

# Management's Discussion and Analysis of Operations

Shin-Etsu Chemical Co., Ltd. and Subsidiaries  
For the years ended 31st March

	31st March,						31st March,
	1992	1993	1994	1995	1996	1997	1997
							(thousands of U.S. dollars)
							(millions of yen)
<b>For the Year:</b>							
Net sales	¥478,351	¥460,929	¥464,449	¥522,917	¥575,176	¥624,405	\$5,035,524
Operating income	49,795	34,815	32,450	51,914	73,427	82,024	661,484
Net income	24,581	15,989	17,547	26,862	37,825	40,614	327,532
Capital expenditures	69,875	41,292	34,421	67,689	66,791	92,844	748,742
Depreciation and amortisation	36,912	37,675	40,351	42,986	45,647	52,191	420,895
Net income per share							
(in yen, dollars)	75.96	49.37	54.17	82.80	116.51	118.24	0.954
Cash dividends per share							
(in yen, dollars)	7.50	7.50	7.50	7.50	7.50	7.50	0.060
<b>At year-end:</b>							
Total assets	¥614,490	¥602,483	¥600,754	¥643,937	¥708,637	¥931,159	\$7,509,347
Working capital	54,869	78,907	94,362	110,901	118,936	195,729	1,578,460
Stockholders' equity	243,730	257,058	265,030	285,361	320,987	374,726	3,021,984
Short-term and long-term debt	198,926	186,800	173,304	172,280	171,865	271,860	2,192,419

Note: The U.S. dollar amounts represent conversions of Japanese yen, for convenience only, at the rate of ¥124=\$1.

The operations of Shin-Etsu Chemical Co., Ltd. (the "Company") and its subsidiaries (the "Companies") are composed of three business segments: Chemicals, where main products are polyvinyl chloride (PVC), silicones, vinyl acetate monomer, methanol and cellulose derivatives; Electronics Materials, where main products are semiconductor silicon, synthetic quartz, organic materials for the electronics industry, rare earths and rare earth magnets; and Other, where the main businesses are export of technology and plants, export and import of merchandise, construction and plant engineering, and information processing services.

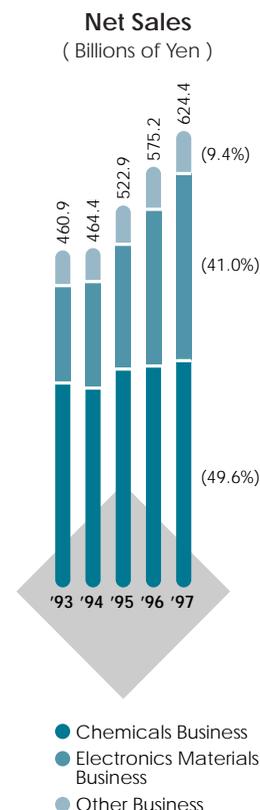
Consolidated data include the results of the Company and 54 subsidiaries in Japan and overseas. Of the remaining 42 subsidiaries and 21 affiliated companies, the equity method of accounting is applied to 2 subsidiaries and 4 affiliated companies.

## Operating Environment

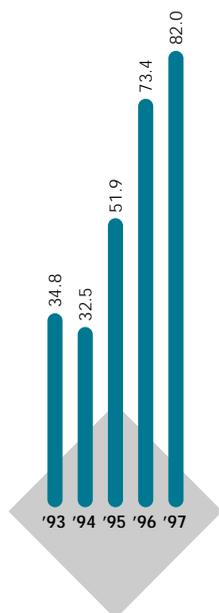
In the fiscal year that ended in March 1997, strength in housing construction and capital expenditures raised hopes of a recovery in the Japanese economy. While economic expansion did take place, the pace of the upturn was tempered by weakness in consumer spending. In the face of intense competition, restructuring in the Japanese chemical industry continued as companies formed alliances and consolidated or scrapped production facilities. In this challenging environment, the Companies took steps to strengthen their competitive position by utilizing resources more productively and implementing a more streamlined organization.

## Net Sales and Segment Information

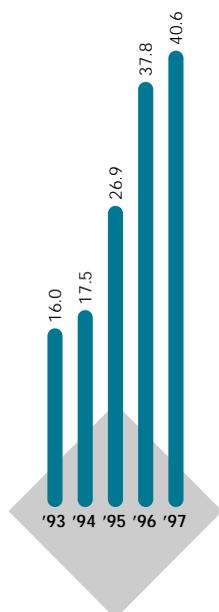
Fiscal 1997 consolidated net sales rose 8.6 percent to ¥624,405 million (US\$5,036 million) and operating income climbed 11.7 percent to ¥82,024 million (US\$661 million). Operating income



**Operating Income**  
(Billions of Yen)



**Net Income**  
(Billions of Yen)



increased from 12.8 percent to 13.1 percent of net sales. The higher operating margin was mainly attributable to the increase in sales and the benefits of efforts to hold down the cost of raw materials and other manufacturing expenses. Results by segment are as follows.

**Chemicals**—The Chemicals segment includes results of the Company and 34 subsidiaries, including Shintech, Inc., and Shin-Etsu Polymer Co., Ltd. In fiscal 1997, segment sales increased 2.2 percent to ¥310,030 million (US\$2,500 million), which is 49.6 percent of total sales. Silicone sales in Japan were substantially higher due to a rise in demand from makers of construction materials and automobiles. Additionally, the strength of Japan's homebuilding sector supported growth in sales of cellulose derivatives used to make housing materials. Operating income decreased 15.8 percent to ¥28,445 million (US\$229 million). This was mainly the result of weakness in domestic and overseas PVC markets during the second half of the fiscal year.

**Electronics Materials**—This segment includes results of the Company and 17 subsidiaries, including Shin-Etsu Handotai Co., Ltd., Shin-Etsu Handotai America, Inc., and S.E.H. Malaysia Sdn. Bhd. Segment sales were up 19.2 percent to ¥255,840 million (US\$2,063 million), representing 41.0 percent of total sales. Despite weakening conditions in the semiconductor market, semiconductor silicon sales increased due to growth in shipments of wafers for advanced devices. Additionally, the Companies posted substantial growth in sales of synthetic quartz, organic materials for the electronics industry and rare earth magnets, all strategic product sectors positioned to become significant sources of segment sales in the future. Higher demand from the communications, electric machinery and automobile industries was behind this growth. Operating income climbed 31.8 percent to ¥51,493 million (US\$415 million).

**Other**—This segment includes the results of the Company and 13 subsidiaries, including Shin-Etsu Astech Co., Ltd., and Shin-Etsu Engineering Co., Ltd. Fiscal 1997 segment sales increased 2.2 percent to ¥58,535 million (US\$472 million), accounting for 9.4 percent of total sales. The export and import of merchandise and construction and plant engineering were the primary sources of growth. Operating income was up by 141.7 percent to ¥2,062 million (US\$17 million).

Segment information on assets, depreciation, and capital expenditures and other figures is provided in Note 16 on page 37.

**Other Income (Expense) and Net Income**

Interest and dividend income increased 56.7 percent to ¥7,296 million (US\$59 million). This was mostly due to a temporary increase in interest income generated by proceeds from the 1996 issues of convertible debentures and notes with warrants. These funds were raised for the purpose of conducting future capital expenditures at the Companies. **Interest expense** increased 42.8 percent to ¥7,669 million (US\$62 million), mainly a reflection of interest payments on the newly issued convertible bonds and notes with warrants. After inclusion of a foreign exchange gain of ¥3,463 million (US\$28 million) and other items, **other income/(expenses)** resulted in a net expense of ¥326 million (US\$3 million).

The increase in operating income and the decline in net other expenses resulted in a 13.6 percent rise in **income before income taxes** to ¥81,698 million (US\$659 million). Income taxes rose 20.8 percent to ¥41,761 million (US\$337 million). **Equity in earnings of affiliates** increased 16.3 percent to ¥1,502 million (US\$12 million), and **minority interests in earnings of consolidated subsidiaries** increased to ¥1,032 million (US\$8 million). **Amortisation of difference between cost of investment and equity in net assets of consolidated subsidiaries** was ¥207 million (US\$2 million). Consolidated **net income** was up 7.4 percent to ¥40,614 million (US\$328 million), resulting in primary net income per share of ¥118.24 (US\$0.95).

### Overseas Operations

Overseas sales, which are derived from foreign subsidiaries, rose 23.7 percent to ¥220,296 million (US\$1,777 million), which is 35.3 percent of total sales compared with 31.0 percent in fiscal 1996. Higher demand for PVC in the United States and electronics materials in Asia were the most important contributors.

### Financial Position

As of 31st March, 1997, current assets were ¥518,690 million (US\$4,183 million), 37.3 percent more than at the previous fiscal year-end. This increase was mainly due to growth in cash and time deposits, which rose 70.1 percent to ¥234,152 million (US\$1,888 million). This temporary rise in cash is mostly attributable to proceeds from the 1996 issues of convertible debentures and notes with warrants. These proceeds were also responsible for the more than fourfold rise in marketable securities to ¥36,839 million (US\$297 million). Reflecting the growth in sales during the fiscal year, inventories increased 17.7 percent to ¥73,934 million (US\$596 million). Property, plant and equipment rose 28.6 percent to ¥319,955 million (US\$2,580 million) as the Companies continued to make substantial capital expenditures. Total assets increased 31.4 percent to ¥931,159 million (US\$7,509 million).

Current liabilities rose 24.8 percent to ¥322,961 million (US\$2,605 million). Notes and accounts payable, short-term loans and accrued expenses all increased. Additionally, there was a large increase in the current portion of long-term debt due to the inclusion of convertible debentures due on 31st March, 1998. Long-term debt was up by 73.9 percent to ¥168,192 million (US\$1,356 million). During fiscal 1997, the Company issued ¥50 billion of convertible debentures in Japan and US\$500 million of notes with warrants overseas. Stockholders' equity increased 16.7 percent to ¥374,726 million (US\$3,022 million) due to the conversion of convertible debentures and higher retained earnings. As of 31st March, 1997, the stockholders' equity ratio was 40.2 percent.

At the stockholders meeting held in June 1997, approval was given for the acquisition of treasury stock for the purpose of granting stock options. The amendment to the Articles of Incorporation provides for the acquisition of no more than 722 thousand shares of the Company's par-value common stock at a cost that shall not exceed ¥2,500 million (US\$20 million).

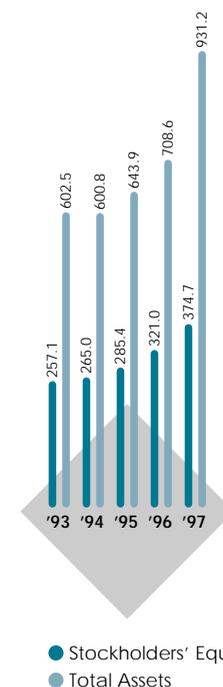
### Capital Expenditures

Fiscal 1997 capital expenditures amounted to ¥92,844 million (US\$749 million). A significant share of these expenditures were for the expansion and upgrading of production facilities for semiconductor silicon and other electronics materials. During the five-year period ending in March 2002, the Company, subsidiaries and affiliated companies plan to make capital expenditures of approximately ¥450 billion (US\$3,629 million), primarily to expand and streamline production activities and to install environmental systems.

### Cash Flows

Cash and cash equivalents at the end of fiscal 1997 amounted to ¥270,991 million (US\$2,185 million), 86.2 percent more than at the end of fiscal 1996. Net cash provided by operating activities was ¥124,676 million (US\$1,005 million) as both net income and depreciation and amortisation rose. Net cash used for investing activities was ¥117,993 million (US\$952 million), mainly due to a high level of capital expenditures. Net cash provided by financing activities was ¥125,634 million (US\$1,013 million) due to the proceeds from the issue of convertible debentures and notes with warrants.

Stockholders' Equity/  
Total Assets  
(Billions of Yen)



Capital Expenditures/  
Net Cash Flows  
(Billions of Yen)

