

LEAD

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

Domestic Production and Use: The value of recoverable mined lead in 2004, based on the average U.S. producer price, was \$500 million. Five lead mines in Missouri plus lead-producing mines in Alaska, Idaho, Montana, and Washington yielded most of the total. Primary lead was processed at one smelter-refinery 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. The lead-acid battery industry continued to be the principal user of lead, accounting for 83% of the reported U.S. lead consumption for 2004. Lead-acid batteries were primarily used as starting-lighting-ignition (SLI) batteries for automobiles and trucks. Lead-acid batteries were also used as industrial-type batteries for uninterruptible power-supply equipment for computer and telecommunications networks and hospitals; for load-leveling equipment for commercial electrical power system; and as traction batteries used in airline ground equipment, industrial forklifts, mining vehicles, golf carts, etc. About 11% of lead was used in ammunition; casting material; sheets (including radiation shielding), pipes, traps and extruded products; cable covering, calking lead, and building construction; solder; and oxides for glass, ceramics, pigments, and chemicals. The balance was used in ballast and counter weights, brass and bronze, foil,terne metal, type metal, wire, and other undistributed consumption.

Salient Statistics—United States:	2000	2001	2002	2003	2004^e
Production:					
Mine, lead in concentrates	465	466	451	460	440
Primary refinery	341	290	262	245	W
Secondary refinery, old scrap	1,080	1,040	1,070	1,110	1,170
Imports for consumption, lead in concentrates	31	2	(¹)	—	—
Exports, lead in concentrates	117	181	241	253	275
Imports for consumption, refined metal, wrought and unwrought	366	284	218	183	190
Exports, refined metal, wrought and unwrought	49	35	43	123	92
Shipments from Government stockpile excesses, metal	32	41	6	60	44
Consumption:					
Reported	1,720	1,550	1,440	1,390	1,420
Apparent ²	1,780	1,640	1,450	1,440	1,520
Price, average, cents per pound:					
North American Producer	43.6	43.6	43.6	43.8	53
London Metal Exchange	20.6	21.6	20.5	23.3	39
Stocks, metal, producers, consumers, yearend	124	100	111	107	60
Employment:					
Mine and mill (peak), number ³	1,100	1,100	930	830	880
Primary smelter, refineries	450	400	320	320	240
Secondary smelters, refineries	1,700	1,600	1,600	1,600	1,600
Net import reliance ⁴ as a percentage of apparent consumption	13	8	E	E	E

Recycling: About 1.19 million tons of secondary lead was produced, an amount equivalent to 84% of reported domestic lead consumption. Nearly all of it was recovered from old (post-consumer) scrap. About 1.14 million tons (equivalent to 80% of reported domestic lead consumption) was recovered from used batteries alone.

Import Sources (2000-03): Metal, wrought and unwrought: Canada, 70%; China, 16%; Australia, 5%; Mexico, 4%; and other, 4%.

Tariff: Item	Number	Normal Trade Relations⁵
Unwrought (refined)	7801.10.0000	12-31-04 2.5% ad val.

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

Government Stockpile:

Material	Stockpile Status—9-30-04⁶				
	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 2004	Disposals FY 2004
Lead	51	16	51	54	56

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Events, Trends, and Issues: During 2004, the price of refined lead increased in the U.S. and world markets. The average North American Producer and London Metal Exchange prices for the first 8 months of the year were 52.58 cents per pound and 38.70 cents per pound, respectively. These averages represent a 20% and a 66% increase, respectively, from the annual average prices for 2003. Estimated world use of lead rose by between 2% and 3% in 2004. The main driver behind this world growth, as it had been for several years, was higher use in China for vehicle fleet expansion, production of automotive batteries for export, and investment in the telecommunications and information technology. European lead use increased by a modest 1.5%. Despite a projected 6% increase in global mine production, refined lead production was nearly stagnant in 2004. According to a report issued by the International Lead and Zinc Study Group in October, the Western World experienced a significant production deficit for refined lead in 2004, and the production deficit was forecast to continue in 2005.

U.S. lead mine production in 2004 decreased by about 5% compared with production in 2003, owing to the lower lead content of ore milled at the Red Dog Mine in Alaska, and a decrease in mine production in Missouri. Production of secondary refined lead, mostly derived from spent lead-acid batteries, increased by about 3.5%, and U.S. reported consumption of lead increased by about 2%. Early in the year there was a significant increase in shipments of original equipment and replacement SLI batteries. An increase in capital spending resulted in increased demand for industrial type lead-acid batteries.

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 the Battery Council International (BCI) in July 2003. The lead recycling rate ranked higher than that of any other recyclable material. The BCI report tracked lead recycling from spent SLI 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 ⁷	Reserve base ⁷
	2003	2004 ^e		
United States	460	440	8,100	20,000
Australia	694	680	15,000	28,000
Canada	150	80	2,000	9,000
China	660	950	11,000	36,000
Kazakhstan	40	44	5,000	7,000
Mexico	140	150	1,500	2,000
Morocco	38	41	500	1,000
Peru	308	300	3,500	4,000
South Africa	40	36	400	700
Sweden	50	61	500	1,000
Other countries	<u>370</u>	<u>370</u>	<u>19,000</u>	<u>30,000</u>
World total (rounded)	2,950	3,150	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 Australia, Canada, China, Ireland, Mexico, Peru, Portugal, and the United States (Alaska). 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.

^eEstimated. E Net exporter. W Withheld to avoid disclosing company proprietary data. — Zero.

¹Less than ½ unit.

²Apparent consumption series revised to reflect a total raw material balance. Apparent consumption defined as mine production + secondary refined + imports (concentrates and refined) – exports (concentrates and refined) + adjustments for Government and industry stock changes.

³Includes only mines for which lead was the primary product.

⁴Defined as imports – exports + adjustments for Government and industry stock changes. Series revised to include trade in both concentrates and refined lead.

⁵No tariff for Mexico and Canada for item shown.

⁶See [Appendix B](#) for definitions.

⁷See [Appendix C](#) for definitions.