of Epoch Biosciences, a supplier of proprietary products used

to accelerate genomic analysis. Ms. Whitmore is Founder of Benton Consulting, LLC, which specializes in business development and processes. From 1976 through 1999, Ms. Whitmore held numerous engineering and finance positions at Mobil Corporation, including Mobil's Chief Financial Analyst and Controller of Mobil's Global Petrochemicals Division. Ms. Whitmore holds a Bachelor of Science degree in Chemical Engineering from Purdue University and an M.B.A. from Lewis University.

**Mr. Cross** has served as Chief Executive Officer of the Company since December 1998 and President and a director of the Company since joining the Company in November 1998. Prior to joining the Company in November 1998, Mr. Cross served as President and Chief Executive Officer of Aptech, a manufacturer of measurement, metering and control devices for the utility industry, from August 1996 to October 1998. From December 1993 to July 1996, Mr. Cross served as President of Aegis Technologies, an interactive telecommunications company. He holds a B.S. degree from Southwest Missouri University and attended the M.B.A. program at Southwest Missouri University.

**Dr. Siegel** is a co-founder of the Company and has served as a director of the Company since 1989. Dr. Siegel served as a consultant to the Company from 1990 to 2002 with regard to the application and commercialization of nanomaterials. Dr. Siegel is an internationally recognized scientist in the field of nanomaterials. During his tenure on the research staff at Argonne National Laboratory from July 1974 to May 1995, he was the principal scientist engaged in research with the laboratory-scale synthesis process that was the progenitor of the Company's physical-vapor-synthesis production system. Dr. Siegel has been the Robert W. Hunt Professor in Materials Science and Engineering at Rensselaer Polytechnic Institute since June 1995, and served as Department Head from 1995 to 2000. In April 2001, Dr. Siegel became the founding Director of the newly created Rensselaer Nanotechnology Center at the Institute. During 1995-1998, he was also a visiting professor at the Max Planck Institute for Microstructure Physics in Germany on an Alexander von Humboldt Research Prize received in 1994. During 2003-2004 he was a visiting professor in Japan on a RIKEN Eminent Scientist Award. He chaired the World Technology Evaluation Center worldwide study of nanostructure science and technology for the U.S. government, has served on the Council of the Materials Research Society and as Chairman of the International Committee on Nanostructured Materials. He also served on the Committee on Materials with Sub-Micron Sized Microstructures of the National Materials Advisory Board and was the co-chairman of the Study Panel on Clusters and Cluster-Assembled Materials for the U.S. Department of Energy. He currently serves on the Nanotechnology Technical Advisory Group to the U.S. President's Council of Advisors on Science and Technology. Dr. Siegel holds an A.B. degree in physics from Williams College and an M.S. degree and Ph.D. from the University of Illinois at Urbana-Champaign.

**Mr. Perkins** has served as a director of the Company since February 1998. Mr. Perkins retired from Jewel Companies, Inc., the retail supermarket and drug chain, in 1983. He had been with Jewel since 1953, serving as President from 1965 to 1970, as Chairman of the Board of Directors from 1970 to 1980, and as Chairman of the Executive Committee until his retirement. He has served on a number of corporate boards and is currently a director of LaSalle Hotel Properties and La Salle U.S. Realty Income and Growth Fund III. For more than 30 years, he has served on corporate boards including AT&T, Aon, Corning, Cummins Engine, Eastman Kodak, Firestone, Inland Steel Industries, Kmart, Lucent Technologies, The Putnam Funds, Springs Industries and Time-Warner, Inc. He is a Protector of the Thyssen-Bornemisza Continuity Trust. He has served as a Trustee of The Ford Foundation and The Brookings Institution and as a member of The Business Council. Mr. Perkins is a life trustee and was Vice Chairman of the Board of Trustees of Northwestern University. He co-chaired Campaign/*Northwestern*, a university-wide effort which raised more than \$1.5 billion. He is also a member of the Civic Committee of The Commercial Club of Chicago, and Advisory Boards for Blue Ridge Partners, Shields-Meneley, Syrus, RoundTable Healthcare Partners L.P., Northwestern University's School of Communication and its School of Education and Social Policy. Mr. Perkins holds a B.A. degree from Yale University and an M.B.A. degree from the Harvard Graduate School of Business Administration.

**Mr. Pearlman** has served as a director of the Company since April 1999. Mr. Pearlman retired as Chairman of Zenith Electronics Corporation in November 1995. He joined Zenith as controller in 1971 and served as chief executive officer from 1983 through April 1995. Mr. Pearlman is a director of Smurfit Stone Container Corporation and Ryerson Inc. He is a trustee of Northwestern University and a life director and past chairman of the board of Evanston Northwestern Healthcare. Mr. Pearlman graduated from Princeton with honors from the Woodrow Wilson School and from Harvard Business School with highest honors.

**Meetings of the Board and Committees** -- During the year ended December 31, 2006, the Board of Directors held six formal meetings. No director missed more than one board and committee meeting held during 2006 (for all committees on which a particular director served).

**Committees of the Board of Directors** -- The Board of Directors has established an Audit and Finance Committee, Compensation and Governance Committee and a Nominating Committee each comprised entirely of independent directors who are not officers or employees of the Company. The members of the Audit and Finance Committee are Mr. McClung (Chairman), Mr. Henderson, Mr. Pearlman and Mr. Perkins. The members of the Compensation and Governance Committee are Mr. Pearlman (Chairman), Mr. Henderson and Mr. Perkins. The members of the Nominating Committee are Mr. Henderson (Chairman), Mr. McClung, Mr. Pearlman, Mr. Perkins and Dr. Siegel.

The Audit and Finance Committee generally has responsibility for retaining the Company's independent public auditors, reviewing the plan and scope of the accountants' annual audit, reviewing the Company's internal control functions and financial management policies and reporting to the Board of Directors regarding all of the foregoing. The Audit and Finance Committee held five formal meetings in 2006. The Board of Directors has determined that Mr. Pearlman, Mr. Perkins and Mr. Henderson, all of whom serve on the Audit and Finance Committee, are "audit committee financial experts" as described in applicable SEC rules. Each member of the Audit and Finance Committee is independent, as defined in Rule 4200(a) (15) of the National Association of Securities Dealers' listing standards and applicable SEC rules.

The Compensation and Governance Committee generally has responsibility for establishing executive officer and key employee compensation, reviewing and establishing the Company's executive compensation and general corporate governance policies and reporting to the Board of Directors regarding the foregoing. The Compensation and Governance Committee also has responsibility for administering the Amended 2004 Equity Compensation Plan and the 2006 Stock Appreciation Rights Plan, determining the number of options, if any, to be granted to the Company's employees and consultants pursuant to the Amended 2004 Equity Compensation Plan and reporting to the Board of Directors regarding the foregoing. The Compensation and Governance Committee held four formal meetings in 2006.

The Nominating Committee generally has responsibility for nominating candidates to serve on the Board of Directors. All members of the Nominating Committee are independent. The Nominating Committee was formed in 2004 and held one formal meeting in 2006.

## **EXECUTIVE OFFICERS**

Set forth below is certain information regarding the executive officers of the Company who are not identified above as directors.

<u>Name</u>	<u>Age</u>	<u>Position</u>
Jess Jankowski	41	Chief Financial Officer, Vice President of Finance, Secretary and Treasurer
Robert Haines	56	Vice President -- Operations
Daniel S. Bilicki	63	Vice President -- Sales and Marketing

<u>Name</u>	<u>Age</u>	<u>Position</u>
Richard W. Brotzman, Ph.D.	53	Vice President -- Research and Development

**Mr. Jankowski** has served as Controller of the Company since joining in 1995. He was elected Secretary and Treasurer in November 1999, Acting Chief Financial Officer in January 2000, and Vice President in April of 2002 and Vice President of Finance and Chief Financial Officer in April of 2004. From 1990-1995 he served as Controller for two building contractors in the Chicago area. From 1986 to 1990 he worked for Kemper Financial Services in their accounting control corporate compliance unit, serving as unit supervisor during his last two years. Mr. Jankowski holds a B.S. in accountancy from Northern Illinois University, an M.B.A. from Loyola University, and received his certified public accountant certificate from the State of Illinois. He has served on the advisory board of WESTEC, an Illinois Technology Enterprise Center focusing on the commercialization of advanced manufacturing technologies, since 2003. Mr. Jankowski was appointed to the Romeoville Economic Development Commission in 2004.

**Mr. Haines** joined Nanophase Technologies in January 2001 as Vice President of Operations. Beginning in 1996 and prior to joining Nanophase, he served as Corporate Director of Quality at Legrand North America. Previous experience includes two years as Vice President of Operations for Aegis Technologies and eight years with Digital Equipment Corporation. Mr. Haines has a B.S. in Chemistry/Engineering Physics from East Tennessee State University.

**Mr. Bilicki** has served as Vice President -- Sales and Marketing of the Company since joining the Company in March 1999. From January 1996 until March 1999, Mr. Bilicki served as President/Director of PT Crosfield Indonesia in Jakarta, Indonesia, a subsidiary of Crosfield Company, which is a global chemical company. From January 1994 to December 1995, Mr. Bilicki held the position of President/Director North America of Crosfield Company. He holds a B.S. degree from Indiana Institute of Technology and an M.B.A. degree from Winthrop University.

**Dr. Brotzman** joined the Company in July 1994 as a senior scientist and has served as Vice President -- Research and Development of the Company since July 1996. He is the inventor of much of the Company's coating technology. Dr. Brotzman has more than 20 years experience in research and development of advanced materials leading to new products. His technical areas of expertise include interfacial adhesion and chemistry, self-assembled polymeric coatings, nanosized inorganic powders, powder processing, reactive coupling agents, solgel derived protective coatings, non-destructive evaluation of composites, neo-debye relaxation in green inorganic gels, asymmetric membranes and plasma processing. From January 1991 to July 1994, Dr. Brotzman served as Director of Research at TPL, Inc., an advanced materials company. He holds a B.S. degree in chemical engineering from Lafayette College, an M.S. degree in engineering and applied science from the University of California, Davis and a Ph.D. in chemistry from the University of Washington.

The Board of Directors elects executive officers annually and such executive officers, subject to the terms of certain employment agreements, serve at the discretion of the Board of Directors. Messrs. Cross, Jankowski, Bilicki, Haines and Dr. Brotzman each have employment agreements with the Company. See Item 11 below. There are no family relationships among any of the directors or officers of the Company.

## **SECTION 16(A) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE**

Section 16 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), requires the Company's officers (as defined under Section 16), directors and persons who beneficially own greater than 10% of a registered class of the Company's equity securities to file reports of ownership and changes in ownership with the Securities and Exchange Commission. Based solely on a review of the forms it has received and on written representations from certain reporting persons that no such forms were required



for them, the Company believes that during 2006, all Section 16 filing requirements applicable to its officers, directors and 10% beneficial owners were complied with by such persons.

### **CODE OF ETHICS**

The Company has adopted a Code of Business Conduct and Ethics (“Code of Ethics”) that applies to, among others, the Company’s principal executive officer, principal financial officer and principal accounting officer or controller, or persons performing similar functions. The Code of Ethics is posted on its Internet web site [www.nanophase.com](http://www.nanophase.com) under the “Investor Relations” section. In the event that the Company makes any amendment to, or grants any waiver from, a provision of the Code of Ethics that requires disclosure under applicable SEC rules, the Company intends to disclose such amendment or waiver on its web site.

## **Item 11. Executive Compensation**

### **COMPENSATION DISCUSSION & ANALYSIS**

This section discusses the material elements of compensation awarded to, earned by or paid to the principal executive and principal financial officers of the Company, and the three other most highly compensated executive officers of the Company (the “executive officers”).

The Board of Director’s Compensation and Governance Committee (the “Compensation Committee”) generally has responsibility for establishing executive officer and key employee compensation, reviewing and establishing the executive compensation and reporting to the Board of Directors regarding the foregoing. The Compensation Committee also has responsibility for administering the Amended 2004 Equity Compensation Plan and the 2006 Stock Appreciation Rights Plan, determining the number of options or stock appreciation rights, if any, to be granted under those plans and reporting to the Board of Directors regarding the foregoing. None of the executive officers are members of the Compensation Committee. The current Compensation Committee members are Jerry K. Pearlman (Chairman), James A. Henderson and Donald S. Perkins.

#### ***Overview of Compensation Programs and Objectives***

The objectives of the Compensation Committee in recommending the levels and components of compensation for the executive officers are to:

1. Attract, motivate and retain talented and dedicated executives;
2. Motivate performance to achieve our specific strategic and operating objectives; and
3. Provide both cash and equity incentives that align the interests of the executive officers with the long-term interests of our stockholders.

The Compensation Committee reviews the achievement of corporate goals and individual contributions to our success. The Compensation Committee relies on judgment and not upon rigid guidelines or formulas in determining the amount or mix of compensation elements for each executive officer. Factors affecting their judgment include performance compared to strategic goals, the nature of the executive officer’s responsibilities and his effectiveness in leading our initiatives to achieve our goals. Our Chief Executive Officer, Mr. Joseph E. Cross, as the manager of the members of the executive team, assesses the executives’ individual contributions to their respective departmental goals and makes recommendations to the Compensation Committee with respect to increases in base salary, discretionary bonus and long-term incentive awards, for each member of the executive team, other than himself. The Compensation Committee evaluates, discusses, modifies and approves these recommendations and conducts a similar evaluation of Mr. Cross’ contributions and performance. Each member of the Board of Directors is permitted to attend the Compensation Committee meetings and participate in the discussion. However, approval of each executive officer’s compensation is made by the Compensation Committee. As described in more detail below, the material components of the executive officers compensation includes base salary, discretionary bonus, long-term incentive awards, severance protection and change-in-control benefits. We believe that each element of our executive compensation program helps us to achieve one or more of our compensation objectives.

Base salaries, severance protection and change-in-control benefits are all primarily intended to attract and retain qualified executives. The value of these components in any given year is not dependent on performance (unless determined by reference to base salary, which may increase depending on performance). The Company believes it needs to provide executives with a level of predictable compensation in order to attract and retain top-caliber executives and reward their continued services. The Compensation Committee’s general philosophy is that discretionary bonuses and long-term incentive compensation should fluctuate with the Company’s success in achieving financial and other goals, and

that the Company should continue to use long-term compensation such as stock options, restricted stock and stock appreciation rights to align stockholder and executives' interests. The Company also believes that a mix of longer-term and short-term elements allows it to achieve the dual goals of attracting and retaining executives while motivating their continued performance and aligning their financial interests with that of our shareholders.

The Compensation Committee has found it difficult to benchmark the compensation levels of our executive officers within a peer group of comparable companies due to the nature of our business and technology. The Compensation Committee has evaluated the compensation practices of other high technology companies, including other publicly-held advanced materials and advanced technologies companies in determining an appropriate level and mix of compensation.

### ***Current Material Elements***

**Base Salary.** In determining the base salaries of the executive officers in 2006, the Compensation Committee considered the performance of each executive during the prior year, the nature of the executive's responsibilities and the Company's past compensation practice. Base salary is paid in cash.

Each of the executive officers has employment agreements dictating a minimum level of base salary. The executive officers annual base salaries were not increased for a period of approximately 18-months ending on April 25, 2006. At that time, base salaries were increased by the following percentage to the following levels: for Mr. Cross, 6.3% to \$340,000, for Mr. Jankowski, 7.5% to \$180,000, for Mr. Haines, 8.9% to \$220,000, for Mr. Bilicki, 4.0% to \$220,500 and for Dr. Brotzman, 6.1% to \$195,000. The base salary that was paid to each executive officer in 2006 is the amount reported for such officer in Column (c) of the Summary Compensation Table below. The executive officers' base salaries are not currently expected to change in 2007, however the Compensation Committee reserves the right to adjust executive salaries at any time.

**Discretionary Bonuses.** Discretionary bonuses for executive officers, if any, are paid in cash upon the achievement of our performance goals and are a function of the criteria which the Compensation Committee believes appropriately takes into account the specific areas of responsibility of the particular officer, performance and other factors such as our profitability, cash flow, revenue and customer generation, market share and industry position. Discretionary bonuses, if any, are paid after consideration of each executive officer's performance and the input of Mr. Cross related to the individual performance of the executive officers, other than himself. The Compensation Committee determines whether to pay a discretionary bonus to Mr. Cross based on our performance, profitability, cash flow, revenue and customer generations, market share and industry position.

Discretionary bonuses paid for performance in 2006 are shown in column (d) of the Summary Compensation Table below.

**Long-Term Incentive Compensation.** Periodically, the Compensation Committee grants long-term incentive compensation, in the form of stock options, restricted share rights, performance share rights and stock appreciation rights in order to provide a long-term incentive which is directly tied to the performance of our stock. These grants provide an incentive to maximize stockholder value by providing the employees an equity interest which further aligns their interests with those of the stockholders. The exercise price of these grants is the closing price (used to establish fair market value) of the underlying Common Stock on the date of grant. In general, the options vest in equal annual installments over a three-year period beginning one year after the date of grant, in certain instances the Board of Directors (or the Compensation Committee) can adjust the vesting period for performance-based options. Restricted share rights typically "cliff vest," all at one time, at a date several years subsequent to their grant date. Performance restricted share rights vest upon the achievement of milestones as defined by the

Compensation Committee. In 2006, the Company adopted the 2006 Stock Appreciation Rights Plan which allows the Compensation Committee to award units that derive their value from the appreciation in our stock without the issuance of additional shares. These awards are paid in cash. The Company believes that the 2006 Stock Appreciation Rights Plan will allow it to continue to attract and retain key employees while aligning the financial incentives of those individuals with the financial objectives of our shareholders. One award has been issued under the 2006 Stock Appreciation Rights Plan to date. Awards of stock appreciation rights are not currently intended to comprise a major part of our long-term incentive compensation strategy. The Compensation Committee may elect, from time to time, to grant these types of awards as particular situations arise. Vesting periods are used to retain key employees and to emphasize the long-term aspect of contribution and performance. In making grants to executives in 2006, the Compensation Committee considered a number of factors, including the performance of such persons, the Company's performance, achievement of specific delineated goals, the responsibilities and the relative position of such persons within the Company, the number of stock options each such person currently possesses and the underlying value of the options held.

The Company traditionally awards long-term incentive compensation (including to the executive officers) once per year. These awards have occurred in the latter half of the last several years. The Compensation Committee may grant awards at any other time during the year in connection with the hiring or promotion of employees or based upon other special circumstances or performance. The aggregate amount as determined under FAS No. 123R recognized for purposes of our financial statements for 2006 with respect to options granted to the executive officers is shown in the "Summary Compensation Table" below. The grant date value of the options and restricted stock units awarded to the executive officers in 2006 as determined under FAS No. 123R for purposes of the Company's financial statements is shown in the "Grants of Plan-Based Awards Table" below. The "Grants of Plan-Based Awards" table and related narrative "Description of Plan-Based Awards" section below provide additional detail regarding the options granted to the executive officers in 2006, including the vesting and other terms that apply to the restricted stock units and options.

**Severance Protection and Change-in-Control Benefits.** The level of severance protection and change-in-control benefits provided to each executive officer is based upon a review of the market and consideration of the dedication and service provided by these executive officers to the Company. Please see the "Potential Payments Upon Termination or Change in Control" section below for a description of the potential payments that may be made to the executive officers in connection with their termination of employment or a change in control.

### ***Stock Ownership Guidelines***

The Company currently does not require our directors or executive officers to own a particular amount of our Common Stock. The Compensation Committee is satisfied that stock and option holdings among our directors and executive officers are sufficient at this time to provide motivation and to align this group's interests with those of our stockholders.

### ***Other Compensation and Benefits***

Our executive officers participate in the same group insurance and employee benefit plans as our other salaried employees.

### ***Employment Agreements***

The Company entered into an employment agreement with Mr. Cross dated November 9, 1999 (with an immaterial amendment thereafter to adjust language for changes in applicable governing employment law) which provides for an annual base salary of not less than \$220,000. In addition, Mr. Cross received a lump sum payment of \$50,000 on the first anniversary of the commencement of this

agreement. The Company also granted to Mr. Cross options to purchase up to 100,000 shares of Common Stock at an exercise price of \$2.9375 per share and options to purchase up to 50,000 shares of Common Stock at an exercise price of \$2.1875, with options for one-fifth of such shares becoming exercisable on each of the first five anniversaries of the dates of grant. No term has been assigned to Mr. Cross' employment agreement. If Mr. Cross is terminated other than for "cause" (as such term is defined in Mr. Cross' employment agreement), Mr. Cross will receive severance benefits in an amount equal to Mr. Cross' base salary for 53 weeks.

Effective as of February 17, 2000, the Company entered into an employment agreement with Mr. Jankowski (with an immaterial amendment thereafter to adjust language for changes in applicable governing employment law) providing for an annual base salary of not less than \$95,000. No term has been assigned to Mr. Jankowski's employment agreement. If Mr. Jankowski is terminated other than for "cause" (as such term is defined in Mr. Jankowski's employment agreement), Mr. Jankowski will receive severance benefits in an amount equal to Mr. Jankowski's base salary for 27 weeks.

Effective as of November 2, 2000, the Company also entered into an employment agreement with Mr. Haines (with an immaterial amendment thereafter to adjust language for changes in applicable governing employment law) providing for an annual base salary of not less than \$160,000. The Company also granted to Mr. Haines options to purchase up to 30,000 shares of Common Stock at an exercise price of \$10.1875. No term has been assigned to Mr. Haines employment agreement. If Mr. Haines is terminated other than for "cause" (as such term is defined in Mr. Haines's employment agreement), Mr. Haines will receive severance benefits in an amount equal to Mr. Haines's base salary for 53 weeks.

Effective as of February 17, 2000, the Company also entered into an employment agreement with Mr. Bilicki (with an immaterial amendment thereafter to adjust language for changes in applicable governing employment law) providing for an annual base salary of not less than \$165,000. In addition, Mr. Bilicki was granted options to purchase up to 50,000 shares of Common Stock at an exercise price of \$2.375. No term has been assigned to Mr. Bilicki's employment agreement. If Mr. Bilicki is terminated other than for "cause" (as such term is defined in Mr. Bilicki's employment agreement), Mr. Bilicki will receive severance benefits in an amount equal to Mr. Bilicki's base salary for 53 weeks.

Effective as of September 26, 2001, the Company also entered into an employment agreement with Dr. Brotzman (with an immaterial amendment thereafter to adjust language for changes in applicable governing employment law) providing for an annual base salary of not less than \$146,250. No term has been assigned to Dr. Brotzman's employment agreement. If Dr. Brotzman is terminated other than for "cause" (as such term is defined in Dr. Brotzman's employment agreement), Dr. Brotzman will receive severance benefits in an amount equal to Dr. Brotzman's base salary for 27 weeks.

Effective as of January 8, 2007, the Company also entered into an employment agreement with Mr. Wenta providing for an annual base salary of not less than \$270,000. In addition, Mr. Wenta was granted options to purchase up to 75,000 shares of Common Stock at an exercise price of \$5.72. No term has been assigned to Mr. Wenta's employment agreement. If Mr. Wenta is terminated other than for "cause" (as such term is defined in Mr. Wenta employment agreement), Mr. Wenta will receive severance benefits in an amount equal to Mr. Wenta's base salary for 52 weeks.



### ***Compliance with Section 162(m)***

The Compensation Committee currently intends for all compensation paid to the executive officers to be tax deductible to the Company pursuant to Section 162(m) of the Internal Revenue Code of 1986, as amended (“Section 162(m)”). Section 162(m) provides that compensation paid to the executive officers in excess of \$1,000,000 cannot be deducted by the Company for Federal income tax purposes unless, in general, (1) such compensation is performance-based, established by a committee of outside directors and objective, and (2) the plan or agreement providing for such performance-based compensation has been approved in advance by stockholders. The Compensation Committee believes that the requirements of Section 162(m) are uncertain at this time and may arbitrarily impact the Company. In the future, the Compensation Committee may determine to adopt a compensation program that does not satisfy the conditions of Section 162(m) if in its judgment, after considering the additional costs of not satisfying Section 162(m), such program is appropriate.

### **COMPENSATION COMMITTEE REPORT**

The Compensation Committee has reviewed and discussed with management the disclosures contained in the Compensation Discussion and Analysis section of this Item 11. Based upon this review and our discussions, the Compensation Committee recommended to its Board of Directors that the Compensation Discussion and Analysis section be included in this Annual Report on Form 10-K.

Jerry K. Pearlman (Chairman)  
James A. Henderson  
Donald S. Perkins

### **COMPENSATION COMMITTEE’S INTERLOCKS AND INSIDER PARTICIPATION**

The Compensation Committee members whose names appear above were committee members during all of 2006. Pursuant to a consulting agreement effective as of October 29, 1998, and prior to his appointment as Chairman of the Board of Directors, Donald S. Perkins, who is a member of the Compensation Committee, was engaged by the Company to provide additional services in connection with the Company’s organizational restructuring and refocusing. In consideration for such services, Mr. Perkins was granted options to purchase 25,000 shares of Common Stock at an exercise price of \$3.50 per share, of which 20,000 options remain vested but unexercised. Mr. Perkins’ consulting agreement was terminated on June 1, 2000. No member of the Compensation Committee is or has been a former or current executive officer of the Company. Mr. Cross serves as a director of the Company. None of the Company’s executive officers served as a member of a compensation committee (or other committee serving an equivalent function) of any other entity.

### **SUMMARY COMPENSATION TABLE**

The following table sets forth all of the compensation awarded to, earned by, or paid to our principal executive officer, principal financial officer and the three other highest paid executive officers whose total compensation in fiscal year 2006 exceeded \$100,000.

NAME AND PRINCIPAL POSITION	YEAR	SALARY (\$)	BONUS (\$)(1)	OPTION AWARDS (\$)(2)	NON-EQUITY INCENTIVE PLAN COMPENSATION (\$)(3)	ALL OTHER COMPENSATION (\$)(4)	TOTAL (\$)
(a)	(b)	(c)	(d)	(f)	(g)	(i)	(j)
Joseph E. Cross President and Chief Executive Officer	2006	\$340,000	\$100,000	\$89,946	-	\$27,999	\$557,945
Jess Jankowski Chief Financial Officer	2006	\$180,000	\$35,000	\$67,460	-	\$22,040	\$304,500
Daniel S. Bilicki Vice President Sales and Marketing	2006	\$220,500	\$25,000	\$53,968	-	\$19,539	\$319,007
Robert Haines Vice President Operations	2006	\$220,000	\$40,000	-	\$55,031	\$23,408	\$338,439
Richard Brotzman, Ph.D. Vice President Research and Development	2006	\$195,000	\$20,000	\$67,460	-	\$22,608	\$305,068

- (1) These amounts were earned in 2006 but paid in 2007.
- (2) The amounts in this column represent the dollar amount recognized for financial statement reporting purposes with respect to the 2006 fiscal year in accordance with FAS 123(R). See Note 13 of the notes to our financial statements contained elsewhere in this Annual Report for a discussion of all assumptions made by us in determining the FAS 123(R) values.
- (3) The amount in this column is attributed to awards under the 2006 Stock Appreciation Rights Plan and represents the dollar amount recognized for financial statement reporting purposes with respect to the 2006 fiscal year using the Black-Sholes model of valuation.
- (4) The amounts in this column represent 401(k) match, health and life insurance. Health insurance benefits are the same for all employees. Life insurance is provided in the amount of one times the annual base salary with a maximum of \$150,000.

The Summary Compensation Table should be read in connection with the Compensation Discussion and Analysis above and the tables and narrative descriptions that follow.

### GRANTS OF PLAN BASED AWARDS

The following table sets forth each plan based award granted to our executive officers during fiscal year 2006.

NAME (a)	GRANT DATE (b)	NON-EQUITY INCENTIVE PLAN UNIT (#) (#)	ESTIMATED FUTURE PAYOUTS UNDER NON-EQUITY INCENTIVE PLAN AWARDS			ESTIMATED FUTURE PAYOUTS UNDER EQUITY INCENTIVE PLAN AWARDS			EXERCISE OR BASE PRICE OF OPTION AWARDS (\$/SH) (k)	GRANT DATE FAIR VALUE OF AWARDS (l)
			Threshold	Target	Maximum	Threshold	Target	Maximum		
			(#) (c)	(#) (d)	(#) (e)	(#) (f)	(#) (g)	(#) (h)		
Joseph E. Cross	9/27/06					20,000	20,000	20,000	\$6.01	\$89,946
Jess Jankowski	9/27/06					15,000	15,000	15,000	\$6.01	\$67,460
Daniel S. Bilicki	9/27/06					12,000	12,000	12,000	\$6.01	\$53,968
Robert Haines	9/27/06	15,000	15,000	15,000	15,000				\$6.01	\$55,031
Richard Brotzman, Ph.D.	9/27/06					15,000	15,000	15,000	\$6.01	\$67,460

## Description of Awards Granted in 2006

Each nonqualified stock option award described in the “Grants of Plan-Based Awards” table above expires on the tenth anniversary of its associated grant date, vests in equal installments over the course of three years, and is generally subject to accelerated vesting upon a change in control of the Company or a termination of the executive without “cause.”

The amount of salary and bonus in proportion to total compensation for 2006 was:

NAME	PERCENTAGE
Joseph E. Cross	79%
Jess Jankowski	71%
Daniel S. Bilicki	77%
Robert Haines	77%
Richard Brotzman, Ph.D.	70%

## OUTSTANDING EQUITY AWARDS AT FISCAL YEAR-END

The following table sets forth information regarding each unexercised option held by each of our executive officers as of December 31, 2006.

NAME	OPTION AWARDS				STOCK AWARDS	
	NUMBER OF SECURITIES UNDERLYING UNEXERCISED EARNED OPTIONS EXERCISABLE (a)	EQUITY INCENTIVE PLAN AWARDS: NUMBER OF SECURITIES UNDERLYING UNEXERCISED UNEXERCISABLE (b)	OPTION EXERCISE PRICE (\$) (c)	OPTION EXPIRATION DATE (d)	EQUITY INCENTIVE PLAN AWARDS: NUMBER OF SHARES OF STOCK THAT HAVE NOT VESTED (e)	EQUITY INCENTIVE PLAN AWARDS: MARKET VALUE OF SHARES OF STOCK THAT HAVE NOT VESTED (f)
Joseph E. Cross	100,000	-0-	\$2.937	11/09/08		
	50,000	-0-	\$2.187	01/05/09		
	100,000	-0-	\$7.687	05/24/10		
	50,000	-0-	\$10.875	01/26/11		
	50,000	-0-	\$7.062	02/28/11		
	55,000	-0-	\$6.650	01/03/12		
	50,000	-0-	\$3.660	03/24/13		
	10,000	5,000	\$5.550	10/11/14		
	5,000	10,000	\$6.030	09/27/15		
	-0-	20,000	\$6.010	09/27/16		
				10,000	\$59,700	
Jess Jankowski	6,960	-0-	\$3.812	07/31/08		
	5,334	-0-	\$1.750	07/27/09		
	21,775	-0-	\$7.687	05/24/10		
	13,000	-0-	\$10.875	01/26/11		
	13,000	-0-	\$7.062	02/28/11		
	20,000	-0-	\$6.650	01/03/12		
	18,000	-0-	\$3.660	03/24/13		
	7,334	3,666	\$5.550	10/11/14		
	3,334	6,666	\$6.030	09/27/15		
	-0-	15,000	\$6.010	09/27/16		
				6,000	\$35,820	
Daniel S. Bilicki	10,000	-0-	\$2.375	03/15/09		
	50,000	-0-	\$7.687	05/24/10		
	30,000	-0-	\$10.875	01/26/11		
	30,000	-0-	\$7.062	02/28/11		
	30,000	-0-	\$6.650	01/03/12		

	21,000	-0-	\$3.660	03/24/13		
	6,200	3,100	\$5.550	10/11/14		
	3,000	6,000	\$6.030	09/27/15		
	-0-	12,000	\$6.010	09/27/16	6,000	\$35,820
Robert Haines	30,000	-0-	\$10.187	01/22/11		
	40,000	-0-	\$6.650	01/03/12		
	30,000	-0-	\$3.660	03/24/13		
	7,334	3,666	\$5.550	10/11/14		
	3,334	6,666	\$6.030	09/27/15		
	-0-	20,000	\$5.840	07/24/16	6,000	\$35,820
Richard Brotzman, Ph.D.	27,180	-0-	\$3.812	07/31/08		
	22,500	-0-	\$7.687	05/24/10		
	20,000	-0-	\$10.875	01/26/11		
	20,000	-0-	\$7.062	02/28/11		
	20,000	-0-	\$6.650	01/03/12		
	20,000	-0-	\$3.660	03/24/13		
	7,334	3,666	\$5.550	10/11/14		
	3,334	6,666	\$6.030	09/27/15		
	-0-	15,000	\$6.010	09/27/16	6,000	\$35,820

### OPTION EXERCISE AND STOCK VESTED

The following table presents information regarding the exercise of stock options by Named Officers during 2006.

NAME	OPTION AWARDS		STOCK AWARDS	
	NUMBER OF SHARES ACQUIRED ON EXERCISE	VALUE REALIZED ON EXERCISE	NUMBER OF SHARES ACQUIRED ON EXERCISE	VALUE REALIZED ON EXERCISE
(a)	(b)	(c)	(d)	(e)
Jess Jankowski	4,886	\$14,147	-0-	-0-
Richard Brotzman, Ph.D.	50,000	\$162,722	-0-	-0-

### **POTENTIAL PAYMENT UPON TERMINATION OR CHANGE IN CONTROL**

**Severance Protection.** Mr. Cross's employment agreement provides that if Mr. Cross is terminated other than for "cause" (as such term is defined in Mr. Cross' employment agreement), Mr. Cross will receive severance benefits in an amount equal to his base salary for 53 weeks. The employment agreement with Mr. Jankowski provides that if Mr. Jankowski is terminated other than for "cause" (as such term is defined in Mr. Jankowski's employment agreement), Mr. Jankowski will receive severance benefits in an amount equal to Mr. Jankowski's base salary for 27 weeks. The employment agreement with Mr. Haines provides that if Mr. Haines is terminated other than for "cause" (as such term is defined in Mr. Haines's employment agreement), Mr. Haines will receive severance benefits in an amount equal to Mr. Haines's base salary for 53 weeks. Mr. Bilicki's employment agreement provides that if Mr. Bilicki is terminated other than for "cause" (as such term is defined in Mr. Bilicki's employment agreement), Mr. Bilicki will receive severance benefits in an amount equal to Mr. Bilicki's base salary for 53 weeks. The employment agreement entered into with Dr. Brotzman provides that if Dr. Brotzman is terminated other than for "cause" (as such term is defined in Dr. Brotzman's employment

agreement), Dr. Brotzman will receive severance benefits in an amount equal to Dr. Brotzman's base salary for 27 weeks.

**Change in Control.** Upon a change in control, the Equity Compensation Plan (the predecessor to the 2004 Equity Compensation Plan), the 2004 Equity Compensation Plan provides that: (1) vesting under all outstanding stock options will automatically accelerate and each option will become fully exercisable; (2) the restrictions and conditions on all outstanding restricted shares shall immediately lapse; and (3) the holders of performance shares will receive a payment in settlement of the performance shares, in an amount determined by the Compensation Committee, based on the target payment for the performance period and the portion of the performance period that precedes the change in control. If the Company is not the surviving entity, the successor is required to assume all unexercised options. Under the Company's 1992 Stock Option Plan, the vesting of options issued under it is accelerated upon a "sale or merger" (as defined in the 1992 Stock Option Plan).

The following table quantifies the estimated payments that would be made in each covered circumstance:

NAME	TERMINATION BY COMPANY WITHOUT CAUSE (1)	CHANGE IN CONTROL (2)	INVOLUNTARY TERMINATION IN CONNECTION WITH OR FOLLOWING A CHANGE IN CONTROL (3)
Joseph E. Cross	\$346,538	\$61,800	\$408,338
Jess Jankowski	\$93,461	\$37,360	\$130,821
Daniel S. Bilicki	\$224,740	\$37,122	\$261,862
Robert Haines	\$224,230	\$126,910	\$351,140
Richard Brotzman, Ph.D	\$101,250	\$37,360	\$138,610

- (1) This amount represents the severance benefits that would be received under the executive officers employment agreement as described had the executive officer been terminated by the company without cause on December 31, 2006.
- (2) This amount represents an estimate of the value that would have been received under the equity incentive plans had a change in control occurred as of December 31, 2006 and the executive officers benefited from an acceleration of vesting in the equity-based plan awards as described above. For this purpose, the share price as of December 31, 2006 was used. The amount represents the difference between the exercise price of any unvested options and \$5.97 plus the value of any restricted shares that would have become vested as of this date.
- (3) This amount represents an estimate of the payments and value that would have been received by the executive officers had the executive officers been terminated by the company without cause on December 31, 2006 in connection with a change in control on this date. It is the sum of the first two columns.

## DIRECTOR COMPENSATION

Upon first being elected to the Board of Directors, each director of the Company who is not an employee or consultant of the Company (an "Outside Director") is granted stock options to purchase 10,000 shares of common stock at the closing price as of the date of issuance (the fair market value). This initial option grant to an Outside Director vests over five years.

In January 2006, the Company paid \$4,000 as quarterly compensation to its directors, which will amount to an annual total of \$16,000 per outside director for services performed in their capacity as directors. In addition, each outside director will receive \$6,000 each calendar quarter in deferred common stock (the "Director Restricted Stock Plan" as described below) based on the closing price at the beginning of each quarter. For the year ended December 31, 2006 each director received 3,754 shares with the total value of the compensation of approximately \$24,000 per year. In 2005, the Company paid \$6,250 quarterly, which amounted to an annual total of \$25,000 per Outside Director, in cash compensation for services performed in their capacity as directors. No stock based awards were issued to



Outside Directors in 2005. Beginning in 2004, Mr. McClung's cash compensation is being paid to Lismore International, Incorporated.

In 2005, the Company adopted, and the Shareholders' approved, the 2005 Non-Employee Director Restricted Stock Plan (the "Director Restricted Stock Plan") which reserves 150,000 shares of the Company's common stock to be issued to Outside Directors in the form of restricted shares. In 2005, no awards were made under the Director Restricted Stock Plan. In 2005, the Company also adopted the Non-Employee Director Deferred Compensation Plan (the "Director Deferred Compensation Plan") which permits an Outside Director to defer the receipt of director fees until separation from service or the Company undergoes a change in control. The Company amended the Director Restricted Stock Plan in 2005 to permit an Outside Director to defer receipt of restricted stock granted under it. The deferred restricted shares are accounted for under the Director Deferred Compensation Plan and issued upon separation from service or the Company's change in control. Under the Director Deferred Compensation Plan, the deferred fees that would have been paid in cash are deemed invested in 5 year U.S. Treasury Bonds during the deferral period. The accumulated hypothetical earnings are paid following the Outside Director's separation from service or the Company's change in control. The deferred fees that would have been paid as restricted shares are deemed invested in common stock of the Company during the deferral period. The Director Deferred Compensation Plan is an unfunded, nonqualified deferred compensation arrangement. In 2006, all Outside Directors elected to defer receipts of all of the restricted shares they became entitled to under the Director Restricted Stock Plan. No director's fees paid in cash were deferred under the Director Deferred Compensation Plan.

All Outside Directors are reimbursed for their reasonable out-of-pocket expenses incurred in attending board and committee meetings.

### 2006 Director Compensation

Name (a)	Fees Earned or Paid in Cash (\$) (b)	Stock Awards (\$) (d)	Total(\$) (h)
James A. Henderson	\$16,000	\$24,000	\$40,000
James A. McClung	\$16,000	\$24,000	\$40,000
Jerry K. Pearlman	\$16,000	\$24,000	\$40,000
Donald S. Perkins	\$16,000	\$24,000	\$40,000
Richard W. Siegel, Ph.D.	\$16,000	\$24,000	\$40,000
R. Janet Whitmore	\$16,000	\$24,000	\$40,000

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

### SECURITY OWNERSHIP OF MANAGEMENT AND PRINCIPAL STOCKHOLDERS

The following table sets forth, as of March 15, 2007 certain information with respect to the beneficial ownership of the common stock by (1) each person known by the Company to own beneficially more than 5% of the outstanding shares of common stock, (2) each Company director, (3) each of the Named Officers and (4) all Company executive officers and directors as a group.

<u>Name</u>	<u>Number of Shares Beneficially Owned (1)</u>	<u>Percent of Shares Beneficially Owned</u>
Bradford T. Whitmore	3,558,007(2)	18.72%
Spurgeon Corporation	3,285,195(3)	17.29%

Grace Brothers, Ltd.	2,985,195 (4)	15.71%
Grace Investments, Ltd.	300,000 (5)	1.58 %
Altana Chemie, AG	1,256,281 (6)	6.61%
AMVESCAP PLC	980,716 (7)	5.16%
Rohm and Haas Electronic Materials CMP, Inc.	847,918 (8)	4.46%
Joseph E. Cross	476,500 (9)	2.45%
James A. Henderson	22,410(10)	*
Richard W. Siegel, Ph.D.	229,057 (11)	1.20%
James McClung	41,771 (12)	*
Jerry Pearlman	39,948 (13)	*
Donald S. Perkins	78,812 (14)	*
R. Janet Whitmore	165,891 (15)	*
Daniel S. Bilicki	188,200 (16)	*
Jess Jankowski	113,037 (17)	*
Richard W. Brotzman, Ph.D.	143,348 (18)	*
Robert Haines	113,668(19)	*
All executive officers and directors as a group (11 persons)	1,612,642 (20)	8.01%

Unless otherwise indicated below, the persons address is the same as the address for the Company.

\*Denotes beneficial ownership of less than one percent.

- (1) Beneficial ownership is determined in accordance with the rules of the Securities and Exchange Commission (the "Commission"). Unless otherwise indicated below, the persons in the above table have sole voting and investment power with respect to all shares of common stock shown as beneficially owned by them.
- (2) Includes 2,985,195 shares of common stock held by Grace Brothers, Ltd., 300,000 shares of common stock held by Grace Investments, Ltd. and 272,812 shares held by Bradford T. Whitmore. Mr. Whitmore is a general partner of Grace Brothers, Ltd. and is the sole owner of an entity which is a general partner of Grace Investments, Ltd. In such capacities, Mr. Whitmore shares voting and investment power with respect to the shares of common stock held by the Grace entities. This information is based on information reported on Schedule 13D/A filed on September 3, 2004 with the Commission by Mr. Whitmore. The address of the stockholder is 1560 Sherman Avenue, Suite 900, Evanston, Illinois 60201.
- (3) Includes 2,985,195 shares of common stock held by Grace Brothers, Ltd. and 3,200,000 shares of common stock held by Grace Investments, Ltd. Spurgeon Corporation is a general partner of both Grace entities and shares voting and investment power with respect to the shares of common stock held by such Grace entities. This information is based on information reported on Schedule 13D/A filed on September 3, 2004 with the Commission by Spurgeon Corporation. The address of the stockholder is 1560 Sherman Avenue, Suite 900, Evanston, Illinois 60201.
- (4) This information is based on information reported on Schedule 13D/A filed on September 3, 2004 with the Commission by Spurgeon Corporation and Bradford T. Whitmore. The address of the stockholder is 1560 Sherman Avenue, Suite 900, Evanston, Illinois 60201.
- (5) This information is based on information reported on Schedule 13D/A filed on September 3, 2004 with the Commission by Spurgeon Corporation and Bradford T. Whitmore. The address of the stockholder is 1560 Sherman Avenue, Suite 900, Evanston, Illinois 60201.

- (6) In accordance with the terms of the private placement of 1,256,281 shares of common stock to Altana, the Company filed a registration statement for the shares on February 5, 2007. Such registration statement has not yet been declared effective by the SEC.
- (7) This information is based on information reported on Schedule 13d-1(b) filed on February 14, 2007 with the Commission by AMVESCAP PLC. The address of the stockholder is 30 Finsbury Square, London EC2A 1AG, England.
- (8) Consist of unregistered common stock, and therefore not freely saleable, until August 25, 2008.
- (9) Includes 470,000 shares of common stock issuable upon exercise of options exercisable currently or within 60 days of March 15, 2007.
- (10) Includes 14,000 shares of common stock issuable upon exercise of options exercisable currently or within 60 days of March 15, 2007.
- (11) Includes 19,600 shares of common stock issuable upon exercise of options exercisable currently or within 60 days of March 15, 2007.
- (12) Includes 18,000 shares of common stock issuable upon exercise of options exercisable currently or within 60 days of March 15, 2007.
- (13) Includes 18,000 shares of common stock issuable upon exercise of options exercisable currently or within 60 days of March 15, 2007.
- (14) Includes 36,668 shares of common stock issuable upon exercise of options exercisable currently or within 60 days of March 15, 2007.
- (15) Includes 10,000 shares of common stock issuable upon exercise of options exercisable currently or within 60 days of March 15, 2007.
- (16) Includes 180,200 shares of common stock issuable upon exercise of options exercisable currently or within 60 days of March 15, 2007.
- (17) Includes 108,737 shares of common stock issuable upon exercise of options exercisable currently or within 60 days of March 15, 2007.
- (18) Consists of 140,348 shares of common stock issuable upon exercise of options exercisable currently or within 60 days of March 15, 2007.
- (19) Consists of 110,668 shares of common stock issuable upon exercise of options exercisable currently or within 60 days of March 15, 2007.
- (20) Includes 1,126,221 shares of common stock issuable upon exercise of options exercisable currently or within 60 days of March 15, 2007.

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

See Item 12 above. In addition, on September 5, 2003, in anticipation of the September 8, 2003 private placement to Grace Brothers Ltd. discussed below, the Company amended its existing Stockholder Rights Agreement to revise the beneficial ownership threshold at which a person or group of persons becomes an “acquiring person” and triggers certain provisions under the Stockholder Rights Agreement. As revised, a person or group would become an “acquiring person” if that person or group becomes the beneficial owner of 35% or more of the outstanding shares of the Company’s stock. Prior to

such amendment, the beneficial ownership threshold was 25%. On September 8, 2003, the Company issued 453,001 shares of its common stock to Grace Brothers Ltd. at a purchase price of \$4.415 per share together with a warrant to purchase a like number of shares of common stock during the next twelve months also at a price of \$4.415 per share. The share price for the common stock was determined based on the fifteen-day market closing average for the Company's stock ending September 5, 2003. On September 2, 2004 the warrants were exercised to acquire 453,001 newly issued shares of common stock. Grace Brothers, Ltd. and its affiliates beneficially own approximately 19% of the Company's outstanding common stock. Ms. R. Janet Whitmore is a sister of Bradford Whitmore who serves as the general partner of Grace Brothers, Ltd.

On March 23, 2004, the Company entered into a joint development agreement with Altana described in "Item 1. Business—Marketing." In connection with this agreement the Company sold, in a private placement to Altana, 1,256,281 shares of common stock at \$7.96 per share and received gross proceeds of \$10 million. Altana beneficially owns approximately 7% of the Company's outstanding common stock.

On August 25, 2006, the Company sold, in a private placement to Rohm and Haas Electronic Materials CMP Holdings, Inc., 847,918 shares of common stock at \$5.8968 per share and received gross proceeds of \$5.0 million. Rohm and Haas Electronic Materials CMP Holdings, Inc. beneficially owns approximately 4% of the Company's outstanding common stock.

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

**Audit Fees.** The aggregate amount billed by our principal accountant, McGladrey & Pullen, LLP, for audit services performed for the fiscal years ended December 31, 2006 and 2005 was \$223,000 and \$238,000, respectively. Audit services include the auditing of financial statements, internal control over financial reporting and quarterly reviews.

**Audit Related Fees.** Total fees billed by McGladrey & Pullen, LLP were \$12,000 for the year ended December 31, 2006 include costs incurred for consultation on various accounting matters in support of the Company's financial statements and correspondence with the SEC related to comment letters received during 2006. McGladrey & Pullen, LLP did not perform audit related services during the fiscal years ended December 31, 2005.

**Tax Fees.** Total fees billed by RSM McGladrey, Inc. (an affiliate of McGladrey & Pullen, LLP) for tax related services for the fiscal years ended December 31, 2006 and 2005 were \$12,500 and \$7,575, respectively. These services include tax related research and general tax services in connection with transactions and legislation.

**All Other.** Other than those fees described above, during the fiscal year ended December 31, 2006 and 2005 there were no other fees billed for services performed by McGladrey & Pullen, LLP or RSM McGladrey, Inc.

All of the fees described above were approved by Nanophase's audit committee.

**Audit Committee Pre-Approval Policies and Procedures.** Nanophase's audit committee pre-approves the audit and non-audit services performed by McGladrey & Pullen, LLP, our principal accountants, and RSM McGladrey, Inc. (an affiliate of McGladrey & Pullen, LLP) in order to assure that the provision of such services does not impair McGladrey & Pullen, LLP's independence. Unless a type of service to be provided by McGladrey & Pullen, LLP and RSM McGladrey, Inc. (an affiliate of McGladrey & Pullen, LLP) has received general pre-approval, it will require specific pre-approval by the audit committee. In addition, any proposed services exceeding pre-approval cost levels will require specific pre-approval by the audit committee.

The term of any pre-approval is 12 months from the date of pre-approval, unless the audit committee specifically provides for a different period. The audit committee will periodically revise the list of pre-approved services, based on subsequent determinations, and has delegated pre-approval authority to the Chairman of the audit committee. In the event the Chairman exercises such delegated authority, he shall report such pre-approval decisions to the audit committee at its next scheduled meeting. The audit committee does not delegate its responsibilities to pre-approve services performed by the independent auditor to management.

## PART IV

### Item 15. Exhibits, Financial Statement Schedules and Reports on Form 8-K

(a) The following documents are filed as part of this Form 10-K:

1. The following financial statements of the Company, with the report of independent registered public accounting firm, are filed as part of this Form 10-K:

Management's report

Report of McGladrey & Pullen, LLP, Independent Registered Public Accounting Firm

Balance Sheets as of December 31, 2006 and 2005

Statements of Operations for the Years Ended December 31, 2006, 2005 and 2004

Statements of Stockholders' Equity for the Years Ended December 31, 2006, 2005 and 2004

Statements of Cash Flows for the Years Ended December 31, 2006, 2005 and 2004

Notes to Financial Statements

2. The following exhibits are filed with this Form 10-K or incorporated by reference as set forth below.

#### **Exhibit Number**

- 2 Plan and Agreement of Merger dated as of November 25, 1997 by and between the Company and its Illinois predecessor, incorporated by reference to Exhibit 2 to the Company's Annual Report on Form 10-K for the year ended December 31, 1997 (the "1997 10-K").
- 3(I).1 Certificate of Incorporation of the Company, incorporated by reference to Exhibit 3.1 to the 1997 10-K.
- 3(I).2 First Amendment to the Certificate of Incorporation of Nanophase Technologies Corporation dated July 27, 2006, incorporated by reference to Exhibit 99.3 to the Company's Current Report on Form 8-K filed July 27, 2006.
- 3(II).1 Bylaws of the Company, incorporated by reference to Exhibit 3.2 to the 1997 10-K.
- 4.1 Specimen stock certificate representing common stock, incorporated by reference to Exhibit 4.1 to the Company's Registration Statement on Form S-1 (File No. 333-36937) (the "IPO S-1").
- 4.2 Form of Warrants, incorporated by reference to Exhibit 4.2 to the IPO S-1.



- 4.3 Rights Agreement dated as of October 28, 1998 by and between the Company and LaSalle National Bank, incorporated by reference to Exhibit 1 to the Company's Registration Statement on Form 8-A, filed October 28, 1998.
- 4.4 Certificate of Designation of Series A Junior Participating Preferred Stock incorporated by reference to Exhibit 4.4 to the Company's Annual Report on Form 10-K for the year ended December 31, 1998 (the "1998 10-K").
- 4.5 Amendment to Rights Agreement dated August 1, 2001 between the Company and LaSalle National Association, as Rights Agent, incorporated by reference to Exhibit 4.5 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2001.
- 4.6 2001 Nanophase Technologies Corporation Equity Compensation Plan, incorporated by reference to Exhibit 4.3 to the Company's Registration Statement on Form S-8 (File No. 333-74170).
- 4.7 Second Amendment to Rights Agreement dated May 24, 2002 between the Company and LaSalle National Association, as Rights Agent, incorporated by reference to Exhibit 4.3 to the Company's Registration Statement on Form S-3 (File No. 333-90326) filed June 12, 2003.
- 4.8 Third Amendment to Rights Agreement dated September 5, 2003 between the Company and LaSalle National Association, as Rights Agent, incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K filed September 10, 2003.
- 4.9 Subscription Agreement dated September 8, 2003 between the Company and Grace Brothers, Ltd., incorporated by reference to Exhibit 99.2 to the Company's Current Report on Form 8-K filed September 10, 2003.
- 4.10 Stock Purchase Agreement dated March 23, 2004 between the Company and Altana Chemie AG, incorporated by reference to Exhibit 4.10 to the Company's Annual Report on Form 10-K filed March 30, 2004.
- 4.11 Registration Rights Agreement dated March 23, 2004 between the Company and Altana Chemie AG, incorporated by reference to Exhibit 4.11 to the Company's Annual Report on Form 10-K filed March 30, 2004.
- 4.12 2004 Nanophase Technologies Corporation 2004 Equity Compensation Plan, ("2004 Equity Plan") incorporated by reference to Exhibit 4 to the Company's Registration Statement on Form S-8 (File No. 333-119466).
- 4.13 Form of Stock Option Agreement under the 2004 Equity Plan, incorporated by reference to Exhibit 4.13 to the Company's Annual Report on Form 10-K filed March 15, 2005.
- 4.14 Form of Restricted Share Grant Agreement under the 2004 Equity Plan, incorporated by reference to Exhibit 4.14 to the Company's Annual Report on Form 10-K filed March 15, 2005.
- 4.15 Form of Performance Share Grant Agreement under the 2004 Equity Plan, incorporated by reference to Exhibit 4.15 to the Company's Annual Report on Form 10-K filed March 15, 2005.

- 4.16 2005 Nanophase Technologies Corporation Equity Compensation Plan, incorporated by reference to Exhibit 4 to the Company's Non-Employee Director Restricted Stock Plan, incorporated by reference to Exhibit A to the Company's Definitive Proxy Statement on Form DEF14A filed May 17, 2005.
- 4.17 First Amendment to the Nanophase Technologies Corporation 2005 Non-Employee Director Restricted Stock Plan, incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K filed January 9, 2006.
- 10.1 The Nanophase Technologies Corporation Amended and Restated 1992 Stock Option Plan, as amended (the "Stock Option Plan"), incorporated by reference to Exhibit 10.1 to the IPO S-1.
- 10.2 Form of Indemnification Agreement between the Company and each of its directors and executive officers, incorporated by reference to Exhibit 10.2 to the IPO S-1.
- 10.3 Amended and Restated Registration Rights Agreements dated as of March 16, 1994, as amended, incorporated by reference to Exhibit 10.2 to the IPO S-1.
- 10.4 License Agreement dated June 1, 1990 between the Company and ARCH Development Corporation, as amended, incorporated by reference to Exhibit 10.7 to the IPO S-1.
- 10.5 License Agreement dated October 12, 1994 between the Company and Hitachi, incorporated by reference to Exhibit 10.8 to the IPO S-1.
- 10.6 License Agreement dated May 31, 1996 between the Company and Research Development Corporation of Japan, incorporated by reference to Exhibit 10.9 to the IPO S-1.
- 10.7 License Agreement dated April 1, 1996 between the Company and Cornell Research Foundation, incorporated by reference to Exhibit 10.10 to the IPO S-1.
- 10.8\* Consulting and Stock Purchase Agreement between Richard W. Siegel and the Company dated as of May 9, 1990, as amended February 13, 1991, November 21, 1991 and January 1, 1992, incorporated by reference to Exhibit 10.11 to the IPO S-1.
- 10.9 Lease Agreement between the Village of Burr Ridge and the Company, dated September 15, 1994, incorporated by reference to Exhibit 10.12 to the IPO S-1.
- 10.10 Distribution Agreement between the Company and C.I. Kasei, Ltd., (a subsidiary of Itochu Corporation) dated as of October 30, 1996, incorporated by reference to Exhibit 10.15 to the IPO S-1.
- 10.11 Supply Agreement between the Company and Schering-Plough HealthCare Products, Inc. dated as of March 15, 1997, incorporated by reference to Exhibit 10.17 to the IPO S-1.
- 10.12 License Agreement between the Company and C.I. Kasei Co., Ltd. (a subsidiary of Itochu Corporation) dated as of December 30, 1997, incorporated by reference to Exhibit 10.17 to the 1997 10-K.
- 10.13\* Employment Agreement dated as of November 9, 1999 between the Company and Joseph Cross, incorporated by reference to Exhibit 10.15 to the 1999 10-K.

- 10.14\* Employment Agreement dated as of March 15, 1999 between the Company and Daniel S. Bilicki, incorporated by reference to Exhibit 10.19 to the 1998 10-K.
- 10.15\* Form of Options Agreement under the Stock Option Plan, incorporated by reference to Exhibit 4.5 to the Company's Registration Statement on Form S-8 (File No. 333-53445).
- 10.16\*\* Zinc Oxide Supply Agreement dated as of September 16, 1999 between the Company and BASF Corporation, as assignee, incorporated by reference to Exhibit 10.22 to the 1999 10-K.
- 10.17\* Employment Agreement dated as of November 2, 2000 between the Company and Robert Haines, incorporated by reference to Exhibit 10.22 to the Company's Annual Report on Form 10-K for the year ended December 31, 2000 (the "2000 10-K").
- 10.18 Lease Agreement between Centerpointe Properties Trust and the Company, dated June 15, 2000, incorporated by reference to Exhibit 10.23 to the 2000 10-K.
- 10.19\*\* Amendment No. 1 to Zinc Oxide Supply Agreement dated as of January, 2001 between the Company and BASF Corporation, incorporated by reference to Exhibit 10.24 to the 2000 10-K.
- 10.20 Promissory Note dated as of September 14, 2000 between the Company and BASF Corporation, incorporated by reference to Exhibit 10.25 to the 2000 10-K.
- 10.21\*\* Cooperation Agreement dated June 24, 2002 between the Company and Rodel, Inc., incorporated by reference to Exhibit 10.23 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2002.
- 10.22\* Consulting Agreement dated December 12, 2002 between the Company and Dr. Gina Kritchevsky, incorporated by reference to Exhibit 10.24 to the Company's Annual Report on Form 10-K for the year ended December 31, 2002.
- 10.23 First Amendment to Promissory Note dated as of March 11, 2003 between the Company and BASF Corporation, incorporated by reference to Exhibit 10.25 to the Company's Annual Report on Form 10-K for the year ended December 31, 2002.
- 10.24 Amendment No. 2. to Zinc Oxide Supply Agreement dated as of March 17, 2003 between the Company and BASF Corporation, incorporated by reference to Exhibit 10.25 to the Company's Annual Report on Form 10-K for the year ended December 31, 2002.
- 10.25\* Employment Agreement dated March 24, 2003 between the Company and Mr. Edward G. Ludwig, Jr., incorporated by reference to Exhibit 10.25 to the Company's Annual Report on Form 10-K for the year ended December 31, 2002.
- 10.26\* Employment Agreement dated February 17, 2000 between the Company and Mr. Jess Jankowski, incorporated by reference to Exhibit 10.26 to the Company's Annual Report on Form 10-K filed March 30, 2004.
- 10.27\* Employment Agreement dated September 26, 2001 between the Company and Dr. Richard W. Brotzman, incorporated by reference to Exhibit 10.27 to the Company's Annual Report on Form 10-K filed March 30, 2004.

- 10.28\*\*\* Amendment No. 1 to Cooperation Agreement dated February 25, 2004 between the Company and Rohm and Haas Electronic Materials CMP Inc. (formerly known as Rodel, Inc.), incorporated by reference to Exhibit 10.28 to the Company's Annual Report on Form 10-K filed March 30, 2004.
- 10.29 Joint Development Agreement dated March 23, 2004 between the Company and Altana Chemie AG., incorporated by reference to Exhibit 10.29 to the Company's Quarterly Report on Form 10-Q filed August 13, 2004
- 10.30 Amendment No. 1 to License Agreement dated July 16, 2004 between the Company and C.I. Kasei Co., Ltd., incorporated by reference to Exhibit 10.30 to the Company's Quarterly Report on Form 10-Q filed August 13, 2004.
- 10.31\*\*\* Letter Agreement Amending Cooperation Agreement dated October 15, 2004 between the Company and Rohm and Haas Electronic Materials CMP Inc., incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed October 22, 2004.
- 10.32 Building Lease dated September 15, 2004 between the Company and the Village of Burr Ridge, incorporated by reference to Exhibit 10.32 to the Company's Annual Report on Form 10-K filed March 15, 2005.
- 10.33\*\*\* Second Amendment to Promissory Note dated as of May 1, 2005 between the Company and BASF Corporation, incorporated by reference to Exhibit 10.33 to the Company's Quarterly Report on Form 10-Q filed May 9, 2005.
- 10.34 Lease Amendment effective October 1, 2005 between Nanophase Technologies Corporation and Centerpoint Properties Trust, incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K filed October 20, 2005.
- 10.35 Promissory Note effective October 27, 2005 executed by BYK-Chemie USA in favor of Nanophase Technologies Corporation, incorporated by reference to Exhibit 99.2 to the Company's Current Report on Form 8-K filed October 27, 2005.
- 10.36\*\*\* Distributor Agreement dated October 24, 2005 between Johnson Matthey Catalog Company, Inc., d/b/a ALFA AESAR, and Nanophase Technologies Corporation, incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K filed November 1, 2005.
- 10.37 First Amendment to 2005 Non-Employee Director Restricted Stock Plan, incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K filed January 9, 2006.
- 10.38 Nanophase Technologies Corporation Non-Employee Director Deferred Compensation Plan, incorporated by reference to Exhibit 99.2 to the Company's Current Report on Form 8-K filed January 9, 2006.
- 10.39\*\*\* Supply Agreement dated March 3, 2006 between Roche Diagnostics GmbH and Nanophase Technologies Corporation, incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K filed March 9, 2006.
- 10.40 Z-COTE HP-2 Brand Supply Agreement dated May 15, 2006 between BASF Corporation and Nanophase Technologies Corporation, incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K filed June 20, 2006.

- 10.41 Amendment to 2004 Equity Compensation Plan, incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K filed July 27, 2006.
- 10.42 Stock Purchase Agreement dated August 25, 2006 between Rohm and Haas Electronic Materials CMP Holdings, Inc. and Nanophase Technologies Corporation, incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K filed August 28, 2006.
- 10.43 Registration Rights Agreement dated August 25, 2006 between Rohm and Haas Electronic Materials CMP Holdings, Inc. and Nanophase Technologies Corporation, incorporated by reference to Exhibit 99.2 to the Company's Current Report on Form 8-K filed August 28, 2006.
- 10.44\*\*\* Amended and Restated Cooperation Agreement dated August 25, 2006 between Rohm and Haas Electronic Materials CMP Inc. and Nanophase Technologies Corporation, incorporated by reference to Exhibit 99.3 to the Company's Current Report on Form 8-K filed August 28, 2006.
- 10.45 2006 Stock Appreciation Rights Plan, incorporated by reference to Exhibit 99.1 to the Company's Current Report on Form 8-K filed October 3, 2006.
- 10.46 Form of Grant Agreement, incorporated by reference to Exhibit 99.2 to the Company's Current Report on Form 8-K filed October 3, 2006.
- 23.1 Consent of McGladrey & Pullen, LLP.
- 31.1 Certification of the Chief Executive Officer pursuant to Rules 13a-14(a) and 15d-14(a) under the Exchange Act.
- 31.2 Certification of the Chief Financial Officer pursuant to Rules 13a-14(a) and 15d-14(a) under the Exchange Act.
- 32 Certification of the Chief Executive Officer and the Chief Financial Officer pursuant to 18 U.S.C. Section 1350

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\* Management contract or compensatory plan or arrangement.

\*\* Confidentiality previously granted for portions of this agreement.

\*\*\* Confidentially requested, confidential portions have been omitted and filed separately with the Commission as required by Rule 24b-2.

(b) Reports on Form 8-K:

On October 26, 2006, the Company furnished a Current Report on Form 8-K reporting under Items 2.02 and 9.01 that on October 26, 2006 it issued a press release announcing third quarter 2006 revenues.

On October 3, 2006, the Company furnished a Current Report on Form 8-K under Items 8.01 and 9.01 that on September 27, 2006, Nanophase established a stock appreciation rights plan, the details of which are set forth in the Nanophase Technologies Corporation 2006 Stock Appreciation Rights Plan (the "Plan"), and adopted a form of Grant Agreement under said Plan.



The purpose of the Plan is to encourage key employees to contribute materially to the growth of the Company by aligning the financial incentives of such employees with those of shareholders. The Plan accomplishes this by offering grants of stock appreciation rights to its employees, the settlement of which will be at fair market value. The Plan will be administered by the Compensation and Governance Committee of the Board of Directors which committee is comprised exclusively of outside directors in accordance with its charter.

**NANOPHASE TECHNOLOGIES CORPORATION**  
**INDEX TO FINANCIAL STATEMENTS**

	<u>Page</u>
Management's Report	F-2
Report of McGladrey and Pullen, LLP, Independent Registered Public Accounting Firm	F-3
Balance Sheets as of December 31, 2006 and 2005	F-5
Statements of Operations for the years ended December 31, 2006, 2005 and 2004	F-6
Statements of Stockholders' Equity for the years ended December 31, 2006, 2005 and 2004	F-7
Statements of Cash Flows for the years ended December 31, 2006, 2005 and 2004	F-8
Notes to the Financial Statements	F-9

## Management's Report

Management is responsible for the preparation, integrity and fair presentation of the financial statements and Notes to the financial statements. The financial statements were prepared in accordance with the accounting principles generally accepted in the U.S. and include certain amounts based on management's judgment and best estimates. Other financial information presented is consistent with the financial statements.

Management is also responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934. The Company's internal control over financial reporting is designed under the supervision of the Company's principal executive and financial officers in order to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. The Company's internal control over financial reporting includes those policies and procedures that:

- (i) Pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of assets of the Company;
- (ii) Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and
- (iii) Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on the financial statements.

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

Management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2006. In making this assessment, management used the criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

Based on our assessment and those criteria, management believes that the Company maintained effective internal control over financial reporting as of December 31, 2006.

The Company's independent registered public accounting firm, McGladrey & Pullen, LLP, has issued an attestation report on management's assessment of the Company's internal control over financial reporting. That report appears on a subsequent page of this Report and expresses unqualified opinions on management's assessment and on the effectiveness of the Company's internal control over financial reporting.

NANOPHASE TECHNOLOGIES CORPORATION

March 14, 2007

## Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders  
Nanophase Technologies Corporation  
Romeoville, Illinois

We have audited the accompanying balance sheets of Nanophase Technologies Corporation as of December 31, 2006 and 2005, and the related statements of operations, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2006. We also have audited management's assessment, included in the accompanying Annual Report on the Form 10-K, that Nanophase Technologies Corporation maintained effective internal control over financial reporting as of December 31, 2006, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Nanophase Technologies Corporation's management is responsible for these financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting. Our responsibility is to express an opinion on these financial statements, an opinion on management's assessment, and an opinion on the effectiveness of the company's internal control over financial reporting based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audit of financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, evaluating management's assessment, testing and evaluating the design and operating effectiveness of internal control, and performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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

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

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Nanophase Technologies Corporation as of December 31, 2006 and 2005, and the

results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2006 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, management's assessment that Nanophase Technologies Corporation maintained effective internal control over financial reporting as of December 31, 2006, is fairly stated, in all material respects, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Furthermore, in our opinion, Nanophase Technologies Corporation maintained, in all material respects, effective internal control over financial reporting as of December 31, 2006, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

As described in Note 13 to the financial statements, on January 1, 2006, the Company changed its method of accounting for share-based payments to adopt Statement of Financial Accounting Standard No.123(R).

/s/ McGladrey & Pullen, LLP

Schaumburg, Illinois  
March 14, 2007



**NANOPHASE TECHNOLOGIES CORPORATION**

**BALANCE SHEETS**

	<b>As of December 31,</b>	
<b>ASSETS</b>	<b><u>2006</u></b>	<b><u>2005</u></b>
<b>Current assets:</b>		
Cash and cash equivalents	\$ 132,387	\$ 340,860
Investments	8,434,793	8,168,092
Trade accounts receivable, less allowance for doubtful accounts of \$22,000 and \$24,000 on December 31, 2006 and 2005, respectively	1,459,391	1,180,117
Inventories, net	923,223	801,217
Prepaid expenses and other current assets	534,407	414,363
Total current assets	11,484,201	10,904,649
Equipment and leasehold improvements, net	7,608,326	6,587,787
Other assets, net	651,218	680,908
	\$ 19,743,745	\$ 18,173,344
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
<b>Current liabilities:</b>		
Current portion of long-term debt	\$ -	\$ 200,254
Current portion of capital lease obligations	32,972	-
Current portion of deferred other revenue	127,273	56,757
Accounts payable	478,694	285,076
Accrued expenses	1,643,585	1,152,127
Total current liabilities	2,282,524	1,694,214
Long-term debt, less current maturities and unamortized debt discount	1,383,707	1,265,875
Long-term portion of capital lease obligations	50,552	-
Deferred other revenue, less current portion	201,515	293,243
	1,635,774	1,559,118
<b>Commitments and contingencies</b>	-	-
<b>Stockholders' equity:</b>		
Preferred stock, \$.01 par value; 24,088 authorized and no shares issued and outstanding	-	-
Common stock, \$.01 par value; 30,000,000 shares authorized; 18,995,581 and 17,976,592 shares issued and outstanding on December 31, 2006 and December 31, 2005, respectively	189,956	179,766
Additional paid-in capital	78,380,962	72,307,887
Accumulated deficit	(62,745,471)	(57,567,641)
Total stockholders' equity	15,825,447	14,920,012
	\$ 19,743,745	\$ 18,173,344

**(See accompanying Notes to Financial Statements)**

**NANOPHASE TECHNOLOGIES CORPORATION**

**STATEMENTS OF OPERATIONS**

	Years ended December 31,		
	<u>2006</u>	<u>2005</u>	<u>2004</u>
<b>Revenue:</b>			
Product revenue	\$ 8,612,705	\$ 6,444,444	\$ 4,253,478
Other revenue	378,133	357,463	954,456
Total revenue	8,990,838	6,801,907	5,207,934
<b>Operating expense:</b>			
Cost of revenue	7,057,707	5,827,719	5,125,216
Gross Profit	1,933,131	974,188	82,718
Research and development expense	2,127,862	1,934,528	1,929,348
Selling, general and administrative expense	5,302,836	4,422,011	4,361,357
Lease accounting adjustment	-	279,810	-
Loss from operations	(5,497,567)	(5,662,161)	(6,207,987)
Interest income	366,701	295,935	171,582
Interest expense	(52,469)	(50,273)	(74,277)
Other, net	5,505	32,888	(306,273)
Loss before provision for income taxes	(5,177,830)	(5,383,611)	(6,416,955)
Provision for income taxes	-	-	(30,000)
Net loss	\$ (5,177,830)	\$ (5,383,611)	\$ (6,446,955)
Net loss net per share-basic and diluted	\$ (0.28)	\$ (0.30)	\$ (0.37)
Weighted average number of basic and diluted common shares outstanding	18,344,334	17,937,932	17,266,228

**(See accompanying Notes to Financial Statements)**

**NANOPHASE TECHNOLOGIES CORPORATION**

**STATEMENTS OF STOCKHOLDERS' EQUITY**

Description	Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total
	Shares	Amount	Shares	Amount			
Balance on January 1, 2004	—	\$ —	15,902,674	\$ 159,027	\$59,297,135	\$(45,737,075)	\$13,719,087
Exercise of stock options	—	—	283,526	2,835	1,466,552	—	1,469,387
Exercise of warrants	—	—	453,001	4,530	1,956,634	—	1,961,164
Common stock issuance	—	—	1,256,281	12,563	9,249,769	—	9,262,332
Stock-based compensation	—	—	—	—	17,475	—	17,475
Net loss for the year ended December 31, 2004	—	—	—	—	—	(6,446,955)	(6,446,955)
Balance on December 31, 2004	—	—	<u>17,895,482</u>	<u>178,955</u>	<u>71,987,565</u>	<u>(52,184,030)</u>	<u>19,982,490</u>
Exercise of stock options	—	—	81,110	811	247,013	—	247,824
Stock-based compensation	—	—	—	—	73,309	—	73,309
Net loss for the year ended December 31, 2005	—	—	—	—	—	(5,383,611)	(5,383,611)
Balance on December 31, 2005	—	—	<u>17,976,592</u>	<u>179,766</u>	<u>\$ 72,307,887</u>	<u>\$(57,567,641)</u>	<u>\$14,920,012</u>
Exercise of stock options	—	—	148,547	1,486	513,754	—	515,240
Common stock issuances, net of transaction cost of \$72,850	—	—	870,442	8,704	5,062,445	—	5,071,149
Stock-based compensation	—	—	—	—	496,876	—	496,876
Net loss for the year ended December 31, 2006	—	—	—	—	—	(5,177,830)	(5,177,830)
Balance on December 31, 2006	—	<u>\$ —</u>	<u>18,995,581</u>	<u>\$ 189,956</u>	<u>\$ 78,380,962</u>	<u>\$(62,745,471)</u>	<u>\$15,825,447</u>

**(See accompanying Notes to Financial Statements)**

**NANOPHASE TECHNOLOGIES CORPORATION**  
**STATEMENTS OF CASH FLOWS**

	Years ended December 31,		
	<u>2006</u>	<u>2005</u>	<u>2004</u>
<b>Operating activities:</b>			
Net loss	\$ (5,177,830)	\$ (5,383,611)	\$ (6,446,955)
Adjustments to reconcile net loss to cash used in operating activities:			
Depreciation and amortization	1,269,719	1,228,515	1,392,122
Amortization of debt discount	117,832	18,455	—
Amortization of deferred revenue	(21,212)	—	—
Interest added to equipment	(74,109)	—	—
Stock compensation expense	645,210	73,309	17,475
Allowance for excess inventory quantities	(247,986)	(14,205)	(5,636)
(Gain) Loss on disposal of equipment	(2,697)	69,710	55,265
Abandonment of pending patents	149,811	—	—
Changes in assets and liabilities related to operations:			
Trade accounts receivable	(479,528)	(766,674)	175,034
Other receivable	—	3,498	20,716
Inventories	125,980	50,324	(148,701)
Prepaid expenses and other assets	(120,044)	85,334	160,081
Accounts payable	146,839	(25,288)	(225,189)
Accrued liabilities	481,919	252,098	138,991
Net cash used in operating activities	(3,186,096)	(4,408,535)	(4,866,797)
<b>Investing activities:</b>			
Acquisition of patents	(156,158)	(142,180)	(166,075)
Acquisition of equipment and leasehold improvements	(2,013,810)	(292,692)	(529,498)
Proceeds from disposal of equipment	5,100	—	11,000
Payment of accounts payable incurred for the purchase of equipment and leasehold improvements	(14,121)	(111,370)	—
Purchases of investments	(84,983,188)	(164,935,218)	(279,852,900)
Sales of investments	84,716,487	167,922,252	273,260,138
Net cash (used in) provided by investing activities	(2,445,690)	2,440,792	(7,277,335)
<b>Financing activities:</b>			
Principal payment on debt obligations, including capital leases	(19,076)	(11,826)	(473,565)
Proceeds from borrowings	—	1,597,420	—
Proceeds from sale of common stock and exercise of stock options and warrants	5,442,389	247,824	12,692,883
Net cash provided by financing activities	5,423,313	1,833,418	12,219,318
(Decrease) increase in cash and cash equivalents	(208,473)	(134,325)	75,186
Cash and cash equivalents at beginning of period	340,860	475,185	399,999
Cash and cash equivalents at end of period	\$ 132,387	\$ 340,860	\$ 475,185
<b>Supplemental cash flow information:</b>			
Interest paid	\$ 8,747	\$ 31,818	\$ 74,277
Income taxes paid	\$ —	\$ —	\$ 30,000
<b>Supplemental non-cash investing and financing activities:</b>			
Accounts receivable paid through offset of long-term debt	\$ 200,254	\$ 379,219	\$ 276,794
Accounts payable incurred for the purchase of equipment and leasehold improvements	\$ 60,900	\$ 14,121	\$ 111,370
Debt discount offset by deferred other revenue	\$ —	\$ 350,000	\$ —
Capital lease obligations incurred in the purchase of equipment	\$ 102,600	\$ —	\$ —

(See accompanying Notes to Financial Statements)

## NANOPHASE TECHNOLOGIES CORPORATION NOTES TO FINANCIAL STATEMENTS

### **(1) Description of Business**

The Company was incorporated on November 30, 1989, for the purpose of developing nanocrystalline materials for commercial production and sale in domestic and international markets.

Nanophase Technologies is a nanomaterials developer and commercial manufacturer with an integrated family of nanomaterial technologies. Nanophase produces engineered nanomaterials for use in a variety of diverse existing and developing markets: personal care, sunscreens, architectural coatings, industrial coating ingredients, abrasion-resistant applications, plastics additives, water filtration, DNA biosensors, antimicrobial products and a variety of polishing applications, including semiconductors and optics. New markets and applications also are being developed. The Company targets markets in which it feels practical solutions may be found using nanoengineered products. The Company works with leaders in these target markets to identify and supply their material and performance requirements.

The Company also recognizes regular other revenue from a technology license as well as \$600,000 in revenue earned for 2004 (only) as discussed in Note 15. None of these activities are expected to drive the long-term growth of the business. All of these types of items are recognized as "other revenue" in the Company's Statement of Operations, as they do not represent revenue directly from the Company's nanomaterials.

### **(2) Summary of Significant Accounting Policies**

#### ***Use of Estimates***

The preparation of financial statements requires the Company to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates.

#### ***Cash and Cash Equivalents***

Cash and cash equivalents primarily consist of demand deposits. The Company has employed corporate "sweep" accounts, when cost-effective in order to maximize interest income earned with its operating funds. From time to time, the Company's cash accounts may exceed federally insured limits.

#### ***Investments***

Investments are classified by the Company at the time of purchase for appropriate designation and are reevaluated as of each balance sheet date. The Company's policy is to classify money market funds and certificates of deposit as investments. These investments are classified as held-to maturity when the Company has the positive intent and ability to hold the securities to maturity. Held-to maturity securities are stated at amortized cost and are adjusted to maturity for the amortization of premiums and accretion of discounts. Such adjustments for amortization and accretion are included in interest income. The Company has also made investments in variable rate demand notes. The investments have been classified as available for sale securities. Investments classified as available for sale securities are recorded at market value using the specific identification method; unrealized gains and losses (excluding other-than-temporary impairments) are reflected in other comprehensive income ("OCI"). Due to the nature of the Company's investments being short-term, the fair value of these investments approximates their cost, accordingly, no unrealized gains or losses have been reflected in OCI.

Investments are considered to be impaired when a decline in fair value is judged to be other-than-temporary. The Company employs a systematic methodology that considers available evidence in

evaluating potential impairment of its investments on a quarterly basis. If the cost of an investment exceeds its fair value, the Company evaluates, among other factors, general market conditions, the duration and extent to which the fair value is less than cost, as well as the Company's intent and ability to hold the investment. The Company also considers specific adverse conditions related to the financial health of and business outlook for the investee, including industry and sector performance, changes in technology, operational and financing cash flow factors and rating agency actions. Once a decline in fair value is determined to be other-than-temporary, an impairment charge is recorded and a new cost basis in the investment is established.

The Company's investments are held by its investment bank who is a member of all major stock exchanges and the Securities Investor Protection Corporation (SIPC). Securities and cash held in custody by the Company's investment bank are afforded complete protection for the Company's investment positions through SIPC and a commercial insurer (commonly known as "Excess SIPC" coverage), however, it does not protect against losses from the rise and fall in market value of investments.

### ***Trade Accounts Receivable***

Trade accounts receivable are carried at original invoice amount less an estimate made for doubtful receivables based on a review of all outstanding amounts on a monthly basis. Management determines the allowance for doubtful accounts by identifying troubled accounts and by using historical experience applied to an aging of accounts. Trade accounts receivable are written off when deemed uncollectible. Recoveries of trade accounts receivable previously written off are recorded when received.

The Company's typical credit terms are thirty days from shipment and invoicing.

The activity in the Allowance for Doubtful Accounts is as follows:

	<b>2006</b>	<b>2005</b>
Balance, Beginning of year	\$ 23,533	\$ 24,271
Charge offs	(1,403)	(738)
Recoveries	-	-
Provision	-	-
	<hr/>	<hr/>
Balance, End of year	<u>\$ 22,130</u>	<u>\$ 23,533</u>

### ***Inventories***

Inventories are stated at the lower of cost, maintained on a first in, first out basis, or market. The Company has recorded allowances to reduce inventory relating to excess quantities of certain materials. Write-downs of inventories establish a new cost basis, which is not increased for future increases in market value of inventories or changes in estimated excess quantities.

### ***Equipment and Leasehold Improvements***

Equipment is stated at cost and is being depreciated over its estimated useful life (3-20 years) using the straight-line method. Leasehold improvements are stated at cost and are being amortized using the straight-line method over the shorter of the useful life of the asset or the term of the lease (3-16 years). Depreciation expense for leased assets is included with depreciation expense for owned assets. From time to time the company has self-constructed assets. These assets are stated at cost plus the capitalization of labor and have an estimated useful life (7-10 years) using the straight-line method.



### ***Intangible Assets***

Intangible assets are included in other assets and are being amortized over the estimated useful life (17 or 20 years) of the respective patents and trademarks using the straight-line method. From time to time, the Company abandons patents, when either; due to advances in Company technology they are no longer of value, or when they have served mainly as a defensive measure to preclude others from a given technological space and the costs of continuing to pursue their award outweighs their relative benefit.

### ***Long Lived Assets***

The Company follows the provisions of SFAS No. 144, "Accounting for the Impairment or Disposal of Long-Lived Assets." Reviews are performed whenever events or changes in circumstances indicate that the carrying amount of assets may not be recoverable or that the useful life is shorter than originally estimated. The Company assesses the recoverability of its assets by comparing the projected undiscounted net cash flows associated with the related asset or group of assets over their remaining lives against their respective carrying amounts. Impairment, if any, is based on the excess of the carrying amount over the fair value of those assets. If assets are determined to be recoverable, but the useful lives are shorter than originally estimated, the net book value of the assets is depreciated over the newly determined remaining useful lives.

### ***Deferred Other Revenue***

In connection with its promissory note to BYK Chemie (see Note 7), the Company recorded \$350,000 of deferred other revenue. The note requires that the Company give BYK Chemie first preference in use of the new equipment commissioned on November 1, 2006 and accordingly, has begun to recognize deferred revenue under this note and the Company has also agreed to provide experimental product made using this equipment. As a result of a lack of further specificity with regards to the equipment use obligations, the Company intends to recognize the deferred revenue ratably, on a straight-line basis over a period beginning with the commissioned date on November 1, 2006 and ending on July 30, 2009, the expected date of the Company's final payment under the note. As of December 31, 2006 the Company has recognized \$21,212 of deferred other revenue.

### ***Asset Retirement Obligations***

In connection with its leased facilities, the Company is required to remove certain leasehold improvements upon termination of its occupancy. Effective January 1, 2003, the Company follows the provisions of SFAS 143, "Accounting for Asset Retirement Obligations", under which the Company recognizes a liability for the fair value of its asset retirement obligations. The fair value of that liability is measured based on an expected cash flow approach and accretion expense is recognized each period to recognize increases to the fair value of the liability due to the passage of time. Increases to the fair value of the liability, except for accretion, are added to the carrying value of the long-lived asset. Those increases are then reported in amortization expense over the estimated useful life of the long-lived asset.

Activity in the asset retirement obligation account for the years ended December 31, is as follows:

	<u>2006</u>	<u>2005</u>
Balance, beginning	\$ 109,256	\$ 105,417
Accretion due to passage of time	<u>3,037</u>	<u>3,839</u>
Balance, ending	<u>\$ 112,293</u>	<u>\$ 109,256</u>

The effect of the implementation of this standard resulted in an increase in net loss of \$5,877, \$7,114 and \$40,912 (no effect on per common share calculation) for 2006, 2005 and 2004, respectively. The added expenses were comprised of \$3,037, \$3,839 and \$11,260 in accretion expense and \$2,840, \$3,272 and \$29,109 in amortization expense for 2006, 2005 and 2004, respectively.

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

The Company's financial instruments include investments, accounts receivable, accounts payable, accrued liabilities and long-term debt. The fair values of all financial instruments were not materially different from their carrying values.

### ***Product Revenue***

Product revenue consists of sales of product that are recognized when realized and earned. This occurs when persuasive evidence of an arrangement exists, title transfers via shipment of products or when delivery has occurred, the price is fixed or determinable and collectibility is reasonably assured.

### ***Other Revenue***

Other revenue consists of revenue from technology development (see RHEM discussion in Note 15), fees from a technology license and deferred other revenue in connection with the Company's promissory note to BYK Chemie. Technology license fees are recognized when earned pursuant to the agreed upon contractual arrangement, when performance obligations are satisfied, the amount is fixed or determinable, and collectibility is reasonably assured. The Company intends to recognize the deferred revenue ratably, on a straight-line basis over a period beginning with the commissioned date on November 1, 2006 and ending on July 30, 2009, the expected date of the Company's final payment under the note.

Shipping and handling costs are included in other revenue when products are shipped and invoiced to the customer. The Company includes the related cost of shipping and handling in cost of goods sold.

### ***Advertising Expenses***

The Company does not capitalize advertising expenses, they are either expensed when incurred or when related advertisements are first published. The Company recognized \$1,130, \$6,889 and \$21,248 in advertising expenses for the years 2006, 2005 and 2004, respectively.

### ***Income Taxes***

The Company accounts for income taxes using the liability method. As such, deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Deferred tax assets and liabilities are calculated using the enacted tax rates and laws that are expected to be in effect when the anticipated reversal of these differences is scheduled to occur. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized.

## *Earnings per share*

Net loss per common share is computed based upon the weighted average number of common shares outstanding. Common equivalent shares of 317,875 for 2006, 357,796 for 2005 and 514,337 for 2004 are not included in the per share calculations because the effect of their inclusion would be anti-dilutive. Included in common equivalent shares are In-The-Money stock options and the issuance of restricted stock grants.

	<b>Years ended December 31,</b>		
	<b><u>2006</u></b>	<b><u>2005</u></b>	<b><u>2004</u></b>
Net loss	\$ (5,177,830)	\$ (5,383,611)	\$ (6,446,955)
Weighted average common shares outstanding	18,344,334	17,937,932	17,266,228
Net loss per common share-basic and diluted	\$ (0.28)	\$ (0.30)	\$ (0.37)

## *Recently Issued Accounting Standards*

In February 2007, the FASB issued SFAS 159, *The Fair Value Option for Financial Assets and Financial Liabilities*. SFAS 159 permits entities to choose to measure many financial instruments and certain other items at fair value at specified election dates. Under SFAS 159, a business entity shall report unrealized gains and losses on items for which the fair value option has been elected in earnings (or another performance indicator if the business entity does not report earnings) at each subsequent reporting date. SFAS 159 also establishes presentation and disclosure requirements designed to facilitate comparisons between entities that choose different measurement attributes for similar types of assets and liabilities. This Statement is effective for fiscal years beginning after November 15, 2007. The Company does not believe that adoption of SFAS 159 will have a material effect on its financial statements.

In September 2006, the FASB issued SFAS 157, *Fair Value Measurements*. SFAS 157 defines fair value, establishes a framework for measuring fair value and expands disclosures about fair value measurements. The requirements of SFAS 157 are effective for financial statements issued for fiscal years beginning after November 15, 2007. The Company does not believe that adoption of SFAS 157 will have a material effect on its financial statements.

In June 2006, the FASB issued FIN 48, (*Accounting for Uncertainty in Income Taxes – an interpretation of SFAS 109, “Accounting for Income Taxes”*). FIN 48 prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. FIN 48 developed a two-step process to evaluate a tax position and also provides guidance on derecognition, classification, interest and penalties, accounting in interim periods, disclosure and transition. This interpretation is effective for fiscal years beginning after December 15, 2006. Management has determined the adoption of FIN 48 will not have a material impact on the Company’s financial statements.

In September 2006, the U.S. Securities and Exchange Commission staff issued Staff Accounting Bulletin No. 108, “Considering the Effects of Prior Year Misstatements when Quantifying Misstatements in Current Year Financial Statements” (“SAB 108”). The intent of SAB 108 is to reduce diversity in practice for the method companies use to quantify financial statement misstatements, including the effect of prior year uncorrected errors. SAB108 establishes an approach that requires quantification of financial statement errors using both an income statement and a cumulative balance sheet approach. SAB 108 is effective for the fiscal year ending after November 15, 2006. The adoption of SAB 108 did not have an impact on our Consolidated Financial Statements.

### **(3) Investments**

Investments at December 31, 2006 and 2005 were comprised of variable rate demand notes, certificates of deposit and a money market fund. Included in investments is \$30,000 on December 31,

2006 and 2005, respectively, in the form of certificates of deposit which are pledged as collateral, primarily for the Company's rent in 2006 and 2005, and is restricted as to withdrawal or usage. Investments held in short-term variable rate demand notes and certificates of deposit have maturity days of less than 30 days. The Company's investments on December 31, 2006 and 2005 were as follows:

	<u>As of December 31,</u>	
	<u>2006</u>	<u>2005</u>
Variable rate demand notes .....	\$ 6,750,000	\$ 7,250,000
Money market fund .....	1,640,819	874,801
Certificates of deposit .....	30,000	30,000
Accrued interest .....	13,974	13,291
	<u>\$ 8,434,793</u>	<u>\$ 8,168,092</u>

#### (4) Inventories

Inventories consist of the following:

	<u>As of December 31,</u>	
	<u>2006</u>	<u>2005</u>
Raw materials .....	\$ 173,750	\$ 498,144
Finished goods .....	<u>1,092,827</u>	<u>894,413</u>
	1,266,577	1,392,557
Allowance for excess quantities .....	<u>(343,354)</u>	<u>(591,340)</u>
	<u>\$ 923,223</u>	<u>\$ 801,217</u>

The activity in the Allowance for Excess Inventory Quantities as follows:

	<u>2006</u>	<u>2005</u>
Balance, Beginning of year	\$ 591,340	\$ 605,545
Deductions(1)	(247,986)	(14,205)
Costs and Expenses	<u>-</u>	<u>-</u>
Balance, End of year	<u>\$ 343,354</u>	<u>\$ 591,340</u>

(1) Reduction in inventory allowance as a result of the disposal or sale of inventories for which an allowance had previously been provided.

#### (5) Equipment and Leasehold Improvements

Equipment and leasehold improvements consist of the following:

	<u>As of December 31,</u>	
	<u>2006</u>	<u>2005</u>
Machinery and equipment .....	\$ 11,426,106	\$ 9,345,563
Office equipment .....	453,582	405,000
Office furniture .....	75,871	75,871
Leasehold improvements .....	4,532,825	4,468,079
Construction in progress .....	<u>274,280</u>	<u>245,575</u>
	16,762,664	14,540,088
Less: Accumulated depreciation and amortization .....	<u>(9,154,338)</u>	<u>(7,952,301)</u>
	<u>\$ 7,608,326</u>	<u>\$ 6,587,787</u>

Depreciation expense was \$1,228,180, \$1,190,208 and \$1,297,912, for the years ended December 31, 2006, 2005 and 2004, respectively.

**(6) Intangible Assets**

The following is a summary of intangible assets on December 31, 2006 and 2005:

	<u>2006</u>		<u>2005</u>	
	<u>Gross Carrying Amount</u>	<u>Accumulated Amortization</u>	<u>Gross Carrying Amount</u>	<u>Accumulated Amortization</u>
<b>Subject to Amortization:</b>				
Trademarks	\$ 44,429	\$ 10,358	\$ 44,429	\$ 7,979
Patents	469,660	159,183	370,881	126,198
	<u>\$ 514,089</u>	<u>\$ 169,541</u>	<u>\$ 415,310</u>	<u>\$ 134,177</u>

Amortization expense recognized on all amortizable intangibles totaled \$35,364, \$31,196 and \$41,919 for the years ended December 31, 2006, 2005 and 2004, respectively.

Estimated aggregate amortization expenses for each of the next five years is as follows:

Year ending December 31:

2007	\$ 39,807
2008	39,904
2009	39,807
2010	38,762
2011	33,853
Thereafter	<u>152,415</u>
	<u>\$344,548</u>

On December 31, 2006 and 2005 patents pending were \$293,949 and \$386,384, respectively. Patents pending are not amortized.

**(7) Pledged Assets and Long-Term Debt**

In November 2000, the Company executed a three-year promissory note, held by the Company's largest customer, in the amount of \$1,293,895 for the construction of additional production capabilities at the Company's Romeoville, Illinois facility. Nanophase repaid this loan through a sales discount on product over time. The BASF note was retired in the second quarter in 2006.

In November 2005, the Company executed a promissory note, held by BYK Chemie (a U.S. subsidiary of Altana Chemie AG which owns approximately 7% of the Company's outstanding common stock) in the amount of \$1,597,420 for the purchase and installation of additional dispersion capacity and an additional NanoArc™ synthesis reactor at the Company's Romeoville, Illinois facility. The note requires that the Company give BYK Chemie first preference in use of the new equipment commissioned on November 1, 2006 under this note, and that the Company agrees to provide experimental product made using this equipment. In addition, the Company also capitalized approximately \$74,000 in interest related to this note. The rate of interest in the note will float at 1% over LIBOR, measured on a quarterly average. Interest will not begin to accrue until one year after the commissioning of the specified equipment and principal will be repaid in three equal payments during the first three quarters of 2009. Management has determined that the required interest payments, including a flexible interest free period of more than a year, are substantially lower than the Company would be required to pay in a more traditionally underwritten equipment note. As such, management's imputation of interest, in accordance with the provisions of APB No. 21, "Interest on Receivables and Payables", at 9% over the entire life of the note, its determination of a market interest rate, resulted in the Company recording a debt discount of

\$350,000, having an unamortized balance of \$213,713 on December 31, 2006. Management further determined that the debt discount of \$350,000 recorded at the inception of the loan was attributable to deferred other revenue relating to the issuance of right of first preference on the new equipment being commissioned and the Company's commitment to provide experimental product.

**(8) Lease Commitments**

The Company leases its operating facilities under operating leases. On October 18, 2005 Nanophase entered into a Lease Amendment amending its current lease for its facilities in Romeoville, Illinois, which, among other things, extended the term of such lease through December 31, 2015 (with the option to extend the term for two additional five year periods) and granted Nanophase an option to purchase such facility in certain instances. The current monthly rent on this lease amounts to \$0 for the first five months in 2006 and \$25,000 for the remainder of the year. Nanophase leases its Burr Ridge facility under an agreement whose initial term expired in September 1999. The Company exercised its option to extend the lease for five additional one-year terms, the last of which expired in September 2004. The Company executed a new lease for its Burr Ridge facility in September 2004. The initial term of the new lease expires in September 2007, but the Company has options to extend the lease for up to three additional one-year terms. The current monthly rent on this lease amounts to \$10,643.

The following is a schedule of future minimum lease payments as required under the above operating leases:

Year ending December 31:	
2007	\$ 398,344
2008	350,800
2009	318,000
2010	325,200
2011	331,200
Thereafter	<u>5,400,535</u>
Total minimum payments required:	<u>\$ 7,124,079</u>

Rent expense, including real estate taxes, under these leases amounted to \$601,364, \$546,815 and \$521,264, for the years ended December 31, 2006, 2005 and 2004, respectively.

On December 31, 2006 and 2005, equipment under capital leases had a cost of \$311,067 and \$205,314, respectively, with accumulated depreciation of \$205,341 and \$169,476, respectively. On December 31, 2006 the Company has one capital lease.

**(9) Accrued Expenses**

Accrued expenses consist of the following:

	<u>As of December 31,</u>	
	<u>2006</u>	<u>2005</u>
Accrued payroll and related expenses	\$ 584,485	\$ 356,537
Accrued professional services	321,435	246,391
Accrued rent	490,216	314,265
Other	<u>247,449</u>	<u>234,934</u>
	<u>\$ 1,643,585</u>	<u>\$ 1,152,127</u>



## (10) License Agreements

The Company was granted a non-exclusive license by a third party to make, use, and sell products of the type claimed in two U.S. patents. In consideration for this license, the Company agreed to pay royalties of 1% of net sales, as defined, and made an advance royalty payment of \$17,500. Royalties under this agreement amounted to approximately \$49,252, \$37,166 and \$29,200 for the years ended December 31, 2006, 2005 and 2004, respectively

In December 1997, the Company entered into a license agreement whereby the Company granted a royalty-bearing exclusive right and license, as defined, to purchase, make, use and sell nanocrystalline materials in designated parts of Asia to C. I. Kasei, a division of Itochu Corporation (“CIK”). Under this agreement, the Company also will earn royalties on net sales of manufactured products containing nanocrystalline materials. The agreement also provided for minimum sales targets and minimum royalty payments to maintain exclusivity. The agreement expires on March 31, 2013 unless earlier terminated as provided therein. The Company recorded royalty revenues, classified as “Other Revenue” on the Statements of Operations, under this agreement of \$300,000 for the years ended December 31, 2006, 2005 and 2004, respectively.

## (11) Income Taxes

The Company’s provision for income taxes, as presented on its Statements of Operations for the periods presented, is attributable to foreign income taxes paid as a result of certain transactions with customers in foreign countries for the year ended December 31, 2004. In 2006 and 2005, no foreign income taxes were paid. The Company has no income tax provision, current or deferred, relating to U.S. federal, state or local income taxes.

A reconciliation of income tax expense to the amount computed by applying the Federal income tax rate to loss before provision for income taxes as of December 31, 2006, 2005 and 2004, is as follows:

	2006	2005	2004
Income tax credit at statutory rates	\$ (1,760,462)	\$ (1,830,428)	\$ (2,181,765)
Nondeductible expenses	8,213	8,094	9,084
Tax benefit of exercise of non-qualified stock options	-	(120,766)	(683,900)
State income tax, net of federal benefits	(258,892)	(269,180)	(320,848)
Foreign income taxes	-	-	30,000
Other	(42,859)	19,280	24,429
Benefit of net operating loss and foreign tax credits not recognized,			
Increase in valuation allowance	2,054,000	2,193,000	3,153,000
	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 30,000</u>

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Significant components of the Company's deferred income taxes consist of the following:

	<u>As of December 31,</u>	
	<u>2006</u>	<u>2005</u>
Deferred tax assets:		
Net operating loss carryforwards .....	\$ 27,282,000	\$ 25,730,000
Foreign tax credit carryforward.....	-	156,000
Inventory and other allowances.....	151,000	250,000
Excess (tax) book depreciation.....	(113,000)	(127,000)
Excess (tax) book amortization .....	41,000	3,000
Other accrued costs .....	<u>275,000</u>	<u>131,000</u>
Total deferred tax assets.....	27,636,000	26,143,000
Less: Valuation allowance	<u>(27,636,000)</u>	<u>(26,143,000)</u>
Deferred income taxes	<u>\$ —</u>	<u>\$ —</u>

The valuation allowance increased \$2,054,000 for the year ended December 31, 2006 (including \$561,000 for expiring net operating loss carryforwards and expiring foreign tax credit carryforwards) due principally to the increase in the net operating loss carryforward and uncertainty as to whether future taxable income will be generated prior to the expiration of the carryforward period. Under the Internal Revenue Code, certain ownership changes, including the prior issuance of preferred stock and the Company's public offering of common stock, may subject the Company to annual limitations on the utilization of its net operating loss carryforward. As of December 31, 2006, the amounts subject to limitations has not yet been determined.

The Company has net operating loss carryforwards for tax purposes of approximately \$70,000,000 on December 31, 2006, which expire between 2007 and 2026.

As a result of certain transactions with third parties operating in foreign countries, the Company may be subject to the withholding and payment of foreign income taxes as transactions are completed. Under the Internal Revenue Code, foreign tax payments may be used to offset federal income tax liabilities when incurred, subject to certain limitations. During the year ended December 31, 2006, the Company's foreign tax credit carryforward of \$156,000 expired.

## **(12) Capital Stock**

In October 1998, pursuant to a Stockholder Rights Agreement between Nanophase and LaSalle National Association, as Rights Agent, the Company declared a dividend of one Preferred Stock Purchase Right (a "Right") for each outstanding share of Company common stock on November 10, 1998 and each share of common stock issued by the Company after such date. The Rights are not presently exercisable. Each Right entitles the holder, upon the occurrence of certain specified events, to purchase from the Company one ten-thousandth of a share of the Company's Series A Junior Participating Preferred Stock at a purchase price of \$25 per one-ten thousandth of a share (the "Purchase Price"). The Rights further provide that each Right will entitle the holder, upon the occurrence of certain specified events, to purchase from the Company, common stock having a value of twice the Purchase Price and, upon the occurrence of certain other specified events, to purchase from another entity into which the Company is merged or which acquires 50% or more of the Company's assets or earnings power, common stock of such other entity having a value of twice the Purchase Price. In general, the Rights may be redeemed by the Company at a price of \$0.01 per Right. The Rights expire on October 28, 2008. On September 5, 2003, in anticipation of the September 8, 2003 private placement to Grace Brothers Ltd., the Company amended its existing Stockholder Rights Agreement to revise the beneficial ownership threshold at which a person or group of persons becomes an "acquiring person" and triggers certain provisions under the

Stockholder Rights Agreement. As revised, a person or group would become an “acquiring person” if that person or group becomes the beneficial owner of 35% or more of the outstanding shares of the Company’s stock. Prior to this amendment, the beneficial ownership threshold was 25%.

On March 23, 2004, the Company sold, in a private placement to Altana, 1,256,281 shares of common stock at \$7.96 per share and received gross proceeds of \$10.0 million. In accordance with the terms of such private placement, on February 5, 2007, the Company filed a registration statement for the 1,256,281 shares. Such registration statement has not yet been declared effective by the SEC. While the Company has obligations to Altana with respect to the effectiveness of this registration statement, Altana would not have the ability to settle such shares in cash if such registration statement is not declared effective and, accordingly, the Company has treated the shares purchased by Altana as permanent equity on its balance sheet (i.e., as additional paid-in capital).

On August 25, 2006, the Company sold, in a private place to RHEM, 847,918 shares of unregistered common stock at \$5.8968 per share and received gross proceeds of \$5.0 million. The Company is obligated to prepare a registration statement within five business days of the second anniversary of this transaction to be filed with the SEC. While the Company has obligations to RHEM with respect to the effectiveness of this registration statement, RHEM would not have the ability to settle such shares in cash if such registration statement is not declared effective and, accordingly, the Company has treated the shares purchased by RHEM as permanent equity on its balance sheet (i.e., as additional paid-in capital).

On July 27, 2006, the Company amended its Certificate of Incorporation to increase its authorized shares of common stock to 30,000,000.

As of December 31, 2006 and 2005, the Company has 24,088 authorized shares of preferred stock, of which 2,500 shares have been designated as Series A Junior Participating Preferred Stock and reserved for issuance in connection with the Rights described above. Shares of Series A Junior Participating Preferred Stock are nonredeemable and subordinate to any other series of the Company’s preferred stock, unless otherwise provided for in the terms of the preferred stock; has a preferential dividend in an amount equal to 10,000 times any dividend declared on each share of common stock; has 10,000 votes per share, voting together with the Company’s common stock; and in the event of liquidation, entitles its holder to receive a preferred liquidation payment equal to 10,000 times the payment made per share of common stock. In addition, as of December 31, 2006, 2,783,183 authorized but unissued shares of common stock have been reserved for future issuance upon exercise of stock options.

### **(13) Stock Options, Warrants and Stock Grants**

The Company has entered into stock option agreements with certain officers, employees, directors and three members of the Company’s former Advisory Board. On December 31, 2006, the Company had outstanding options to purchase 1,740,347 shares of common stock. The stock options generally expire ten years from the date of grant. Of the total number of exercisable options, 421,603 of the outstanding options vested over a five-year period, 1,047,168 vested over a three-year period from their respective grant dates and 17,011 vested on the eighth anniversary following their grant date.

Exercise prices are determined by the Compensation and Governance Committee of the Board of Directors and equal the estimated fair values of the Company’s common stock at the grant date. The table below summarizes option activity through December 31, 2005:

	Number of Options	Exercise Price	Weighted Average Exercise Price
Options outstanding on January 1, 2004	1,928,619	.112-11.625	5.705
Options granted during 2004	100,000	5.550	5.550

Options exercised during 2004	(283,526)	.112-10.875	5.183
Options canceled during 2004	<u>(4,001)</u>	.112-3.660	3.659
Outstanding on December 31, 2004	1,741,092	.432-11.625	5.786
Options granted during 2005	100,000	6.030	6.030
Options exercised during 2005	(81,110)	.432-3.886	3.055
Options canceled during 2005	<u>(15,750)</u>	3.660-10.875	6.623
Outstanding on December 31, 2005	<u><u>1,744,232</u></u>	1.727-11.625	5.918

### *Share-Based Compensation*

Prior to January 1, 2006, the Company accounted for its stock option plan under the recognition and measurement provisions of APB Opinion No. 25, Accounting for Stock Issued to Employees and related Interpretations, as permitted by FASB Statement No. 123, Accounting for Stock-Based Compensation. No stock option-based employee compensation cost was recognized in the Statement of Operations for year ended December 31, 2005, as all options granted under those plans had an exercise price equal to the market value of the underlying common stock on date of grant. Effective January 1, 2006, the Company adopted the fair value recognition provisions of FASB Statement No. 123(R), Share-Based Payment, using the modified-prospective-transition method. Under that transition method, compensation cost recognized for the year ended December 31, 2006 includes: (a) compensation cost for all share-based payments granted prior to, but not yet vested on January 1, 2006, based on the grant date fair value estimated in accordance with the original provisions of Statement 123, and (b) compensation cost for all share-based payments granted subsequent to January 1, 2006, based on the grant-date fair value estimated in accordance with the provisions of Statement 123(R). Results for the prior period have not been restated.

As a result of adopting Statement 123(R) on January 1, 2006 the Company's loss from operations, loss before provision for income taxes and net loss for the year ended December 31, 2006 was \$382,791 greater than if it had continued to account for share-based compensation under Opinion 25. Basic and diluted earnings per share for the year ended December 31, 2006 would have been (\$.26), if the Company had not adopted Statement 123(R), compared to reported basic and diluted earnings per share of (\$.28).

Compensation expense is recognized only for share-based payments expected to vest. The Company estimates forfeitures at the date of grant based on the Company's historical experience and future expectations. Prior to the adoption of SFAS 123(R), the effect of forfeitures on the pro forma expense was recognized based on estimated forfeitures.

As of December 31, 2006, there was approximately \$997,000 of total unrecognized compensation cost related to nonvested share-based compensation arrangements granted under the Company's stock option plans. That cost is expected to be recognized over a weighted-average period of 6.71 years.

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 to options granted under the Company's stock option plan presented on December 31, 2005 and 2004. For purposes of this pro forma disclosure, the value of the options is estimated using a Black-Scholes option-pricing formula and amortize to expense over the option vesting periods.

	Years Ended December 31,	
	2005	2004
Net Loss:		
As reported	\$(5,383,611)	\$(6,446,955)
Deduct total stock-based employee compensation expense determined under fair value based method for all awards	(491,690)	(835,394)
Pro forma net loss	<u>\$(5,875,301)</u>	<u>\$(7,282,349)</u>
Loss per share:		
Basic and diluted - As reported	(0.30)	(0.37)
Basic and diluted - Pro forma	(0.33)	(0.42)

## Fair Value and Assumptions Used to Calculate Fair Value under SFAS 123 (R) and SFAS 123

The following table illustrates the various assumptions used to calculate the Black-Scholes option pricing model for all years presented:

	Years Ended December 31,		
	2006	2005	2004
Weighted-average risk-free interest rates:	4.76%	4.68%	3.93%
Dividend yield:	0.00%	0.00%	0.00%
Weighted-average expected life of the option:	7 years	7 years	7 years
Weighted-average expected stock price volatility:	62.07%	78.79%	79.10%
Weighted-average fair value of the options granted:	\$3.67	\$4.50	\$4.12

Under SFAS No. 123(R), the Company will continue to use the Black-Scholes option pricing model to determine the fair value of stock based compensation. The Black-Scholes model requires the Company to make several assumptions, including the estimated length of time employees will retain their vested stock options before exercising them (“expected term”), the estimated volatility of the Company’s common stock price over the expected term and estimated forfeitures. Expected price volatility of the fiscal 2006 grants is based on the daily market rate changes of the Company’s stock going back to January 1, 1998. The shares granted in fiscal 2006 had a vesting period of three years and a contractual life of 10 years. Forfeitures were estimated based on the Company’s historical experience. The Black-Scholes model also requires a risk free interest rate, which is based on the U.S. Treasury yield curve in effect at the time of the grant, and the dividend yield on the Company’s common stock, which is assumed to be zero since the Company does not pay dividends and has no current plans to do so in the future. Changes in these assumptions can materially affect the estimate of fair value of stock based compensation and consequently, the related expense recognized on the condensed consolidated statement of operations. The Company recognizes stock based compensation expense on a straight-line basis.

### Employees Stock Options and Stock Grants

For the year ended December 31, 2006, 148,547 shares of Common Stock were issued pursuant to option exercises compared to 81,110 and 283,526 shares of Common Stock for the same period in 2005 and 2004, respectively. For the year ended December 31, 2006, 201,000 shares of stock options were granted compared to 100,000 shares granted for the same period in 2005 and 2004, respectively. For the year ended December 31, 2006, 22,524 shares were issued in the form of restricted stock grant to the Company’s outside directors compared to none in 2005 and 2004.



The following table summarizes the Company's option activity for Nanophase Technologies Corporation employees and directors during the year ended December 31, 2006:

Options	Shares	Weighted Average Exercise Price per Share	Weighted Average Remaining Contractual Term (years)	Aggregate Intrinsic Value
Outstanding on January 1, 2006	1,744,232	\$5.92		
Granted	201,000	\$5.99		
Exercised	(148,547)	\$3.47		
Forfeited or expired	(12,502)	\$4.33		
Outstanding on December 31, 2006	1,784,183	\$6.14	5.11	\$1,455,494
Exercisable on December 31, 2006	1,481,290	\$6.18	4.27	\$1,429,806

The aggregate intrinsic value in the table above is before income taxes, based on Nanophase's closing stock price of \$5.97 on the last business day for the period ended December 31, 2006.

During the year ended December 31, 2006, the total intrinsic value of Nanophase stock options exercised was \$490,762. Cash received for option exercises was \$515,240 during the year ended December 31, 2006. Based on the Company's election of the "with and without" approach, no realized tax benefit from stock options was recognized for the year ended December 31, 2006.

#### Restricted Stock

For the year ended December 31, 2006, the Company was to grant each outside director 3,754 shares of deferred common stock totaling 22,524 shares under the Company's 2005 Non-Employee Director Restricted Stock Plan. However, each outside director elected to defer receipt of the restricted stock until the termination of their services to the Company. The deferral of restricted stock is being accounted for under the Company's Non-Employee Director Deferred Compensation Plan. The fair value of the awards granted was \$144,000 for the restricted share rights and is included in stock-based compensation expense for the year ending December 31, 2006 compared to \$0 for the same period in 2005 and 2004.

In September 2005 and October 2004, the Company granted a total of 66,666 (33,333 each year) shares of restricted stock at market value consisting of 33,332 restricted share rights and 33,334 performance share rights, respectively. Grant date fair value was \$5.55 for the September 2005 grant and \$6.03 for the October grant, respectively. The Company uses an estimated forfeiture rate of 5.5% for both the restricted and performance shares. A summary of the status of the Company's nonvested restricted shares as of December 31, 2006 is presented below:

# of Restricted Shares	Weighted Average Remaining Life on Unvested Shares	Unrecognized Compensation Cost
33,332	1.29	\$70,746

For the years ended December 31, 2006, 2005 and 2004, the stock-based compensation expense was \$58,328, \$39,025 and \$6,725 for the restricted share rights. A summary of the status of the Company's nonvested performance share rights as of December 31, 2006 is presented below:

# of Performance Shares	Weighted Average Remaining Life on Unvested Shares	Unrecognized Compensation Cost
33,334	1.46	\$87,268

For the years ended December 31, 2006, 2005 and 2004 the stock-based compensation expense was \$55,757, \$34,284 and \$10,750 for the performance share rights. Compensation expense for performance share rights is based upon management's estimate of the number of share rights that will eventually vest.

In connection with the issuance of Series C convertible preferred stock in 1993, the Company issued common stock purchase warrants for 662,287 shares at no additional cost to the Series C convertible preferred stockholders. At the Company's initial public offering on November 26, 1997, all preferred stock shares were converted to common stock shares. These warrants had an exercise price of \$1.123 per share and expired upon the tenth anniversary of issuance. For the year ended December 31, 2002, 28,950 warrants were converted into 28,950 shares of common stock and were exercised for \$32,511. On December 31, 2003 there were 453,001 warrants issued, outstanding, and exercisable. All of these outstanding warrants were issued pursuant to the Company's September 8, 2003 private equity offering at a rate of one per common share purchased. Their exercise price was \$4.415 per share and the expiration was September 8, 2004. No warrants were exercised in 2003. On September 2, 2004, 453,001 warrants were exercised relating to the Company's September 2003 private equity offering of \$4.415 per share. For the year ended December 31, 2005 and 2006 there were no warrants outstanding.

#### **(14) 401(k) Profit-Sharing Plan**

The Company has a 401(k) profit-sharing plan covering substantially all employees who meet defined service requirements. In 2004, the Company amended its 401(k) plan providing for deferred salary contributions by the plan participants and maximum contributions by the Company of 100% of the first 3% and 50% of the next 2% of the participant's salary. The Company contributions under this plan were \$166,781, \$131,137 and \$120,335 for the years ended December 31, 2006, 2005 and 2004, respectively.

#### **(15) Significant Customers and Contingencies**

Revenue from three customers constituted approximately 56.1%, 22.1% and 9.5%, respectively, of the Company's 2006 revenue. Amounts included in accounts receivable on December 31, 2006 relating to these three customers were approximately \$619,000, \$289,000 and \$309,000, respectively. Revenue from these three customers constituted approximately 65.8%, 1.0% and 12.4%, respectively, of the Company's 2005 revenue. Amounts included in accounts receivable on December 31, 2005 relating to these three customers were approximately \$374,000, \$0 and \$373,000, respectively. Revenue from these three same customers constituted approximately 69.7%, 0% and 12.9%, respectively, of the Company's 2004 revenue.

The Company currently has supply agreements with BASF Corporation ("BASF"), the Company's largest customer, and Rohm and Haas Electronic Materials CMP Inc. ("RHEM"), that have contingencies outlined in them which could potentially result in the license of technology and/or the sale of production equipment, providing capacity sufficient to meet the customer's production needs, from the Company to the customer, if triggered by the Company's failure to meet certain performance requirements and/or certain financial condition covenants. The financial condition covenants in the

Company's supply agreement with its largest customer, as amended, "triggers" a technology transfer (license or, optionally, an equipment sale) in the event (a) that earnings of the Company for a twelve month period ending with its most recently published quarterly financial statements are less than zero and its cash, cash equivalents and investments are less than \$2,000,000, (b) of an acceleration of any debt maturity having a principal amount of more than \$10,000,000, or (c) of the Company's insolvency, as further defined within the agreement. In the event of an equipment sale, upon incurring a triggering event, the equipment would be sold to the customer at 115% of the equipment's net book value.

The Company believes that it has sufficient cash and investment balances to avoid the first triggering event for the foreseeable future. If a triggering event were to occur and BASF elected to proceed with the license and related sale mentioned above, the Company would receive royalty payments from this customer for products sold using the Company's technology; however, the Company would lose both significant revenue and the ability to generate significant revenue to replace that which was lost in the near term. Replacement of necessary equipment that could be purchased and removed by the customer pursuant to this triggering event could take in excess of twelve months. Any additional capital outlays required to rebuild capacity would probably be greater than the proceeds from the purchase of the assets as dictated by the Company's agreement with the customer. Such an event would also result in the loss of many of the Company's key staff and line employees due to economic realities. The Company believes that its employees are a critical component of its success and could be difficult to replace and train quickly. Given the occurrence of such an event, the Company might not be able to hire and retain skilled employees given the stigma relating to such an event and its impact on the Company.

In February of 2004, the Company amended its original agreement with Rohm and Haas Electronic Materials CMP, Inc. ("RHEM," formerly known as Rodel, Inc). This amendment allows for RHEM to maintain exclusivity based upon it purchasing lower dollar amounts of nanocrystalline materials, while extending the agreement through 2009. This amendment did not require RHEM to purchase any materials from the Company in 2004, but, in lieu of materials purchased it did require an aggregate of \$600,000 be paid to Nanophase in four equal quarterly installments in 2004 to support on going efforts in joint slurry product development during 2004. This \$600,000 was fully earned in 2004. RHEM resumed purchases from the Company in 2005. Sales to RHEM in 2005 and 2006 are included in the revenue concentration disclosed in a preceding paragraph.

#### **(16) Business Segmentation and Geographical Distribution**

Revenue from international sources approximated \$664,500, \$1,094,200 and \$673,900 for the years ended December 31, 2006, 2005 and 2004, respectively. As part of its revenue from international sources, the Company recognized approximately \$249,800 and \$59,515 in product revenue from several German and Taiwan companies respectively, and \$300,000 in other revenue from a technology license fee from its Japanese licensee for the year ended December 31, 2006. Revenue from these same international sources approximated \$479,400, \$220,200 and \$306,800 for the year ended December 31, 2005, compared to \$299,200, \$1,900 and \$322,500 for the same period in 2004, respectively. The \$300,000 technology license fee typically received every twelve months from our Japanese licensee is included in each of the three years presented.

The Company's operations comprise a single business segment and all of the Company's long-lived assets are located within the United States.

**(17) Quarterly Financial Data (Unaudited)**

	<u>First Quarter</u>	<u>Second Quarter</u>	<u>Third Quarter</u>	<u>Fourth Quarter</u>
<b>2006</b>				
Total revenue	\$2,005,568	\$2,390,902	\$2,425,790	\$2,168,578
Gross Profits	337,817	544,224	720,065	331,025
Loss from operations	(1,596,783)	(1,184,312)	(973,673)	(1,742,799)
Net loss	(1,543,254)	(1,138,991)	(915,713)	(1,579,872)
Basic and diluted loss per share	(0.09)	(0.06)	(0.05)	(0.08)
<b>2005</b>				
Total revenue	\$1,613,382	\$2,084,725	\$1,674,614	\$1,429,186
Gross Profits	168,882	490,461	207,824	107,021
Loss from operations	(1,468,701)	(1,179,972)	(1,602,239)	(1,411,249)
Net loss	(1,415,540)	(1,087,963)	(1,534,707)	(1,345,401)
Basic and diluted loss per share	(0.08)	(0.06)	(0.09)	(0.07)
<b>2004</b>				
Total revenue	\$1,293,359	\$1,542,068	\$1,377,118	\$995,389
Gross Profits	80,249	113,893	65,496	(176,920)
Loss from operations	(1,453,580)	(1,467,153)	(1,397,026)	(1,890,228)
Net loss	(1,470,564)	(1,452,248)	(1,658,272)	(1,865,871)
Basic and diluted loss per share	(0.09)	(0.08)	(0.09)	(0.11)

**(18) Administrative Actions**

On February 23, 2004, an unidentified party filed a Petition to Request a Reexamination of US Patent No. 6,669,823 B1 in the U.S. Patent and Trademark Office, or USPTO. US Patent No. 6,669,823 B1 relates to certain parts of one of the Company's nanoparticle manufacturing processes, NanoArc Synthesis. The Company subsequently received notice that the USPTO had granted the Request for Reexamination. The reexamination process is provided for by law and requires the USPTO to consider the scope and validity of the patent based on substantial new questions of patentability raised by a third party or the USPTO. On September 7, 2005, the Company's representatives conducted an interview with the Examiner assigned to the Reexamination at the USPTO, resulting in the Examiner preparing an interview summary indicating that rejections to issued claims may be formally withdrawn. A response, including further remarks about the interview and two new claims, was submitted shortly thereafter. However, prior to the USPTO issuing a formal notice confirming patentability, the same unidentified party referenced above filed a second Petition to Request Reexamination of the patent. A second interview was conducted, resulting in an amendment to all patent claims. Thereafter, a third request for re-examination was filed and granted by the USPTO. We subsequently conducted a third interview with the Examiner and responded to the third request. It is not feasible to predict whether the Company ultimately will succeed in maintaining all the claims of this patent during reexamination. If the patent claims in this patent ultimately are narrowed substantially by the USPTO, the patent coverage afforded to certain parts of the Company's NanoArc Synthesis nanoparticle manufacturing process could be impaired, which could impede the extent of Nanophase's legal protection of the invention that is subject to this patent and potentially harm its business and operating results, but the Company believes that the likelihood of a material loss arising from this matter is remote.

### **(19) Lease Accounting Adjustment**

Along with many other companies with leased properties in 2005, Nanophase has reviewed its policies with respect to leasing transactions. Following this review, the Company corrected an error in its prior accounting practices to conform the lease term used in calculating straight-line rent expense with the useful lives used to amortize improvements on leased property. The result of this correction was primarily to accelerate the recognition of rent expense under its lease for the Romeoville headquarters that included fixed rent escalations by revising the computation of straight-line rent expense to include those escalations for certain option periods. As the correction related solely to accounting treatment, it had no effect on Nanophase's historical or future cash flows or the timing of payments under the related lease. Had the Company, from the inception of the lease in June 2000, correctly calculated its straight-line rent expense, the effect would have been an increase in rent of approximately \$13,220 per quarter. This quarterly effect, and the annualized effect, of this adjustment are immaterial to the Company's prior year's earnings per share or shareholders' equity. The total amount of this expense was \$279,810 and was expensed in the third quarter of 2005.

## 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, on the 14th day of March, 2007.

### NANOPHASE TECHNOLOGIES CORPORATION

By: /s/ Joseph Cross  
Joseph Cross  
President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this Report has been signed below by the following persons on behalf of the registrant and in the capacities indicated on the 14th day of March, 2007.

<u>Signature</u>	<u>Title</u>
<u>/s/ Joseph Cross</u> Joseph Cross	President, Chief Executive Officer (Principal Executive Officer) and a Director
<u>/s/ Jess Jankowski</u> Jess Jankowski	Chief Financial Officer, Treasurer and Secretary (Principal Financial and Accounting Officer)
<u>/s/ Donald S. Perkins</u> Donald S. Perkins	Chairman of the Board and Director
<u>/s/ James A. Henderson</u> James A. Henderson	Director
<u>/s/ James A. McClung</u> James A. McClung	Director
<u>/s/ Jerry Pearlman</u> Jerry Pearlman	Director
<u>/s/ Richard W. Siegel</u> Richard W. Siegel	Director
<u>/s/ R. Janet Whitmore</u> R. Janet Whitmore	Director



## EXHIBIT INDEX

- 23.1 Consent of McGladrey & Pullen, LLP.
- 31.1 Certification of Chief Executive Officer pursuant to Rules 13a-14(a) and 15d-14(a) under the Exchange Act.
- 31.2 Certification of the Chief Financial Officer pursuant to Rules 13a-14(a) and 15d-14(a) under the Exchange Act.
- 32 Certification of the Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350.

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\* Confidentially requested, confidential portions have been omitted and filed separately with the Commission as required by Rule 24b-2.

**CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

We have issued our report, dated March 14, 2007, on the financial statements and internal controls over financial reporting of Nanophase Technologies Corporation as of December 31, 2006. We hereby consent to the use of our report in the Registration Statements on Form S-8 (No. 333-53445 and No. 333-74170) and the Registration Statements on Form S-3 (No. 333-90326 and No. 333-140461) of Nanophase Technologies Corporation. We also consent to the reference to our Firm under the caption "Experts" in the Prospectus.

/s/ McGladrey & Pullen LLP

Schaumburg, Illinois  
March 14, 2007

Certification of the Chief Executive Officer  
Pursuant to  
Rules 13a-14(a) and 15d-14(a) under the Exchange Act

I, Joseph Cross, certify that:

1. I have reviewed this annual report on Form 10-K of Nanophase Technologies Corporation;

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

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

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15(d)-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent function):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 14, 2007

/s/ JOSEPH E. CROSS

Joseph E. Cross  
Chief Executive Officer

Certification of the Chief Financial Officer  
Pursuant to  
Rules 13a-14(a) and 15d-14(a) under the Exchange Act

I, Jess Jankowski, certify that:

1. I have reviewed this annual report on Form 10-K of Nanophase Technologies Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15(d)-15(f)) for the registrant and have:
  - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
  - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent function):
  - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 14, 2007

\_\_\_\_\_/s/ JESS A. JANKOWSKI  
Jess A. Jankowski  
Chief Financial Officer

Certification Pursuant to 18 U.S.C. Section 1350  
(as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002)

In connection with this annual report of Nanophase Technologies Corporation (the “Company”) on Form 10-K for the year ending December 31, 2006 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), we, Joseph E. Cross, Chief Executive Officer of the Company, and Jess A. Jankowski, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to our knowledge:

1. The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

Date: March 14, 2007

\_\_\_\_\_/s/ JOSEPH E. CROSS\_\_\_\_\_  
Joseph E. Cross  
Chief Executive Officer

\_\_\_\_\_/s/ JESS A. JANKOWSKI\_\_\_\_\_  
Jess A. Jankowski  
Chief Financial Officer



nanophase technologies corporation

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