



Polyvinyl Chloride (PVC)

PVC is an outstanding general-purpose resin, with a wide range of advantages including its ease of processing and economical cost. Comprised of only 40% petroleum, this versatile plastic contributes to reduced oil consumption and the efficient use of non-renewable resources. Easy to recycle, PVC is also distinguished among plastics by its environmentally friendly properties. Moreover, the use of PVC in window sashes, is attracting significant attention, as concerns for energy conservation and healthy housing environments continue to rise.

In the United States, the use of PVC in pipes and siding is increasing, with similar growth in applications for pipes and in window sashes experienced in Europe and Asia. We are anticipating growing worldwide demand in the future.

Shintech Inc. in the U.S., the hub of the Shin-Etsu Group's PVC business, has established a strong foothold in the market in recent years and through efforts such as the construction of new manufacturing facilities, has grown to become a recognized leader in PVC worldwide.

Using its tripolar production structure in the United States, Europe, and Japan, the Shin-Etsu Group boasts an annual production capacity of 3.5 million tons. As the largest producer of PVC in the world,



Shown here are white powder-form PVC polymer and pellet-form compounds.



PVC used in sash for window frames has superior heat-retention capabilities contributing to energy conservation, and acts to prevent condensation for a more comfortable living environment.

Shin-Etsu will continue to capitalize on its strengths in production capacity and efficiency, as well as its strong sales capabilities nurtured in the world market.

In addition, we will cooperate with environment-related associations in each of our major production bases, the United States, Europe, and Japan. The Shin-Etsu Group will help to accelerate the further development of technologies and applications in the building materials sector, where the use of PVC is most prevalent, and a variety of other sectors. In doing so, we are ever mindful of the need to contribute to the creation of a recycling-based society.

Silicones

Shin-Etsu's silicone business celebrates its 50th anniversary in 2003. Today, the Group's silicones are applied with more than 4,000 products in the electrical, electronics, transportation equipment, construction, cosmetics, toiletries and chemical sectors. Shin-Etsu continues to develop new products in this field with increased performance and functionality.

Among a variety of applications, silicone serves as an efficient heat transfer medium in electrical and electronic devices. The application of a silane-coupling agent to enhance the fuel-efficiency of tires is also attracting wide acclaim.

Shin-Etsu has also produced a multi-purpose silicone oil and is consistently developing new modifications and alternatives for plastic application. In cosmetics, we are pursuing silicone products that enhance feel and are easy to apply in response to calls from the market. We are also pursuing the development of non-solvent agents for application in electric, electronic, and paper release products in an effort to minimize the concern over the environment. In the future, Shin-Etsu will promote the development of new products and applications for a wide variety of sectors and maximize the unique properties of this product.

Overseas, the Shin-Etsu Group has adopted an active policy of locating production close to the regions where the products are marketed. The Group is making every effort to expand sales and has commenced production of specialty silanes at a new plant in Texas in the United States, and of emulsion products and liquid-type RTV rubber compounds at a new plant in Zhejiang, China. In Thailand, Shin-Etsu has formed a joint venture with the U.S.-based General Electric Company to manufacture silicone monomer; at the same time, Shin-Etsu is constructing its own silicone polymer manufacturing plant in Thailand. Shin-Etsu will work toward early start-up of these new production



Silicone works to improve the efficacy of the resin modification agent used in artificial marble.

facilities so that they can make a quick and significant contribution to Shin-Etsu's silicone business.

Cellulose Derivatives

As environment-friendly materials made from natural fibers, cellulose derivatives have a vast range of applications that includes applications in construction and civil engineering, agriculture, additives for fine ceramics and paper processing as well as in pharmaceuticals and toiletries, where safety is paramount.

Thanks to their properties, cellulose derivatives are used for coatings and as binders for pharmaceutical tablets and granules, and demand for these derivatives has been robust. In industrial-use products, we also recorded favorable sales of cellulose derivatives for binders for shaping ceramic converters that purify exhaust emissions, and we expect to achieve steady growth in sales in the future.

Other Products

The Shin-Etsu Group manufactures an abundant lineup of products including synthetic pheromones and acetylene derivatives. Synthetic pheromones have been developed as agents to control the populations of harmful insects that attack cotton and fruits. They act by disrupting the insects' mating



Simcoa Operations Pty. Ltd. engages in the manufacture of silicon metals.

behavior. Shin-Etsu produces and markets acetylene derivatives such as synthetic aroma chemicals that are used in a wide range of areas, such as perfumes, cosmetics, as well as in food flavorings.

Synthetic pheromones are attracting significant attention overseas and enjoy wide use in Japan in orchards that grow fruits, vegetables and tea.

As another important business, Shin-Etsu also manufactures silicon metal. Silicon metal is an essential raw material in such products as silicones, semiconductor silicon, and synthetic quartz, which are among the Group's core businesses. Through its wholly owned subsidiary in Western Australia, Simcoa Operations Pty. Ltd., the Company is securing stable, long-term and high-quality supplies of this valuable commodity.



Cellulose derivatives for pharmaceuticals are used as coatings for pills. The material can be adjusted to allow release of the medicine in the stomach or intestines and to provide sustained release.



Used at fruit orchards, synthetic pheromones control the populations of harmful insects by disrupting the insects' mating behavior.



IBM ThinkPad is a registered trademark of IBM Corporation.

Semiconductor Silicon

Silicon wafers has been one of Shin-Etsu's conspicuous growth businesses in recent years. The Company has manufacturing bases in Japan, Malaysia, Taiwan, the United States, and the United Kingdom, which collectively account for approximately 28% of total global output, representing the top share in the world market.

In the fiscal year under review, the semiconductor silicon business increased on the back of a recovery in demand for semiconductor devices at home and overseas. Sales of our mainstay 8-inch wafer in May and June 2002 were on par with peak levels experienced in 2000.

Shin-Etsu Handotai Co., Ltd. (S.E.H.)'s Shirakawa Plant boasts a top market share in commercial production of 300mm wafers. S.E.H. has been receiving overwhelming inquiries mirroring the shift toward 300mm wafers and we are expecting increased demand particularly for memory, microprocessor, and logic applications. As of the end of March 2003, our Shirakawa Plant had a monthly manufacturing capacity of 100,000 units. We have announced plans to expand production for 300mm wafers to 300,000 units per month in response to the increase in future demand. In addition, we anticipate the next-generation 300mm wafer, which can be used to manufacture



Examples of wide-rimmed single crystal silicon ingots



Silicon wafers boast a degree of evenness to within 0.1 micrometer.

multifunction and higher-performance chips, and to enable manufacturers to achieve a twofold increase in the production of chips compared with the existing 200mm wafer, will generate significant benefits for device makers in terms of cost reductions. In response to the growing trend toward smaller devices and more sophisticated demands from customers, we pioneered the development of technology that enables us to produce stable supplies of high-quality, next-generation 300mm wafers, commencing commercial production in February 2001. In recent years, we have expanded our facilities in Japan with the aim of securing the top share in 300mm wafers.

Shin-Etsu is also striving to increase sales in SOI wafers whose applications are expanding to highly functional devices and to further enhance the high quality of a variety of products. Moreover, we have strengthened production capacity of 200mm wafers at our manufacturing plant in Malaysia and worked to improve competitiveness through the reduction of costs. Based on these measures, we aim to streamline and optimize our manufacturing structure through the efficient use of overseas production bases.

Rare Earth Magnets

Rare earth magnets are characterized by their high efficiency, exhibiting a force ten times that of ferrite magnets. These magnets are supporting efforts to create compact, lightweight, high performance and energy-saving electric and magnetic components. The largest demand for rare earth magnets is for use in voice coil motors (VCM) for hard disk drives (HDDs). Shin-Etsu has secured a leading share of global markets in rare earth magnets for use in hard disk drives (HDDs).

Today, Shin-Etsu is the only company in the world to carry out integrated production of high-quality rare earth magnets from high-purity rare earth to the finished product. Leveraging this position, we will ensure stable supply and the highest product quality, while swiftly developing new products and applications that match the needs and objectives of customers.



Examples of voice coil motors for hard disk drives (HDDs)



Epoxy molding compounds prevent semiconductor circuit leaks, protect regular and large-scale circuits from humidity, and are outstanding in terms of heat and shock-resistance.

Epoxy Molding Compounds

Epoxy molding compounds are chip encapsulation materials used in the vast majority of semiconductor products from the single semiconductor to the central processing unit (CPU). Deploying the leading-edge technologies that it has accumulated through its development of various types of silicone, Shin-Etsu is delivering unique products that distinguish it from competitors. In an effort to adapt to the needs for environmental conservation, Shin-Etsu has also developed an epoxy molding compound product with a nonflammable coating.

Photoresists

The Shin-Etsu Group was a late-entrant into the market for photoresists, sensitized materials used in the imprinting of semiconductor circuits, entering in 1998 with a leading-edge photoresist that was compatible with krypton fluoride (KrF) excimer lasers. Today, the Group has grown to become the world's leading producer of photoresists, with approximately one third of the world market.

Shin-Etsu has set up a system to supply the main materials essential in the lithography process utilized by semiconductor device manufacturers. For this purpose, Shin-Etsu maintains a close bond with the semiconductor industry. In utilizing this unique position, we are working in parallel with users in the development of the next-generation argon fluoride (ArF) photoresist.



Photoresist spin-coated onto a wafer

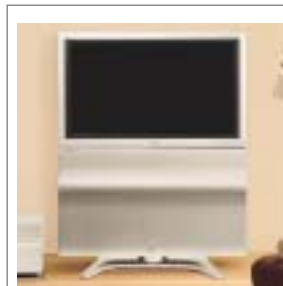


Synthetic Quartz Products

Synthetic quartz products are key contributors to the advance of optical fiber networks and the development of liquid-crystal display technologies, which support the growth of network computing. Our synthetic quartz products—including preforms for optical fibers, photomask substrates, and others—are indispensable materials for the information technology (IT) industry. Based on our accumulated experience and know-how in silicon chemicals, Shin-Etsu was the first in the world to successfully mass-produce synthetic quartz with a purity higher than that of natural quartz. We foresee even greater business potential in this area and have positioned the synthetic quartz business as a top priority in our growth strategy, anticipating increased contribution to earnings.



Optical-fiber preforms with diameters of 160mm and lengths of 1,500mm will eventually become roughly 2,000km of optical fiber.



Based on leading-edge proprietary technology, Shin-Etsu manufactures photomask substrates that allow high definitions of LCDs.

Despite a decline in global demand for preforms for optical fibers, Shin-Etsu is pursuing research and development of high-quality products in preparing for the future.

In addition, we believe photomask substrates for use in ICs, applied in the imprinting of semiconductor circuits, and large-scale photomask substrates used in LCD manufacturing process, will exhibit even more growth. Leveraging our top global position in photomask substrates, we are making every effort to improve quality and stability of supply, with the aim of fostering greater trust from our customers.

Rare Earth Magnets for General Applications, and Rare Earths

Rare earth magnets for general applications are contributing to the realization of products that are more compact and lightweight, and have higher output, such as motors. With their outstanding capabilities, these rare earth magnets have various applications in everyday life such as in headphone stereos and in optical pickups in CD and DVD players. In addition, rare earth magnets have begun to be used in motors for electric vehicles amid efforts to commercialize these as environment-friendly vehicles.

By using our original high-level separation and refining technologies and physical properties control technologies for rare earth products, we have attained rare earths with 99.9999% purity. These rare earths are used for a wide assortment of applications, including the luminescent center of lasers, phosphors for color television sets and fluorescent lamps, and oxygen sensors and catalytic converters for automobile engines. Looking ahead, we anticipate that the number of applications for these rare earths will grow even further.



Rare earth magnets have various applications in everyday life such as in headphone stereos and in optical pickups in CD and DVD players.



Shin-Etsu's rare earth magnets are used in wind turbine generators.



Rare earths are the general designation for 17 elements, including the 15-element Lanthanides series plus Yttrium and Scandium.

Liquid Fluoroelastomers SHIN-ETSU SIFEL®

SHIN-ETSU SIFEL®, Shin-Etsu's liquid fluoroelastomer, is a completely new type of fluoroelastomer, the first in the world to be made using a heat curable silicon rubber addition reaction technology. SIFEL has superior processibility and functional characteristics such as better resistance to oils, solvents, chemicals and heat. Moreover, unlike conventional fluororubbers, SIFEL has superior cold-resistance. With a variety of applications, these products are used in rubber molds and as sealants in vehicles and aircrafts. Recently, SHIN-ETSU SIFEL® has been used in electronic components to protect semiconductor devices from moisture and as a protective coating for high-frequency devices, thus, contributing to enhanced reliability of these components. Based on its attractive characteristics, we anticipate SHIN-ETSU SIFEL® will be used in an increasing number of application areas.



SIFEL is expected to find applications in fields such as transportation, where it will be subjected to severe conditions.