

## LEAD

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

**Domestic Production and Use:** The value of recoverable mined lead in 2003, based on the average U.S. producer price, was \$435 million. Six lead mines in Missouri plus lead-producing mines in Alaska, Idaho, and Montana yielded most of the total. Primary lead was processed at two smelter-refineries in Missouri. Of the 23 plants that produced secondary lead, 15 had annual capacities of 15,000 tons or more and accounted for more than 99% of secondary production. Lead was consumed at about 120 manufacturing plants. Transportation industries were the principal users of lead, consuming 76% of it for batteries, solder, seals, bearings, and wheel weights. Electrical, electronic, and communications devices (including batteries); ammunition; television glass; construction materials (including radiation shielding); and protective coatings accounted for approximately 22% of consumption. The balance was used in ballast and counterweights, ceramics and crystal glass, tubes and containers, type metal, foil, wire, and specialized chemicals, in order of consumption.

<b>Salient Statistics—United States:</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003<sup>e</sup></b>
<b>Production:</b>					
Mine, lead in concentrates	520	465	466	451	450
Primary refinery	350	341	290	262	240
Secondary refinery, old scrap	1,060	1,080	1,050	1,070	1,060
Imports for consumption, lead in concentrates	12	31	2	( <sup>1</sup> )	( <sup>1</sup> )
Exports, lead in concentrates	94	117	181	241	160
<b>Imports for consumption, refined metal, wrought and unwrought</b>					
	323	366	284	218	210
<b>Exports, refined metal, wrought and unwrought</b>					
	37	49	35	43	95
Shipments from Government stockpile excesses, metal	61	32	41	6	60
<b>Consumption:</b>					
Reported	1,680	1,720	1,550	1,440	1,410
Apparent	1,760	1,740	1,640	1,510	1,460
<b>Price, average, cents per pound:</b>					
North American Producer	43.7	43.6	43.6	43.6	44
London Metal Exchange	22.8	20.6	21.6	20.5	21.5
Stocks, metal, producers, consumers, yearend	91	124	100	105	120
<b>Employment:</b>					
Mine and mill (peak), number	1,100	1,100	1,100	930	830
Primary smelter, refineries	450	450	400	320	320
Secondary smelters, refineries	1,700	1,700	1,600	1,600	1,600
Net import reliance <sup>2</sup> as a percentage of apparent consumption	20	18	19	12	11

**Recycling:** About 1.1 million tons of secondary lead was produced, an amount equivalent to 77% of domestic lead consumption. Nearly all of it was recovered from old (post-consumer) scrap. About 1 million tons (equivalent to 70% of domestic lead consumption) was recovered from used batteries alone.

**Import Sources (1999-2002):** Lead in concentrates: Brazil, 34%; Mexico, 31%; Poland, 15%; Peru, 4%; and other, 16%. Metal, wrought and unwrought: Canada, 64%; China, 18%; Australia, 7%; Mexico, 6%; Peru, 1%; Kazakhstan 1%; and other, 3%. Total lead content: Canada, 62%; China, 17%; Mexico, 7%; Australia, 7%; and other, 7%.

<b>Tariff: Item</b>	<b>Number</b>	<b>Normal Trade Relations<sup>3</sup></b>
		<b>12/31/03</b>
Unwrought (refined)	7801.10.0000	2.5% ad val.

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

**Government Stockpile:**

<b>Material</b>	<b>Stockpile Status—9-30-03<sup>4</sup></b>				<b>Disposal plan</b>	<b>Disposals</b>
	<b>Uncommitted inventory</b>	<b>Committed inventory</b>	<b>Authorized for disposal</b>	<b>FY 2003</b>		
Lead	104	19	104	54	60	

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**Events, Trends, and Issues:** During 2003, the price of refined lead increased in the United States and world markets. The average North American Producer and London Metal Exchange prices for the first 9 months of the year were 0.2% and 4.7%, respectively, above the averages for the previous year. Worldwide demand for lead rose by 1% in 2003, as vehicle fleet expansion, increased exports of automotive batteries, and further investment in the telecommunications and information technology sectors in China more than countered the decline in demand—particularly for batteries—in the U.S. and European markets. Global output of refined lead fell by about 1% in 2003 mainly because of closures and production cutbacks at smelters and refineries in Australia, Europe, and the United States—more than offsetting production increases in Asia. A close balance between supply and demand for refined lead was anticipated in the industrialized world in 2003, according to a report issued by the International Lead and Zinc Study Group at its 48th Session in Rome, Italy, during October.

U.S. mine production remained at about the same level as in 2002, continuing to be affected by small price increases and weak demand. Production of secondary refined lead, mostly derived from spent lead acid batteries, declined by about 1%. U.S. apparent consumption of lead decreased by about 2% compared with that of 2002. Declining demand for lead in all battery types—including original equipment and replacement automotive types as well as industrial types for the telecommunications industry—accounted for most of the consumption decrease.

The lead-acid battery industry recycled more than 97% of the available lead scrap from spent lead-acid batteries during the period 1997 through 2001, according to a report issued by Battery Council International (BCI) in July 2003. The lead recycling rate ranked higher than that of any other recyclable material. The BCI report tracks lead recycling from spent starting-lighting-ignition batteries—used in automobiles, trucks, motorcycles, boats, and garden tractors—as well as spent industrial batteries used in a variety of motive and stationary battery applications.

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

	Mine production		Reserves <sup>5</sup>	Reserve base <sup>5</sup>
	<u>2002</u>	<u>2003<sup>e</sup></u>		
United States	451	450	8,100	20,000
Australia	683	715	15,000	28,000
Canada	99	80	2,000	9,000
China	600	650	11,000	36,000
Kazakhstan	40	60	5,000	7,000
Mexico	140	140	1,500	2,000
Morocco	75	60	500	1,000
Peru	290	310	3,500	4,000
South Africa	49	40	400	700
Sweden	38	50	500	1,000
Other countries	<u>445</u>	<u>285</u>	<u>19,000</u>	<u>30,000</u>
World total (rounded)	2,910	2,840	67,000	140,000

**World Resources:** In recent years, significant lead resources have been demonstrated in association with zinc and/or silver or copper in the United States (Alaska), Australia, Canada, China, Ireland, Mexico, Peru, and Portugal. Identified lead resources of the world total more than 1.5 billion tons.

**Substitutes:** Substitution of plastics has reduced the use of lead in building construction, electrical cable covering, cans, and containers. Aluminum, iron, plastics, and tin compete with lead in other packaging and protective coatings, and tin has replaced lead in solder for new or replacement potable water systems in the United States.

<sup>e</sup>Estimated.

<sup>1</sup>Less than ½ unit.

<sup>2</sup>Defined as imports – exports + adjustments for Government and industry stock changes.

<sup>3</sup>No tariff for Mexico and Canada for item shown.

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

<sup>5</sup>See Appendix C for definitions. Significant changes from previous reports are based on new information.