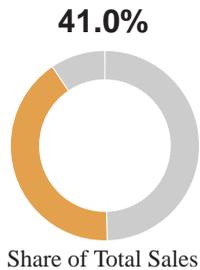


A Relentless Quest for Higher Quality and Productivity



Semiconductor

silicon is the core product of this segment. Almost one in every four silicon wafers made worldwide comes from a Shin-Etsu plant.

Shin-Etsu has tapped its expertise in electronics materials to establish solid position in markets for synthetic quartz, rare earth magnets and organic materials for the electronics industry. All are developing into major sources of earnings.

Rapid Growth in Products for Semiconductors as well as for Communications and Electrical and Automotive Components

In fiscal 1997, segment sales rose 19.2 percent to ¥255,840 million. Results cover 18 companies including the parent company, Shin-Etsu Handotai Co., Ltd., Shin-Etsu Handotai America, Inc., and S.E.H. Malaysia Sdn. Bhd. Semiconductor silicon represents a large share of sales and earnings in this business segment, and was responsible for much of the growth in overall sales. Demand for wafers is rising quickly as chip makers produce increasingly sophisticated products. All signs point to more growth in demand. This is good news for Shin-Etsu, the world's largest supplier of semiconductor silicon wafers.

Several other electronics materials have excellent growth prospects: representative products are synthetic quartz photomask substrate and organic materials such as epoxy molding compounds, both of which are essential to the manufacture of semiconductor chips. Synthetic quartz fiber-optic preform and oxide single crystal as used in the communications industry, as well as rare earths and rare earth magnets as used in electrical equipment and

Shin-Etsu is dramatically expanding production facilities for 8-inch silicon wafers in Japan and overseas. Trial shipments of 12-inch next-generation wafers have already begun.



automobiles are other highly promising product sectors. Increasing sales for these materials are testimony to Shin-Etsu's ability to utilize newly developed products to build outward from its core strength in semiconductor silicon.

The World's Number One Maker of Silicon Wafers

Shin-Etsu Handotai (SEH) and its group companies rank first among the world's makers of silicon for the semiconductor industry. Members of the SEH Group produce silicon wafers in Japan, the U.S., the U.K., and Malaysia. This ensures a reliable supply for customers around the world. Large-scale investments now under way are expanding output capacity for 8-inch wafers, the current industry standard. This will further reinforce SEH's leading position. At the same time, SEH is working on wafers of even larger diameter. The company's researchers have made a prototype 12-inch (300mm) wafer suitable for mass production, and started shipping samples.

Increasing Silicon Wafer Output Worldwide

Firmly committed to meeting demand from local production bases, SEH and the overseas SEH companies are conducting large-scale expansion programs. In 1996, Shin-Etsu Handotai America, Inc. embarked on a US\$710 million expansion program. As of the spring of 1997, a CZ single crystal production facility had been completed and ingot production started. In the U.K., Shin-Etsu Handotai Europe, Ltd. completed a new 8-inch wafer plant in July 1997 to meet rising demand from customers in EU nations. In Malaysia, S.E.H. Malaysia Sdn. Bhd. and S.E.H. (Shah Alam) Sdn. Bhd. are already operating at full capacity to fulfill demand for 8-inch wafers. Meanwhile, Shin-Etsu Handotai Taiwan Co., Ltd., established in 1995, has completed its new plant in the Hsin-Chu Science-Based Industrial Park. The plant commenced operations from July of this year and will produce only 8-inch wafers initially, with other products to be added in



Shin-Etsu Handotai America, Inc. is investing US\$710 million to expand and upgrade its facilities. CZ single crystal production for 8-inch wafers has already begun.

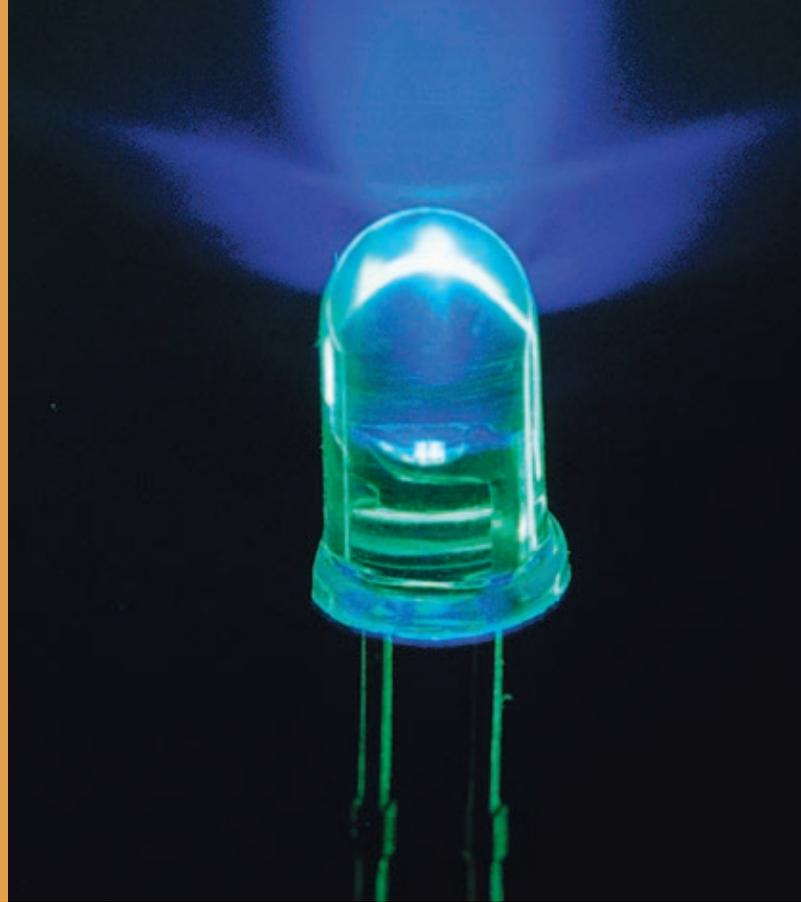


In July 1997, Shin-Etsu Handotai Europe, Ltd. started producing 8-inch wafers at a newly completed plant in Scotland, further solidifying its standing in the growing European wafer market.

The latest addition to the global SEH family, Shin-Etsu Handotai Taiwan, Co., Ltd. initiated production of 8-inch silicon wafers in July 1997 at a prestigious high-tech industrial park.



The commercialization of blue LEDs enables the production of bright, full-color LED displays.



stages. In close cooperation with the Malaysian production bases, Shin-Etsu Handotai Taiwan will expand sales still further in the rapidly growing Taiwanese and Southeast Asian markets. In Japan, SEH increased its output capacity for such value-added products as 8-inch epitaxial wafers and SOI (silicon-on-insulator) wafers.

Alliances Speed Development of Next-Generation Products

At SEH research is progressing on technology that will replace present-day 8-inch wafers. Investments in this area are critical to preserving Shin-Etsu's position at the forefront of the silicon wafer market for years to come. Originally only four inches, wafer diameter grew to five, six and then eight inches, the current standard. Today, the industry stands on the verge of the 12-inch (300mm) era. SEH assumed this challenge early on. The company has already succeeded in making a prototype suitable for mass production and started shipments of samples.

SOI wafers are a highly promising technology. SEH is raising capacity to meet demand for these high-performance products. SOI wafers are made by oxidizing the surface of a silicon wafer, and then adding an extremely thin film of pure silicon. This structure yields outstanding electrical insulation properties. Such wafers

are ideal for semiconductor devices in circuits where power consumption must be minimized, as in portable phones. High-speed microprocessors are another SOI application with immense potential. In April 1997, Shin-Etsu formed an alliance with SOITEC Co. of France, which has developed proprietary knowledge in this field. This alliance places Shin-Etsu in an even more powerful position within this attractive market.

In April 1990, SEH made an equity investment in Cree Research, Inc. of the U.S. in the field of compound semiconductors. This led to the commencement of sales in Japan of SiC wafers and blue LED chips made from those wafers. With the recent commercialization of super-bright blue LEDs, it is now possible to produce white light by combining red, green and blue LEDs. This breakthrough may well open the way to an entirely new type of full-color display. Based on a September 1996 technology transfer contract with Cree Research, SEH will soon commence production and sales of its own blue LED chips in Japan.

New Sources of Earnings From Silicon Chemistry Technologies

Within the company's Electronics Materials Business Segment, semiconductor silicon is augmented by other highly versatile products which are essential to a broad range of industrial applications. These products are also

generating impressive sales levels, contributing to overall earnings for the company. Shin-Etsu utilized its particular technologies in silicon chemistry to build up its silicones and semiconductor silicon businesses. These same technologies led to the development of a new, highly competitive product, namely synthetic quartz.

For more than 15 years, Shin-Etsu has been a high-ranking maker of synthetic quartz photomask substrates for ICs. Now this strength has been augmented by the successful addition of photomask substrates for LSIs and for LCD glass substrates. With high permeability to ultraviolet light and dimensional stability when heated, synthetic quartz is ideally suited for use as IC and LSI photomask substrates. With regard to substrates for LCDs, there has been rising demand for large-size photomasks due to growth in the size of LCD screens. Shin-Etsu has already succeeded in making substrates up to 800 x 900 mm in size to meet this demand. As fiber-optic preform, synthetic quartz is indispensable to the ongoing expansion of high-density, high-speed data transmission networks. Shin-Etsu is capable of producing this preform with consistently high quality, and is the world's only manufacturer selling this material to other

companies. Future investments will further bolster capacity to meet rapidly rising demand and enhance Shin-Etsu's stature in the field of optical networks.

Innovative Products Using Pioneering Technology

Rare earths are another successful material utilizing Shin-Etsu's proprietary technology. With many unique properties, rare earths can be used for applications ranging from optical materials to fine ceramics, electric motors and even as a catalyst. However, their most important application from Shin-Etsu's point of view is in rare earth magnets, which are used in voice coil motors to move heads in computer hard-disk drives. Shin-Etsu has a significant share of this market. However, these powerful magnets also have many other uses, including for energy-efficient home appliances, especially air conditioners and refrigerators. In automobiles, these magnets are found in sensors, and are expected to be used in the drive motors of electric cars.



Shin-Etsu is constantly building outward from expertise in electronics materials. One example is synthetic quartz, primarily for use as photomask substrates and preforms for fiber optics.



One of the world's largest makers of rare earth magnets, Shin-Etsu is taking the lead in exploring ways to create variations that open up entirely new applications.

Shin-Etsu has a fully integrated system for making these magnets, a unique capability among the world's rare earth magnet makers. This is because most competitors outsource production of magnetic alloys. Shin-Etsu, however, performs all steps in this difficult process: separation of rare earth elements from ore; refining of elements to create a metallic substance; and mixing to create the desired alloy, which is then crushed into a fine powder. Shin-Etsu is also distinguished by its diverse line-up, including cerium, samarium and neodymium, and a global supply system. These resources make it possible to capitalize on a broad range of opportunities.

New Rare Earth Magnet Plant in Indonesia

At its Takefu Plant in Fukui prefecture Shin-Etsu has established a comprehensive production facility covering the entire process from the refining of rare earth to completion of rare earth magnets. Outside Japan, Shin-Etsu has been making these magnets since 1989 at Shin-Etsu (Malaysia) Sdn. Bhd. in the Malaysian state of Selangor. Output capacity at this plant was raised several times to meet rising demand. The Malaysian plant coats and processes magnets, and is also capable of assembling voice-coil motors. In May 1996, capacity for voice-coil motor assembly rose again with the completion of a new Indonesian plant owned by P.T. Shin-Etsu Magnetics Indonesia. The market for these motors that are used in computer hard-disk drives continues to sustain an annual growth rate of 20 to 30 percent. Determined to remain the world's top manufacturer in this field, Shin-Etsu established a further assembly facility in the Philippines in July 1997.

The May 1996 completion of a plant owned by P.T. Shin-Etsu Magnetics Indonesia boosted output of voice-coil motors.

