INDIUM

(Data in metric tons, unless noted)

Domestic Production and Use: No indium was recovered from ores in the United States in 1995. Domestic indium production was derived from the upgrading of lower-grade imported indium metal. Two companies, one each in New York and Rhode Island, were the major producers of indium metal and indium products in 1995. Several firms produced high-purity indium shapes, alloys, and compounds. Thin film coatings, which are used in applications such as liquid crystal displays and electroluminescent lamps, continued to be the largest end use. Indium semiconductor compounds were used in infrared detectors, high-speed transistors, and high-efficiency photovoltaic devices. Estimated uses in 1995 were about the same as in 1994: coatings, 45%; solders and alloys, 35%; electrical components and semiconductors, 15%; and research and other, 5%. The estimated value of primary metal consumed in 1995, based on the average price, was $16.1 million.

Salient Statistics—United States:	1991	1992	1993	1994	1995[e]
Production, refinery	NA	NA	NA	NA	—
Imports for consumption	36.3	36.3	73.4	70.2	73.0
Exports	NA	NA	NA	NA	NA
Consumption[e]	30.0	30.0	35.0	40.0	43.0
Price, average annual, dollars per kilogram (99.97% indium)	230	218	200	138	375
Stocks, producer, yearend	NA	NA	NA	NA	NA
Employment	NA	NA	NA	NA	NA
Net import reliance[1] as a percent of apparent consumption	NA	NA	NA	NA	NA

Recycling: Small quantities of old scrap were recycled. Substantial amounts of new scrap were recovered from the fabrication of indium products.

Import Sources (1991-94): Canada, 51%; France, 14%; Italy, 12%; Belgium, 7%; Russia, 7%; and other, 9%. Imports from Russia increased dramatically in 1994.

Tariff: Item	Number	Most favored nation (MFN) 12/31/95	Non-MFN[2] 12/31/95
Unwrought, waste and scrap	8112.91.3000	Free	25% ad. val.

Depletion Allowance: 14% (Domestic), 14% (Foreign).

Government Stockpile:

Stockpile Status—9-30-95

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposals Jan.-Sept. 95
Indium	1.56	—	—	—

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INDIUM

Events, Trends, and Issues: Estimated domestic indium consumption increased to 43 tons. Concern over increased world demand resulted in price increases beginning in January and continuing through most of 1995.
World production increased slightly in 1995, as the world market remained close to a balance of supply and demand. Producers were barely able to keep pace with growing world demand, especially in Japan, which consumes more than 80 tons per year, almost all for electronic applications. Canada remained the world's largest producer of indium, with output from the major producer being marketed through a U.S. company.

World Refinery Production, Reserves, and Reserve Base:

	Refinery production[e]		Reserves[3]	Reserve base[3]
	1994	1995		
United States	NA	—	300	600
Belgium	18	18	([4])	([4])
Canada	40	40	700	2,000
China	10	10	400	1,000
France	25	25	([4])	([4])
Italy	12	12	([4])	([4])
Japan	30	33	100	150
Peru	1	4	100	150
Russia	5	5	200	300
Other countries	4	4	800	1,500
World total (may be rounded)	145	150	2,600	5,700

World Resources: Indium occurs predominantly in solid solution in sphalerite, a sulfide ore of zinc. Significant quantities of indium also are contained in ores of copper, lead, and tin, but many deposits are either subeconomic or information does not exist to formulate reliable estimates. Indium is recovered almost exclusively as a byproduct of zinc. Estimates of the average indium content of the Earth's crust range from 50 to 200 parts per billion. The average indium content of zinc deposits ranges from less than 1 to 100 parts per million. The highest known concentrations of indium occur in vein or replacement sulfide deposits, usually associated with tin-bearing minerals. However, these types of deposits are often difficult to process economically.

Substitutes: Gallium arsenide can substitute for indium phosphide in solar cells and semiconductor applications. Silver-zinc oxide or tin oxide are lower-cost substitutes for indium-tin oxide in transparent conductive coatings for glass. Hafnium can replace indium alloys for use in nuclear reactor control rods.

[e]Estimated. NA Not available.

[1]Defined as imports - exports + adjustments for Government and industry stock changes.

[2]See Appendix B.

[3]Estimate based on the indium content of zinc ores. See Appendix C for definitions.

[4]Reserves for European countries are included in “Other countries.”