

## LEAD

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

**Domestic Production and Use:** The value of recoverable mined lead in 2010, based on the average North American producer price, was \$904 million. Five lead mines in Missouri, plus lead-producing mines in Alaska and Idaho, yielded all of the totals. Primary lead was processed at one smelter-refinery in Missouri. Of the 20 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 76 manufacturing plants. The lead-acid battery industry continued to be the principal user of lead, accounting for about 87% of the reported U.S. lead consumption for 2010. Lead-acid batteries were primarily used as starting-lighting-ignition batteries for automobiles and trucks and as industrial-type batteries for uninterruptible power-supply equipment for computer and telecommunications networks and for motive power.

<b>Salient Statistics—United States:</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>e</sup></b>
Production:					
Mine, lead in concentrates	429	444	410	406	400
Primary refinery	153	123	135	103	115
Secondary refinery, old scrap	1,160	1,180	1,140	1,110	1,150
Imports for consumption:					
Lead in concentrates	(1)	(1)	(1)	(1)	(1)
Refined metal, wrought and unwrought	343	267	314	253	275
Exports:					
Lead in concentrates	298	300	277	287	270
Refined metal, wrought and unwrought	68	56	75	82	65
Shipments from Government stockpile excesses, metal	24	—	—	—	—
Consumption:					
Reported	1,490	1,570	1,440	1,290	1,400
Apparent <sup>2</sup>	1,580	1,540	1,500	1,410	1,500
Price, average, cents per pound:					
North American Producer	77.4	124	120	86.9	106
London Metal Exchange	58.0	117	94.8	78.0	94
Stocks, metal, producers, consumers, yearend	54	39	73	63	58
Employment:					
Mine and mill (peak), number <sup>3</sup>	1,070	1,100	1,200	1,200	1,100
Primary smelter, refineries	240	240	240	240	240
Secondary smelters, refineries	1,600	1,600	1,600	1,600	1,600
Net import reliance <sup>4</sup> as a percentage of apparent consumption	E	E	E	E	E

**Recycling:** In 2010, about 1.15 million tons of secondary lead was produced, an amount equivalent to 82% of reported domestic lead consumption. Nearly all of it was recovered from old (post-consumer) scrap.

**Import Sources (2006–09):** Metal, wrought and unwrought: Canada, 74%; Mexico, 13%; Peru, 5%; China, 4%; and other, 4%.

<b>Tariff: Item</b>	<b>Number</b>	<b>Normal Trade Relations<sup>5</sup></b>
Unwrought (refined)	7801.10.0000	<b>12-31-10</b> 2.5% ad val.

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

**Government Stockpile:** None.

**Events, Trends, and Issues:** The global lead market was in surplus during 2010 owing to the continued economic slowdown and weakened demand for lead in many regions. Prices declined and stocks rose throughout the first half of the year. Monthly average London Metal Exchange (LME) lead prices began the year at \$2,368 per metric ton in January 2010 and declined by 28% during the first half of 2010. Global stocks of refined lead held in LME warehouses increased by 21% to 190,475 tons during the first 6 months of 2010. Lead prices began to increase in the third quarter of 2010 and LME stock levels appeared to stabilize compared with those earlier in the year.

Domestic mine production in 2010 was expected to decline from that in the previous year partially owing to the early 2009 closures of two lead-producing mines in Washington and Montana. Lead-producing mines in Missouri were expected to produce less lead in concentrate in 2010 compared with that of 2009, owing to operational disruptions

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caused by underground fires and reduced ore head grade. At current production rates, a leading producer of zinc and lead in concentrate in Alaska will exhaust reserves at its open pit operations by early 2011. In mid-2010, the company began to develop an adjacent deposit at the site that might extend zinc and lead mining through 2031.

A leading domestic lead-acid battery manufacturer received necessary permits to begin constructing a new \$100 million secondary lead smelter in Florence, SC. When completed in 2012, the facility would be the first new secondary lead smelter built in the United States in more than 20 years and would have the capacity to produce about 120,000 tons per year of secondary lead. Another producer planned to spend \$117 million to expand secondary lead production capacity at an existing facility in Tampa, FL, by 400%, to 118,000 tons per year by 2012. In March, the operator of the only domestic primary lead smelter unveiled new primary lead processing technology that could reduce lead emissions by nearly 99% compared with traditional processing methods.

Global mine production of lead was expected to increase by 6% in 2010 from that in 2009, to 4.10 million tons owing to production increases in Australia, China, India, Mexico, and Russia. China was expected to account for more than 40% of global lead mine production. Global refined lead production was expected to increase by about 5% from that in 2009, to 9.10 million tons. Increased refined lead output was expected from Canada, China, Poland, and Thailand. Lead consumption was expected to increase by about 5% in 2010 from that in 2009 worldwide, partially owing to a 4% increase in Chinese lead consumption, driven by growth in the automobile and electric bicycle markets. During the first 8 months of 2010, 76.8 million lead-acid batteries were shipped in North America, a 9% increase from those in the same period of 2009. The International Lead and Zinc Study Group expected that global supply of refined lead would exceed demand by about 90,000 tons by yearend 2010.

**World Mine Production and Reserves:** Reserves estimates were revised based on information released by producers in the respective countries.

	Mine production		Reserves <sup>6</sup>
	2009	2010 <sup>e</sup>	
United States	406	400	7,000
Australia	566	620	27,000
Bolivia	86	90	1,600
Canada	69	65	650
China	1,600	1,750	13,000
India	92	95	2,600
Ireland	50	45	600
Mexico	144	185	5,600
Peru	302	280	6,000
Poland	60	35	1,500
Russia	70	90	9,200
South Africa	49	50	300
Sweden	60	65	1,100
Other countries	306	330	4,000
World total (rounded)	3,860	4,100	80,000

**World Resources:** In recent years, significant lead resources have been demonstrated in association with zinc and/or silver or copper deposits in Australia, China, Ireland, Mexico, Peru, Portugal, Russia, 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 cable covering, cans, and containers. Aluminum, iron, plastics, and tin compete with lead in other packaging and coatings. Tin has replaced lead in solder for new or replacement potable water systems. In the electronics industry, there has been a move towards lead-free solders with compositions of bismuth, copper, silver, and tin. Steel and zinc were common substitutes for lead in wheel weights.

<sup>e</sup>Estimated. E Net exporter. — Zero.

<sup>1</sup>Less than ½ unit.

<sup>2</sup>Apparent consumption defined as mine production + secondary refined + imports (concentrates and refined) – exports (concentrates and refined) + adjustments for Government and industry stock changes.

<sup>3</sup>Includes lead and zinc-lead mines for which lead was either a principal or significant product.

<sup>4</sup>Defined as imports – exports + adjustments for Government and industry stock changes; includes trade in both concentrates and refined lead.

<sup>5</sup>No tariff for Canada, Mexico, and Peru for item shown.

<sup>6</sup>See Appendix C for resource/reserve definitions and information concerning data sources.