

ANTIMONY

(Data in metric tons of antimony content, unless otherwise noted)

Domestic Production and Use: One silver mine in Idaho produced antimony as a byproduct, and an additional very small amount was recovered as a byproduct of the smelting of lead and silver-copper ores. Virtually all primary antimony metal and oxide produced domestically was derived from imports. Primary antimony metal and oxide was produced by five companies at processing plants that used both foreign and domestic feed material. Two plants were in Texas, and single plants were in Idaho, Montana, and New Jersey. The estimated value of primary antimony metal and oxide produced in 1998 was \$50 million. Secondary antimony was recovered, mostly in alloy form, at lead smelters; its value, based on the price of antimony metal, was about \$11 million. The estimated distribution of antimony uses was flame retardants, 55%; transportation, including batteries, 18%; chemicals, 10%; ceramics and glass, 7%; and other, 10%.

Salient Statistics—United States:		1994	1995	1996	1997	1998^e
Production:	Mine (recoverable antimony) ¹	215	262	242	356	500
	Smelter: Primary	25,500	23,500	25,600	26,700	23,000
	Secondary ²	12,200	10,500	7,780	7,550	7,000
Imports for consumption		41,500	36,600	37,600	39,300	41,000
Exports of metal, alloys, ³ oxide, and waste and scrap ³		7,850	8,200	4,450	3,900	4,500
Shipments from Government stockpile		1,850	1,130	4,300	2,930	3,000
Consumption, apparent ⁴		46,100	43,300	45,000	46,600	45,600
Price, metal, average, cents per pound ⁵		178	228	147	98	70
Stocks, yearend		10,900	10,600	11,000	10,600	12,000
Employment, plant, number ^e		100	100	100	100	80
Net import reliance ⁶ as a percent of apparent consumption		73	75	82	83	84

Recycling: Traditionally, the bulk of secondary antimony has been recovered as antimonial lead, most of which was generated and then also consumed by the battery industry. However, changing trends in this industry in recent years have caused lesser amounts of secondary antimony to be produced.

Import Sources (1994-97): Metal: China, 79%; Mexico, 7%; Hong Kong, 5%; Kyrgyzstan, 5%; and other, 4%. Ore and concentrate: Bolivia, 43%; China, 23%; Kyrgyzstan, 10%; Canada, 9%; and other, 15%. Oxide: China, 41%; Mexico, 17%; South Africa, 14%; Bolivia, 13%; and other, 15%. Total: China, 56%; Mexico, 11%; Bolivia, 10%; South Africa, 7%; and other, 16%.

Tariff: Item	Number	Normal Trade Relations (NTR) 12/31/98	Non-NTR⁷ 12/31/98
Ore and concentrates	2617.10.0000	Free	Free.
Antimony and articles thereof, including waste and scrap	8110.00.0000	Free	4.4¢/kg.
Antimony oxide	2825.80.0000	Free	4.4¢/kg.

Depletion Allowance: 22% (Domestic), 14% (Foreign).

Government Stockpile:

Material	Stockpile Status—9-30-98⁸				
	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 1998	Disposals FY 1998
Antimony	16,600	3,280	16,600	4,540	4,560

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Events, Trends, and Issues: In 1998, antimony production from domestic source materials was derived mainly from the recycling of lead-acid batteries. Recycling plus the small U.S. mine output supplied less than one-fifth of the estimated domestic demand.

The antimony metal price experienced a slight decline during 1998. The price started the year at \$0.80 per pound; by spring it had declined to \$0.73 per pound, and by fall it had slipped to \$0.70 per pound. Industry observers attributed the price erosion, now in its fourth year, to continuing large supplies on the market from China.

Government stockpile sales of antimony continued for the sixth year, after being resumed in 1993 for the first time since 1988. Public Law 103-160 provided the authorization for the sales. During the year, the Defense Logistics Agency (DLA) held sales for antimony on the fourth Tuesday of the month, with the format still being the negotiated bid process. The DLA announced that its Annual Materials Plan for fiscal year 1998 permitted the disposal of up to 5,000 tons of antimony, the same amount allotted in 1997. Antimony was stockpiled in 12 DLA depots, with the largest inventories stored in New Haven, IN, and Somerville, NJ.

Environmental and ecological problems associated with the treatment of antimony raw materials were minimal, because all domestic processors of raw materials now avoid sulfide-containing materials.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves ⁹	Reserve base ⁹
	<u>1997</u>	<u>1998^e</u>		
United States	356	500	80,000	90,000
Bolivia	8,700	9,000	310,000	320,000
China	120,000	110,000	900,000	1,900,000
Kyrgyzstan	1,200	1,200	120,000	150,000
Russia	6,000	6,000	350,000	370,000
South Africa	5,000	5,000	240,000	250,000
Tajikistan	1,200	1,200	50,000	60,000
Other countries	<u>7,000</u>	<u>7,000</u>	<u>25,000</u>	<u>75,000</u>
World total (may be rounded)	149,000	140,000	2,100,000	3,200,000

World Resources: U.S. resources are mainly in Alaska, Idaho, Montana, and Nevada. Principal identified world resources are in Bolivia, China, Mexico, Russia, and South Africa. Additional antimony resources may occur in "Mississippi Valley Type" lead deposits in the Eastern United States.

Substitutes: Compounds of chromium, tin, titanium, zinc, and zirconium substitute for antimony chemicals in paint, pigments, frits, and enamels. Combinations of cadmium, calcium, copper, selenium, strontium, sulfur and tin can be used as substitutes for hardening lead. Selected organic compounds and hydrated aluminum oxide are widely accepted substitutes as flame-retardants.

^eEstimated.

¹Data for 1994-97 from 10-K reports. Estimate for 1998 based on 10-Q reports for the first two quarters.

²After an intensive review in 1997, secondary antimony figures were revised downward to reflect a changing industry pattern.

³Gross weight.

⁴Domestic mine production + secondary production from old scrap + net import reliance (see footnote 6).

⁵New York dealer price for 99.5% to 99.6% metal, c.i.f. U.S. ports.

⁶Defined as imports - exports + adjustments for Government and industry stock changes.

⁷See Appendix B.

⁸See Appendix C for definitions.

⁹See Appendix D for definitions.