

## ANTIMONY

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

**Domestic Production and Use:** Primary antimony metal and oxide were produced by six companies operating six processing plants utilizing both foreign and domestic feed material. Two plants were in Texas, and one each was in Idaho, Montana, Nebraska, and New Jersey. A very small amount of antimony was recovered as a byproduct from the smelting of lead and silver-copper ores. Virtually all antimony metal and oxide produced domestically were derived from imports. The estimated value of primary antimony metal and oxide produced in 1995 was \$160 million. The estimated distribution of antimony uses was flame retardants, 58%; transportation, including batteries, 21%; chemicals, 8%; ceramics and glass, 7%; and other, 6%.

<b>Salient Statistics—United States:</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995<sup>e</sup></b>
Production: Mine	W	W	W	W	W
Smelter: Primary	16,400	20,100	22,600	25,500	23,000
Secondary	19,300	19,900	20,700	24,300	20,000
Imports for consumption	28,800	31,200	30,900	41,500	32,000
Exports of metal, alloys, oxide, and waste and scrap	4,440	5,770	4,220	7,850	2,600
Consumption, apparent <sup>1</sup>	42,000	44,600	45,700	59,200	50,200
Price, average, cents per pound <sup>2</sup>	82	79	77	178	240
Stocks, yearend	10,200	8,740	9,080	10,900	11,000
Employment, plant <sup>e</sup>	115	115	100	100	100
Net import reliance <sup>3</sup> as a percent of apparent consumption	53	60	62	57	60

**Recycling:** Almost 20,000 tons or 99% of secondary antimony was recovered as antimonial lead, most of which was consumed by the battery industry.

**Import Sources (1991-94):** Metal: China, 86%; Hong Kong, 4%; Mexico, 3%; Thailand, 1%; and other, 6%. Ore and concentrate: China, 34%; Bolivia, 28%; Canada, 9%; Kyrgyzstan, 8%; and other, 21%. Oxide: China, 36%; Mexico, 20%; Bolivia, 17%; South Africa, 14%; and other, 13%. Total: China, 59%; Mexico, 11%; South Africa, 6%; Hong Kong, 3%; and other, 21%.

<b>Tariff:</b>	<b>Item</b>	<b>Number</b>	<b>Most favored nation (MFN) 12/31/95</b>	<b>Non-MFN<sup>4</sup> 12/31/95</b>
	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:**

#### Stockpile Status—9-30-95

<b>Material</b>	<b>Uncommitted inventory</b>	<b>Committed inventory</b>	<b>Authorized for disposal</b>	<b>Disposals Jan.-Sept. 95</b>
Antimony	27,600	1,060	27,500	865

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**Events, Trends, and Issues:** In 1995, antimony production from domestic source materials was derived mainly from the recycling of lead-acid batteries. Recycling plus U.S. mine output supplied less than one-half of the estimated domestic demand.

The antimony metal price was characterized by a modest downward drift, compared with the sharp price rises of 1994. The antimony metal price started the year at \$2.80 per pound and by midyear had declined to \$2.20 per pound, still high by historical standards. The supply disruptions in China that had characterized most of the prior year seemed to have abated somewhat in 1995, although definitive reports from China were difficult to obtain. There were also scattered reports of earlier supply problems in Kyrgyzstan easing somewhat. Also a factor in sustained high prices during the past 2 years was continued strong demand for antimony trioxide in flame-retardant materials, especially plastics.

Government stockpile sales of antimony continued for the third year, after being restarted in 1993 for the first time since 1988. Public Laws 99-661 and 102-484 provided the authorization for the sales. In 1995, solicitations for sales were held on the third Thursday of each month. Antimony was stockpiled in Government warehouses in 13 locations, with the Somerville, NJ, depot holding the largest amount.

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

### **World Mine Production, Reserves, and Reserve Base:**

	Mine production		Reserves <sup>5</sup>	Reserve base <sup>5</sup>
	1994	1995 <sup>e</sup>		
United States	W	W	80,000	90,000
Bolivia	5,700	6,000	310,000	320,000
China	80,000	80,000	NA	NA
Kyrgyzstan	2,500	3,000	NA	NA
Mexico	1,500	2,000	180,000	230,000
Russia	7,000	7,000	NA	NA
South Africa	5,600	6,000	240,000	250,000
Other countries	4,000	4,000	3,400,000	3,800,000
World total (may be rounded)	<sup>6</sup> 106,000	<sup>6</sup> 108,000	4,200,000	4,700,000

**World Resources:** U.S. resources are mainly in Idaho, Nevada, Alaska, and Montana. Principal identified world resources, estimated at 5.1 million tons, are in China, Bolivia, Kyrgyzstan, Russia, South Africa, and Mexico. Additional antimony resources may occur in "Mississippi Valley Type" lead deposits in the Eastern United States.

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

<sup>e</sup>Estimated. NA Not available. W Withheld to avoid disclosing company proprietary data.

<sup>1</sup>Domestic mine production + secondary production from old scrap + net import reliance (see footnote 3).

<sup>2</sup>New York dealer price for 99.5% to 99.6% metal, c.i.f. U.S. ports.

<sup>3</sup>Defined as imports - exports + adjustments for Government and industry stock changes.

<sup>4</sup>See Appendix B.

<sup>5</sup>See Appendix C for definitions. Numbers for "other countries" include those for China, Kyrgyzstan, and Russia although specific numbers for those countries are not currently available.

<sup>6</sup>Excludes U.S. production.