

LEAD

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

Domestic Production and Use: The value of recoverable mined lead in 2006, based on the average U.S. producer price, was \$702 million. Six 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 22 plants that produced secondary lead, 14 had annual capacities of 15,000 tons or more and accounted for more than 99% of secondary production. Lead was consumed at about 110 manufacturing plants. The lead-acid battery industry continued to be the principal user of lead, accounting for 88% of the reported U.S. lead consumption for 2006. 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 9% of lead was used in ammunition; casting material; sheets (including radiation shielding), pipes, traps and extruded products; cable covering, caulking 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:	2002	2003	2004	2005	2006^e
Production:					
Mine, lead in concentrates	451	460	445	426	430
Primary refinery	262	245	148	143	135
Secondary refinery, old scrap	1,070	1,120	1,100	1,130	1,130
Imports for consumption, lead in concentrates	(¹)	—	—	—	(¹)
Exports, lead in concentrates	241	253	292	390	275
Imports for consumption, refined metal, wrought and unwrought	218	183	202	310	360
Exports, refined metal, wrought and unwrought	43	123	83	65	86
Shipments from Government stockpile excesses, metal	6	60	42	29	13
Consumption:					
Reported	1,440	1,390	1,480	1,460	1,550
Apparent ²	1,450	1,470	1,440	1,430	1,590
Price, average, cents per pound:					
North American Producer	43.6	43.8	55.1	61.0	76.5
London Metal Exchange (LME)	20.5	23.3	40.2	44.2	57.1
Stocks, metal, producers, consumers, yearend	111	85	59	65	50
Employment:					
Mine and mill (peak), number ³	930	830	880	870	850
Primary smelter, refineries	320	320	240	240	240
Secondary smelters, refineries	1,600	1,600	1,600	1,600	1,600
Net import reliance ⁴ as a percentage of apparent consumption	E	E	E	E	2

Recycling: About 1.15 million tons of secondary lead was produced, an amount equivalent to 74% of reported domestic lead consumption. Nearly all of it was recovered from old (post-consumer) scrap.

Import Sources (2002-05): Metal, wrought and unwrought: Canada, 77%; Australia, 6%; China, 6%; Mexico, 5%; and other, 6%.

Tariff: Item	Number	Normal Trade Relations ⁵ 12-31-06
Unwrought (refined)	7801.10.0000	2.5% ad val.

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

Government Stockpile:

Material	Stockpile Status—9-30-06 ⁶ (Metric tons)				Disposals FY 2006
	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 2006	
Lead	491	—	491	54,000	25,300

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Events, Trends, and Issues: During 2006, the price of refined lead continued to increase in the U.S. and world markets. The average North American Producer and LME prices through October were 76.06 cents per pound and 55.19 cents per pound, respectively. These averages increased 25% from the average prices for 2005.

Estimated world use of lead again increased by 3% to 4% in 2006. Much of the growth was attributed to increased production of SLI and industrial batteries in China. Growth also was attributed to increased manufacture of SLI batteries for automobiles and industrial batteries for the telecommunications and information technology industries. Global mine production increased by approximately 1% in 2006. Increases in lead production are anticipated in the near future in Canada, China, India, and several European countries. Consequently, the supply of refined lead is expected to slightly exceed demand, at least in the western world, for the next couple of years.

U.S. lead mine production in 2006 decreased slightly from that of 2005 to about 430,000 tons, and production of secondary refined lead, mostly derived from spent lead-acid batteries, was unchanged. Exports (lead in concentrates) decreased 29%, and imports of refined metal increased 16%, resulting in an increase in U.S. apparent consumption of lead of about 10%.

Shipments of replacement lead-acid auto batteries in North America have been greater in 2006 than 2005. According to the Battery Council International, 12 months of shipments through June 2006 were 96 million units, a slight increase over those of the previous 12-month period. North American shipments in the smaller original equipment auto battery market were 21.6 million units, or 3.3% less than those of the previous 12-month period.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves ⁷	Reserve base ⁷
	2005	2006 ^e		
United States	426	430	8,100	20,000
Australia	776	780	15,000	28,000
Canada	73	79	2,000	9,000
China	1,000	1,050	11,000	36,000
India	58	60	NA	NA
Ireland	64	65	NA	NA
Kazakhstan	44	55	5,000	7,000
Mexico	130	140	1,500	2,000
Morocco	31	42	500	1,000
Peru	319	320	3,500	4,000
Poland	48	60	NA	5,400
South Africa	42	50	400	700
Sweden	61	61	500	1,000
Other countries	198	170	19,000	30,000
World total (rounded)	3,270	3,360	67,000	140,000

World Resources: In recent years, significant lead resources have been demonstrated in association with zinc and/or silver or copper deposits 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. In the electronics industry, there has been a move towards lead-free solders with varying compositions of tin, bismuth, silver, and copper.

^eEstimated. E Net exporter. NA Not available; included in "Other countries." — 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 principal product. In 2006, approximately 540 people were employed at zinc mines where lead was a significant byproduct or coproduct.

⁴Defined as imports – exports + adjustments for Government and industry stock changes. Includes 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.