

## LEAD

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

**Domestic Production and Use:** The value of recoverable mined lead in 2014, based on the average North American Market price, was about \$827 million. Six lead mines in Missouri, plus four mines in Alaska and Idaho that produced lead as a coproduct, accounted for all domestic mine production. Of the plants that produced secondary lead at yearend 2014, 12 plants having capacities of at least 30,000 tons per year of refined lead accounted for more than 95% of secondary production. Lead was consumed at more than 70 manufacturing plants. The lead-acid battery industry accounted for about 90% of the reported U.S. lead consumption during 2014. Lead-acid batteries were primarily used as starting-lighting-ignition (SLI) batteries for automobiles and trucks and as industrial-type batteries for standby power for computer and telecommunications networks and for motive power. During the first 9 months of 2014, 93.5 million lead-acid automotive batteries were shipped by North American producers, a slight increase from those shipped in the same period of 2013.

<b>Salient Statistics—United States:</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014<sup>e</sup></b>
Production:					
Mine, lead in concentrates	369	342	345	340	355
Primary refinery	115	118	111	114	1
Secondary refinery, old scrap	1,140	1,130	1,110	1,150	1,150
Imports for consumption:					
Lead in concentrates	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Refined metal, wrought and unwrought	273	316	351	487	550
Exports:					
Lead in concentrates	299	223	214	210	300
Refined metal, wrought and unwrought	85	47	53	48	55
Consumption:					
Reported	1,430	1,410	1,350	1,390	1,350
Apparent <sup>2</sup>	1,440	1,540	1,500	1,700	1,660
Price, average, cents per pound:					
North American Producer	109	122	114	115	NA
North American Market	NA	NA	NA	NA	107
London Metal Exchange	97.4	109	93.5	97.2	86
Stocks, metal, producers, consumers, yearend	65	48	72	70	60
Employment:					
Mine and mill (average), number <sup>3</sup>	1,590	1,700	1,660	1,690	1,650
Primary smelter, refineries	290	290	290	290	75
Secondary smelters, refineries	1,600	1,600	1,700	1,700	1,700
Net import reliance <sup>4</sup> as a percentage of apparent consumption	13	19	18	26	30

**Recycling:** In 2014, about 1.15 million tons of secondary lead was produced, an amount equivalent to 70% of apparent domestic lead consumption. Nearly all secondary lead was recovered from old (post-consumer) scrap at secondary smelters.

**Import Sources (2010–13):** Metal, wrought and unwrought: Canada, 68%; Mexico, 18%; Australia, 5%; and other, 9%.

<b>Tariff: Item</b>	<b>Number</b>	<b>Normal Trade Relations<sup>5</sup></b>
		<b>12–31–14</b>
Unwrought (refined)	7801.10.0000	2.5% ad val.
Antimonial lead	7801.91.0000	2.5% ad val.
Alloys of lead	7801.99.9030	2.5% ad val.

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

**Government Stockpile:** None.

**Events, Trends, and Issues:** Lead stocks held in global London Metal Exchange (LME) warehouses increased to 226,550 tons by the end of October from 213,950 tons at yearend 2013. LME stocks held in domestic warehouses declined to 725 tons from 2,175 tons during that time period. LME lead cash prices averaged \$2,148 per metric ton in January, peaked at \$2,236 in August, and declined to \$2,037 per metric ton in October. Domestic mine production in 2014 increased from that in the previous year owing to increases in all of the lead-producing States.

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The Herculaneum, Missouri lead smelter, the only domestic primary lead smelter, closed at yearend 2013, per an agreement with the U.S. Environmental Protection Agency. In 2014, the plant processed a small amount of residual lead during demolition of the site. Following closure, the owner exported concentrates produced at its six mines in Missouri, contributing to the increase in lead exports in 2014. Most of the increase in refined lead imports in 2014 was attributable to the loss of domestic primary production; it was thought that some of the imports were held by traders.

In 2014, total secondary lead production in the United States was expected to be essentially unchanged from that in 2013. Increased production at a couple of secondary smelters was expected to be offset by temporary closure of one smelter. In mid-March, a producer temporarily shut down operations of a lead smelter in Vernon, CA (90,000-metric-ton-per-year capacity) owing to environmental concerns from State regulators. The company was making required improvements to the plant and intended to restart operations in 2015.

Increased exports of spent lead-acid batteries during the past few years (the majority of which went to Mexico) have reduced the amount of scrap available to secondary smelters. During the first 9 months of the year, 22.4 million spent SLI lead-acid batteries, containing an estimated 220,000 tons of lead, were exported.

Global mine production of lead was expected to be about 5.50 million tons in 2014, with production increases in Australia, China, and the United States. The International Lead and Zinc Study Group (ILZSG) forecast global refined lead production to increase slightly from that in 2013, to 11.3 million tons, primarily driven by increases in Australia, Belgium, China, India, Italy, and the Republic of Korea. ILZSG projected global lead consumption to increase slightly in 2014 from that in 2013, to 11.3 million tons, partially owing to an increase in China, and that global refined lead production would exceed consumption by 38,000 tons.

**World Mine Production and Reserves:** Reserves estimates for Australia, Canada, and Peru were revised based on information from Government and industry sources.

	Mine production		Reserves <sup>6</sup>
	2013	2014 <sup>e</sup>	
United States	340	355	5,000
Australia	711	720	35,000
Bolivia	82	75	1,600
Canada	20	4	247
China	2,900	2,950	14,000
India	106	110	2,600
Ireland	51	40	600
Mexico	210	220	5,600
Peru	266	270	7,000
Poland	90	40	1,700
Russia	195	195	9,200
South Africa	53	27	300
Sweden	62	62	1,100
Turkey	78	65	NA
Other countries	<u>324</u>	<u>324</u>	<u>3,000</u>
World total (rounded)	5,490	5,460	87,000

**World Resources:** Identified world lead resources total more than 2 billion tons. 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).

**Substitutes:** Substitution of plastics has reduced the use of lead in cable covering and cans. Tin has replaced lead in solder for potable water systems. In the electronics industry, there has been a move toward lead-free solders and flat panel displays that do not require lead shielding. Steel and zinc are common substitutes for lead in wheel weights.

<sup>e</sup>Estimated. NA Not available.

<sup>1</sup>Less than ½ unit.

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

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

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