

## REVIEW OF OPERATIONS

Shin-Etsu's basic policy is to attain stable growth and perform in accordance with the expectations of our shareholders while meeting customers' needs. The Company's strategy for attaining stable growth in sales and profits is to concentrate its resources on both long-term and high-growth fields.

## ORGANIC AND INORGANIC CHEMICALS

### Long-Term Growth Businesses

**The Organic and Inorganic Chemicals segment consists of polyvinyl chloride (PVC), silicone, cellulose derivative, vinyl acetate monomer and polyvinyl alcohol (POVAL) businesses. In the fiscal year ended March 31, 2002, sales in this segment declined 3.0%, or ¥12.4 billion, from the previous fiscal year, to ¥398.0 billion. Operating income was up 3.8%, or ¥1.8 billion, to ¥48.8 billion. In general, PVC products are influenced by large changes in market conditions and income from these products is unstable. However, through its outstanding efforts, Shin-Etsu has established a PVC business that can withstand abrupt changes in the environment and generate steady income. Silicones and cellulose derivatives are also particularly important products in terms of propelling steady growth in this segment. The Company commands the top shares of the world market for PVC and cellulose derivatives used as coatings for pharmaceutical additives as well as boasting the top share of the Asian market for silicones.**

## ORGANIC AND INORGANIC CHEMICALS

### Polyvinyl Chloride (PVC)

In the United States, a principal market, we encountered an extremely harsh environment during the year under review, due to sluggish market prices and soaring costs of basic raw materials characterized by the record-high price increases for natural gas and ethylene at the beginning of the fiscal year. This situation was subsequently aggravated by the general downturn in the U.S. economy. Amid this environment, the Company utilized its three-tiered production structure in its PVC business, with production bases in the United States, Europe, and Japan, as it strove to secure stable profits while ameliorating any adverse effects of regional economic trends. During the fiscal year, our PVC business posted sales of ¥199.8 billion, an ¥8.3 billion decline from the previous fiscal year. However, operating income advanced ¥2.2 billion to ¥15.8 billion.

While accurately ascertaining trends in the PVC market Shintech Inc., in the United States, focuses not only on domestic sales in the U.S. market, but also on exports. Shintech operates a plant in Texas with an annual production capacity of 1.45 million tons, while its plant in Louisiana, where work was completed in November 2001 to expand annual capacity from 300,000 tons to 590,000 tons, continues to operate at full capacity.

In Europe, Shin-Etsu PVC B.V., in the Netherlands, our PVC base in Europe, is continuing to carry out full-scale production and sales, and was able to secure profits at the same level as recorded in the previous fiscal year.

PVC is an outstanding material with a range of advantages, such as its excellent physical properties and ease of processing as well as being economical and contributing to reduced resource consumption.

Shin-Etsu's global production facilities and bases boast outstanding competitiveness derived from having competitive raw materials, possessing leading-edge large-sized facilities, and having outstanding marketing capabilities. Through this network, the Shin-Etsu Group is expecting to record long-term growth in this field as it solidifies its position as one of the world's leading PVC manufacturers.



Used in steering wheels, dashboards, and other interior and exterior automotive trim, PVC offers functionality and advantages in durability and cost.



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



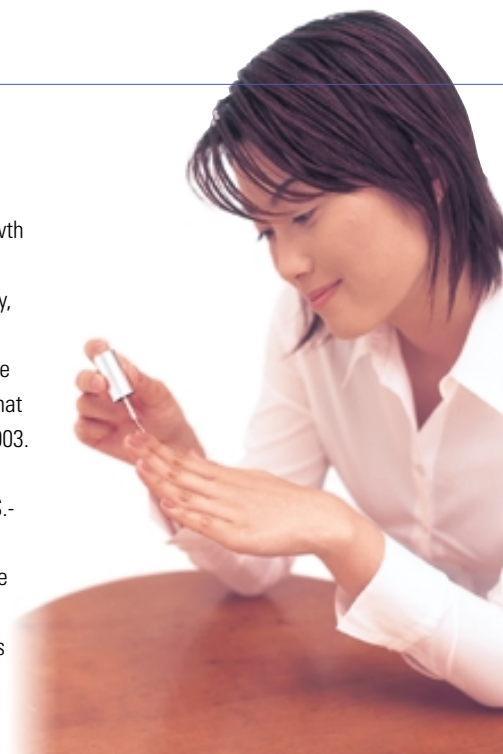
PVC is used in sash has superior heat-retention capabilities and durability against corrosion and climate.

# Silicones

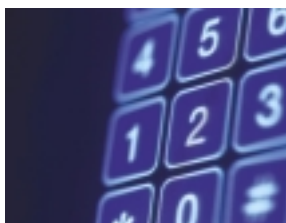
In the fiscal year under review, although we posted robust domestic sales of silicones for use in toiletries and cosmetics as well as for use in pharmaceutical manufacturing, total domestic sales declined, mirroring sluggish demand from the electrical and electronics industries. Shin-Etsu achieved favorable shipments to China, but shipments to other regions were sluggish. As a result, sales in the silicones segment shrank ¥15.3 billion to ¥119.9 billion, and operating income retreated ¥1.3 billion to ¥20.6 billion. The silicones manufactured by the Shin-Etsu Group add value to more than 4,000 products in the electrical, electronics, transportation equipment, machinery, chemicals, textiles, toiletries, cosmetics, and construction sectors. Shin-Etsu is continuing to develop new products in this field.

Shin-Etsu is accelerating its efforts to expand its overseas silicone operations. In the United States, the Company is constructing a new production plant for functional silane in Freeport, Texas, with completion scheduled during 2002. Functional silane is used in a wide range of fields, including adhesives, coatings, tires, rubber, and electronics components. Our efforts to expand applications and

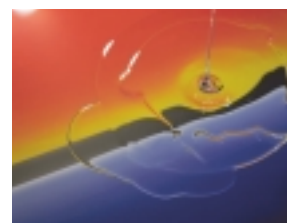
markets for silane are supporting its steady growth in demand. To focus more closely on the Asian region, where demand is expected to rise sharply, in February 2001 we established Shin-Etsu Silicones (Thailand) Limited in Thailand, and have commenced construction of a production plant that is scheduled for completion in the first half of 2003. Using the silicone monomer supplied by Asia Silicones Monomer Ltd., a joint venture with U.S.-based General Electric Company and Toshiba Corporation, Shin-Etsu Thailand will manufacture silicone oil products and silicone elastomer. By doing so, the Company will further strengthen its number-one market share for silicones in Asia.



Silicones are also widely used as a material for cosmetics.

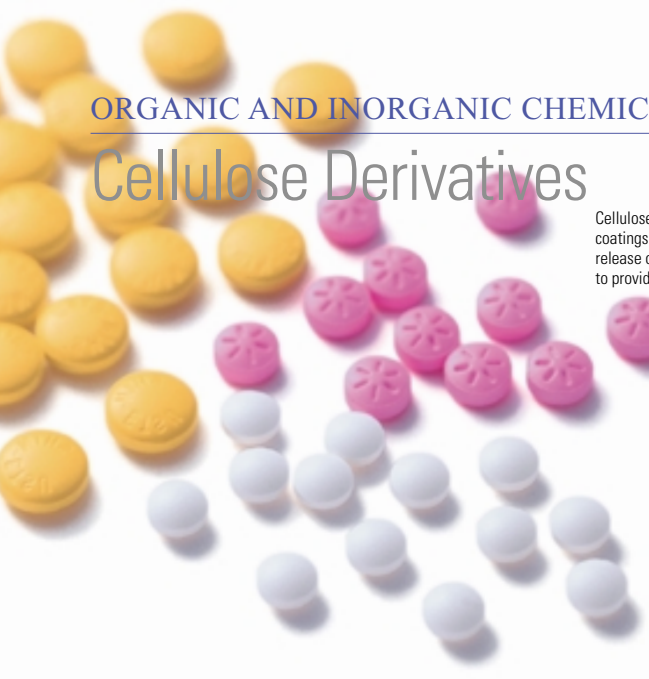


Thanks to excellent shock-resistant properties, silicones are used in PC keyboards.



Silicone has a basic structure of siloxane with alternating silicon (Si) and oxygen (O) atoms.

# Cellulose Derivatives



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.



The adding of small amount of cellulose derivatives to soap or shampoo produces longer-lasting, finer, creamier foam.

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. The Shin-Etsu Group began producing cellulose derivatives in 1962 and currently boasts the top market share in Japan. The Company also takes immense pride in its world-leading market share for cellulose used as coatings

for pharmaceuticals. Thanks to their properties, cellulose derivatives are used for coatings and binders for pharmaceutical tablets and granules, and demand for these derivatives has been robust. More recently, there has been accelerating demand for plant-property cellulose derivatives as a basic agent for capsules as a substitute for gelatin. In industrial-use products, we also recorded favorable

sales of cellulose derivatives in applications that reduce adverse effects on the environment, and we expect to achieve steady growth in sales in the future.



Cellulose derivatives have applications as additives in concrete mixtures so that concrete does not dissolve in water, thereby protecting water quality during construction.

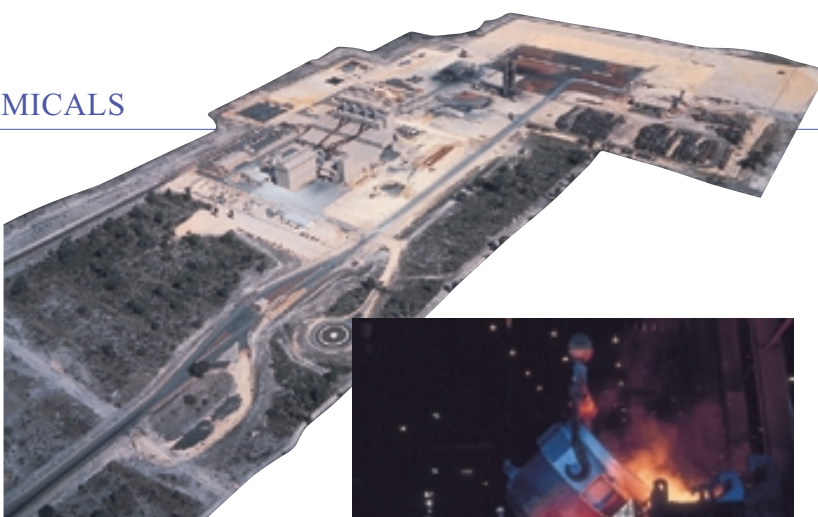
## ORGANIC AND INORGANIC CHEMICALS

### Other Products

The Shin-Etsu Group manufactures vinyl acetate monomer (VAM), which is used in adhesives, paints, and synthetic resins, and as a raw material for polyvinyl alcohol (POVAL). In May 2002, we announced that we would consolidate our VAM and POVAL businesses, that had been carried out jointly with UNITIKA LTD.

In addition, we also offer an abundant lineup of other products that include synthetic aroma chemicals that are used in a wide range of areas, such as perfumes and cosmetics as well as in food flavorings. The Company also offers such acetylene derivatives as synthetic pheromones, which have been developed as agents to control the populations of harmful insects that attack apples and other types of fruits and vegetables as well as cotton by disrupting the insects' mating cycle.

As another important business, Shin-Etsu also manufactures silicon metal, and Shin-Etsu has earned acclaim as a distinguished pioneer in the silicon chemistry industry. The Shin-Etsu Group's silicon-related products, such as silicones, semiconductor silicon, and synthetic quartz, are among Shin-Etsu's core businesses.



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



Silicon metal is a vital raw material for these products. Shin-Etsu is carrying out production of silicon metal at Simcoa Operations Pty. Ltd., a wholly owned silicon metal subsidiary in Western Australia. Through this subsidiary, the Company is securing stable, long-term supplies of high-quality silicon metal.



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



Aroma chemicals are widely used as scents in bath additives.

# ELECTRONICS MATERIALS

## High-growth products

**Products manufactured and sold in Shin-Etsu's electronics materials business segment include semiconductor silicon wafers, photoresists, epoxy molding compounds, and rare earth magnets for the electronics industry. During the fiscal year under review, this segment posted sales of ¥226.5 billion, down 12.5%, or ¥32.3 billion, from the previous fiscal year. Operating income declined 7.4%, or ¥2.7 billion, to ¥33.7 billion.**

## ELECTRONICS MATERIALS

# Semiconductor Silicon

Silicon wafers are used in IC devices and have applications in a wide range of fields, including electric machinery and electronic devices. The Company has manufacturing bases in Japan, Malaysia, Taiwan, the United States, and the United Kingdom, and these bases collectively account for an approximately 28% share of global sales, the top share of the world market. In the period under review, the volume of shipments of semiconductor silicon tumbled sharply, beginning in April 2001, reflecting weak demand for semiconductor devices in Japan and overseas. However, demand recovered from September and shipments increased. In addition, we recorded steady growth in the production and sales volumes of next-generation 300mm wafers, commercial mass production of which commenced in February 2001. Moreover, specialized wafers, including SOI wafers and annealed wafers, also made steady contributions to income. As a result, despite a ¥28.3 billion decline in overall sales of semiconductor silicon to ¥176.4 billion, we posted a ¥0.6 billion rise in operating income to ¥26.4 billion.

Shin-Etsu Handotai Co., Ltd. (S.E.H)'s Shirakawa plant in Japan has a monthly manufacturing capacity for 300mm wafers of 75,000 units per month, giving it more than half the share of the

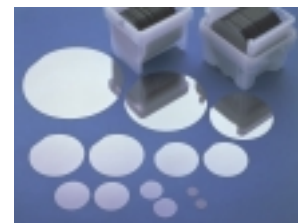


Semiconductor silicon plays an important role in PCs and other IT-related devices.

market. S.E.H. has been receiving numerous inquiries about its 300mm wafers and it is proceeding with expansion that will enable it to raise future production capacity for 300mm wafers to 100,000 units per month. To respond to an expected increase in future demand, the Shirakawa Plant is strengthening and expanding its production capabilities, with the aim of raising its production capacity to 300,000 wafers per month. The next-generation 300mm wafers, for which production has recently commenced, can be used to manufacture larger and higher-performance chips. Moreover, these 300mm wafers provide significant benefits for device makers in terms of cost reductions because they enable manufacturers to achieve a more than double increase in the production of chips compared with the existing 200mm wafer. By remaining at the forefront of the industry in this manner, we intend to further solidify our top shares of both domestic and overseas markets in the future.



Silicon ingots



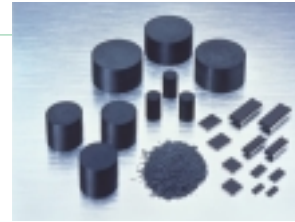
Silicon wafers boast a degree of evenness to within 0.1 micrometer.

## ELECTRONICS MATERIALS

# Epoxy Molding Compounds

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

As the world's first low-stress epoxy molding compound manufacturer, Shin-Etsu continues to develop innovative materials that meet industry demands for diverse mounting techniques, as well as thinner, denser devices. Shin-Etsu's technology enables its customers to manufacture smaller, more lightweight, and higher performance electronic equipment by deploying leading edge silicone epoxy hybrid materials.



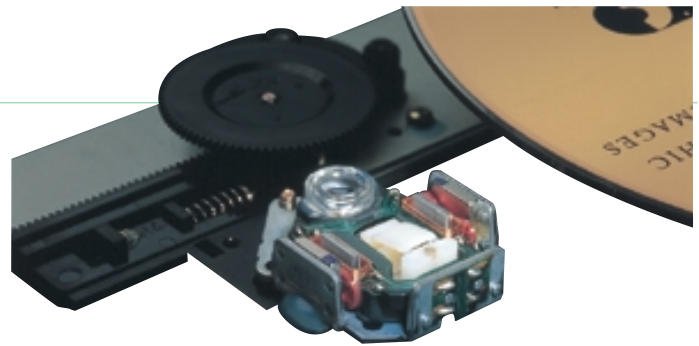
Epoxy-molding compounds prevent semiconductor circuit leaks, protect regular and large-scale circuits from humidity, and are outstanding in terms of heat- and shock-resistance.

## ELECTRONICS MATERIALS

# Rare Earth Magnets

Shin-Etsu has been able to extract high-purity rare earths by drawing on technologies for advanced separation and purification as well as physical property control. Today, Shin-Etsu is the only company in the world to carry out integrated production of high-quality rare earth magnets from raw material to finished product. The largest demand for rare earth magnets is for use in voice coil motors for hard disk drives (HDDs), and the Company boasts the world's top share of this market. During the fiscal year, our rare earth

magnet operations were influenced by production adjustments of HDDs for PCs. To the present, HDDs have been used mainly in PCs and servers. Recently, however, the commencement of sales of household equipment that incorporates HDDs is expected to support further demand for rare earth magnets.



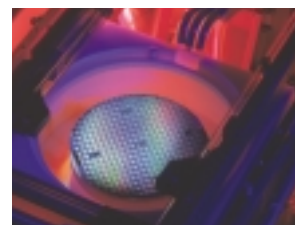
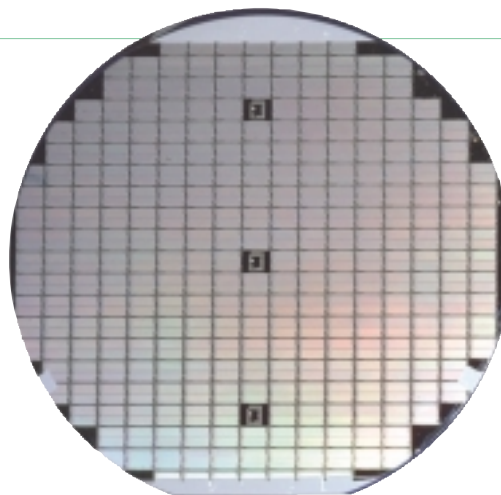
Voice coil motors for HDDs.

## ELECTRONICS MATERIALS

# Photoresists

Photoresists are indispensable liquids in semiconductor fabrication. These usually highly soluble high-polymer materials also have a property that inhibits or prevents dissolution in a solvent when they are coated on a wafer and exposed to light or radiation, since only the radiated part transforms. The Shin-Etsu Group was a late entrant into the photoresist market, entering in 1998 with a photoresist that was compatible with krypton fluoride (KrF) excimer lasers. Today, the Shin-Etsu Group has secured approximately one-third of the world market. During the fiscal year ended March 31, 2002, first-half sales of photoresists were sluggish, reflecting the effects of steep declines in

production by semiconductor device manufacturers, the principal users of photoresists.



A silicon wafer with imprinted circuitry.



Photoresist spin-coated onto a wafer

## FUNCTIONAL MATERIALS AND OTHERS

### Rapid-growth products

Recent years have witnessed breathtaking advances in the spread of fiber-optic networks and LCD technologies, which support the development of network computing. Our preforms for optical fibers are critical for network communications, while our photomask substrates are vital components of LCD manufacturing. Both of these products are integral to our growth strategy. Shin-Etsu also manufactures and sells a vast assortment of other products in this sector that include stepper lens ingots, lithium tantalate and other oxide single crystals, as well as rare earths and rare earth magnets for general industrial applications, and other products. During the fiscal year, sales of this segment rose 8.9%, or ¥12.3 billion, to ¥150.7 billion, and operating income increased 9.8%, or ¥2.9 billion, to ¥32.2 billion.

## FUNCTIONAL MATERIALS AND OTHERS

### Synthetic Quartz Products

During the first half of the fiscal year, market conditions for preforms for optical fibers firmed due to a global increase in demand for optical fibers. However, the market softened in the second half owing to a retreat in demand for optical fibers in the United States and other markets. Amid this environment, we constructed a new production plant for preforms for optical fibers in the Kashima Chemical Complex in Japan, thus doubling our supply capacity of optical fiber. We concentrated on sales of preforms for optical fibers in Japan and other Asian countries as well as Europe. We also recorded steady growth in sales of large photomask substrates for LCDs, which is another application of synthetic quartz. As a result, sales rose 37.6%, or ¥15.6 billion, from the previous fiscal year, to ¥57.1 billion, and operating income advanced 27.6%, or

¥5.0 billion, to ¥23.1 billion. Our synthetic quartz products—including preforms for optical fibers, photomask substrates, and stepper lens ingots—which are playing a key role in the further advance of the information technology (IT) age—are expected to make a large contribution to an improvement in the Company's profitability.



Photomask substrates allow high definitions of LCDs, which are becoming mainstream.



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

## FUNCTIONAL MATERIALS AND OTHERS

### SHIN-ETSU SIFEL Liquid Fluoroelastomer

The world's first mass-produced liquid fluoroelastomer, SHIN-ETSU SIFEL is particularly noted for its outstanding resistance to cold, oils, solvents, and chemicals. This product is finding an increased number of applications in various fields that include automobiles, aircraft, electronic components, semiconductor devices, chemical plants, and optics.



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

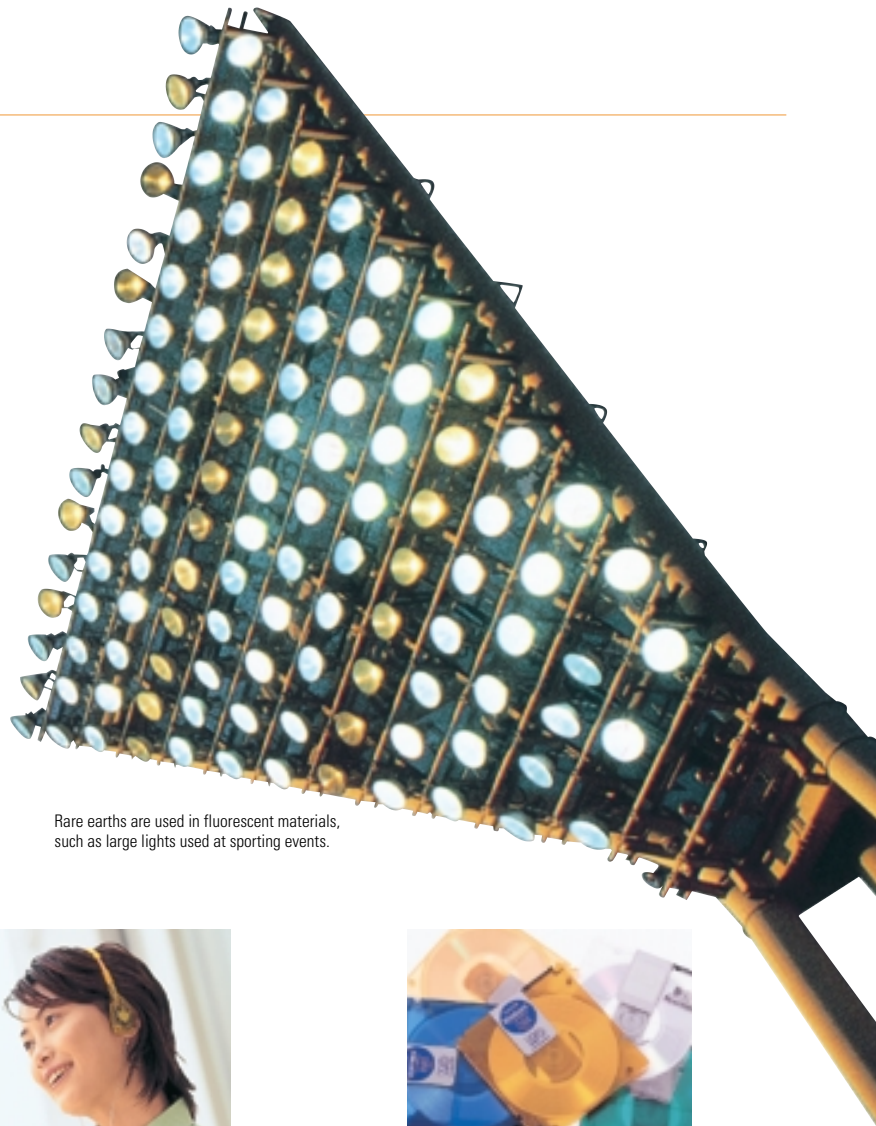


SIFEL is expected to contribute to improved products in numerous fields, including automobiles.

## FUNCTIONAL MATERIALS AND OTHERS

# Rare Earth Magnets for General Applications, and Rare Earths

Sales of rare earth magnets for general applications declined amid lackluster demand for optical pickups and mobile phones. Rare earth magnets are approximately 10 times more powerful than the ferrite magnets that have various applications in everyday life. These rare earth magnets are contributing to the realization of products that are more compact and lightweight, and have higher-output, a prime example being motors. Using their outstanding capabilities, rare earth magnets have begun to be used in motors for electric vehicles amid efforts to commercialize these as environment-friendly vehicles. During the fiscal year, sales of rare earth magnets were sluggish. By using our original refining process for rare earth products, we have attained rare earths with 99.9999% purity, which enables these rare earths to be 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 automobiles. Looking ahead, we anticipate that the number of applications for these rare earths will grow even further.



Rare earths are used in fluorescent materials, such as large lights used at sporting events.



Rare earth magnets are used in the earphone part of headphone stereos, enabling smaller and lighter headphones.



Rare earths also have applications as recording materials in MO, MD, and other magneto-optical disks.

## FUNCTIONAL MATERIALS AND OTHERS

# Other Businesses

Shin-Etsu Engineering Co., Ltd., a Shin-Etsu Group subsidiary, manufactures and sells mechatronics-related plant equipment and systems. Along with the rising volume of demand for liquid crystal

devices, Shin-Etsu Engineering is achieving rapid growth in deliveries of automatic assembly systems to liquid crystal device manufacturers in Japan, Taiwan, and South Korea. These mechatronics

systems are able to handle large, leading-edge glass substrates, thereby helping manufacturers lower the cost of LCD production.