

instruments to measure electricity. Scientific instruments include aircraft flight instruments, laboratory apparatus and laboratory and optical instruments. Measuring and controlling instruments consist of environmental controls (e.g., heating, ventilating), process controls (e.g., food processing, pharmaceuticals) and other measurement and control equipment (e.g., gas motors, nuclear radiation detection devices). Instruments to measure electricity include electrical test equipment, manufacturing-defect analyzers and digital oscilloscopes.

Total U.S. imports of scientific and industrial instruments reached \$3.7 billion (U.S.) in 1987. Scientific instruments accounted for 44.1%, measuring and controlling instruments for 23.9% and instruments to measure electricity for 32%. Major suppliers, particularly West Germany and Japan experienced a small decline in exports to the United States in 1987. The USDOC has attributed the decline to the relatively higher value of the West German and Japanese currencies. Increased U.S. exports contributed to further improvement on the trade balance.

Total shipments in the United States reached \$28 billion (U.S.) in 1987. Scientific instruments accounted for 37.4%, measuring and controlling instruments for 35.6% and instruments to measure electricity for 27%. The USDOC expects these subsectors to grow at average annual rates of 5% for scientific instruments, 2% for measuring and controlling instruments and 5% for instruments to measure electricity for the period up to 1992.

The performance of the industry is heavily dependent on capital and R&D expenditures. As U.S. companies expand production capacity and modernize existing facilities to improve international competitiveness, demand for industrial instruments rises in order to reduce production costs and improve quality. Similarly, as research budgets expand, demand will rise for scientific instruments required for new projects. The USDOC indicates that the forecast growth of the electronics industry and the steady expansion of the pharmaceutical and drug industry will further increase expansion of instruments sales.

Scientific and industrial instruments sales, in both U.S. and world markets, should benefit from economic growth, increased expenditures on new or modernized plants and equipment and the steady infusion of R&D funding.

This chapter has provided a definition of the products included within the scope of this report, the criteria used for their selection and a summary of U.S. imports of those products for 1982-87.