

## ANTIMONY

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

**Domestic Production and Use:** One antimony mine operated in Idaho. Primary antimony metal and oxide were produced by six companies operating processing plants utilizing both foreign and domestic feed material. Two plants were in Texas, and single plants were 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 was derived from imports. The estimated value of primary antimony metal and oxide produced in 1996 was \$110 million. The estimated distribution of antimony uses was flame retardants, 55%; transportation, including batteries, 18%; chemicals, 10%; ceramics and glass, 7%; and other, 10%.

<b>Salient Statistics—United States:</b>		<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996<sup>e</sup></b>
Production:	Mine	W	W	W	W	W
	Smelter: Primary	20,100	22,000	25,500	23,500	22,700
	Secondary <sup>1</sup>	NA	NA	NA	NA	NA
Imports for consumption		31,200	30,900	41,500	36,600	35,000
Exports of metal, alloys, oxide, and waste and scrap		5,770	4,220	7,850	8,200	5,400
Consumption, apparent <sup>2</sup>		NA	NA	NA	NA	NA
Price, average, cents per pound <sup>3</sup>		79	77	178	228	152
Stocks, yearend		8,740	9,080	10,900	10,600	11,000
Employment, plant, number <sup>e</sup>		115	100	100	100	100
Net import reliance <sup>4</sup> as a percent of apparent consumption		NA	NA	NA	NA	NA

**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 indicate that lesser amounts of secondary antimony are being produced than heretofore thought. The data from this industry are currently under review.

**Import Sources (1992-95):** Metal: China, 82%; Hong Kong, 5%; Mexico, 5%; Kyrgyzstan, 4%; and other, 4%. Ore and concentrate: China, 37%; Canada, 20%; Kyrgyzstan, 16%; Bolivia, 7%; and other, 20%. Oxide: China, 36%; Mexico, 18%; Bolivia, 17%; South Africa, 15%; and other, 14%. Total: China, 58%; Bolivia, 12%; Mexico, 11%; South Africa, 7%; and other, 12%.

<b>Tariff: Item</b>	<b>Number</b>	<b>Most favored nation (MFN) 12/31/96</b>	<b>Non-MFN<sup>5</sup> 12/31/96</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:**

<b>Material</b>	<b>Stockpile Status—9-30-96</b>			
	<b>Uncommitted inventory</b>	<b>Committed inventory</b>	<b>Authorized for disposal</b>	<b>Disposals Jan.-Sept. 96</b>
Antimony	24,771	1,991	24,771	2,718

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**Events, Trends, and Issues:** In 1996, antimony production from domestic source materials was derived mainly from the recycling of lead-acid batteries and from the country's only operating antimony mine. Recycling plus U.S. mine output supplied only a modest portion of the estimated domestic demand.

The antimony metal price experienced a fairly steady decline during 1996. The price started the year at \$2.10 per pound, by spring had declined to \$1.50 per pound, and by summer had dropped to \$1.25 per pound, where it remained into the fall. These prices were still considerably higher than the traditional price for antimony metal that prevailed for years prior to the sharp price increases of 1994. The supply disruptions in China that were thought to have caused the dramatic price escalation in 1994 seemed to have largely abated, although definitive reports from China were difficult to obtain.

Government stockpile sales of antimony continued for the fourth year, after being resumed in 1993 for the first time since 1988. Public Law 104-201 provided the authorization for the sales. In 1996, the Defense Logistics Agency (DLA) conducted a negotiated bid offering on the second Tuesday of every month. The DLA announced that its Annual Materials Program for fiscal year 1997 permitted the disposal of up to 3,000 tons of antimony, the same as for fiscal year 1996. Antimony was stockpiled in 12 DLA depots, with the Curtis Bay, MD, warehouse holding the largest inventory.

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 <sup>6</sup>	Reserve base <sup>6</sup>
	1995	1996 <sup>e</sup>		
United States	W	W	80,000	90,000
Bolivia	6,500	6,000	310,000	320,000
China	75,000	74,000	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	4,500	4,000	240,000	250,000
Other countries	6,000	4,000	NA	NA
World total (may be rounded)	<sup>7</sup> 103,000	<sup>7</sup> 100,000	<sup>8</sup> NA	<sup>8</sup> NA

**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>Data under review. See Recycling Section.

<sup>2</sup>Domestic mine production + secondary production from old scrap + net import reliance (see footnote 4).

<sup>3</sup>New York dealer price for 99.5% to 99.6% metal, c.i.f. U.S. ports.

<sup>4</sup>Defined as imports - exports + adjustments for Government and industry stock changes.

<sup>5</sup>See Appendix B.

<sup>6</sup>See Appendix C for definitions.

<sup>7</sup>Excludes U.S. production.

<sup>8</sup>Estimates currently in preparation.