

LEAD

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

Domestic Production and Use: Six lead mines in Missouri, plus five mines in Alaska, Idaho, and Washington that produced lead as a coproduct, accounted for all domestic lead mine production. The value of the lead in concentrates mined in 2015, based on the average North American Market price for refined lead, was about \$790 million. The 11 secondary lead refineries in 10 States that had capacities of at least 30,000 tons per year of refined lead accounted for more than 95% of secondary lead production in 2015. Lead was consumed at more than 70 manufacturing plants. The lead-acid battery industry accounted for about 90% of reported U.S. lead consumption during 2015. Lead-acid batteries were primarily used as starting-lighting-ignition (SLI) batteries for automobiles and trucks, as industrial-type batteries for standby power for computer and telecommunications networks, and for motive power for forklifts. During the first 9 months of 2015, 94.1 million lead-acid automotive batteries were shipped by North American producers, a slight increase from those shipped in the same period of 2014.

Salient Statistics—United States:	2011	2012	2013	2014	2015^e
Production:					
Mine, lead in concentrates	342	345	340	379	385
Primary refinery	118	111	114	—	—
Secondary refinery, old scrap	1,130	1,110	1,150	1,130	1,120
Imports for consumption:					
Lead in concentrates	(¹)	(¹)	(¹)	(¹)	(¹)
Refined metal, wrought and unwrought	316	351	487	596	550
Exports:					
Lead in concentrates	223	214	210	356	350
Refined metal, wrought and unwrought	47	53	48	60	50
Consumption:					
Reported	1,410	1,350	1,390	1,510	1,470
Apparent ²	1,540	1,500	1,700	1,670	1,620
Price, average, cents per pound:					
North American Producer	122	114	115	NA	NA
North American Market	NA	NA	110	106	93
London Metal Exchange	109	93.5	97.2	95.0	83.0
Stocks, metal, producers, consumers, yearend	48	72	67	64	60
Employment:					
Mine and mill (average), number ³	1,700	1,660	1,690	1,730	1,730
Primary smelter, refineries	290	290	290	—	—
Secondary smelters, refineries	2,000	2,000	2,000	1,800	1,800
Net import reliance ⁴ as a percentage of apparent consumption, refined lead	19	18	26	32	31

Recycling: In 2015, about 1.12 million tons of secondary lead was produced, an amount equivalent to 69% of apparent domestic consumption. Nearly all secondary lead was recovered from old (post-consumer) scrap.

Import Sources (2011–14): Metal, wrought and unwrought: Canada, 57%; Mexico, 20%; Peru, 5%; Australia and Kazakhstan, 4% each; and other, 10%.

Tariff: Item	Number	Normal Trade Relations⁵ 12–31–15
Lead ores and concentrates	2607.00.0020	1.1¢/kg on lead content.
Refined lead	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: The average London Metal Exchange (LME) cash lead price declined by about 13% in 2015 from that in 2014. The LME price averaged \$0.83 per pound ton in January, peaked at \$0.91 in May, and declined to \$0.78 per pound in October. The price decline took place despite global LME warehouse stocks decreasing to 147,225 tons at the end of October from 221,975 tons at yearend 2014, and an anticipated decrease in global refined production. Essentially all of the remaining lead stocks were held in warehouses in Asia and Europe.

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Domestic mine production in 2015 increased from that in the previous year owing to increases in all of the lead-producing States. The Pend Oreille Mine in Washington reopened in late 2014 and began producing lead in 2015. Total domestic secondary lead production was slightly lower than that in 2014. Increased production at several secondary smelters was expected to be offset by the closure of one smelter. In early 2014, a producer temporarily shut down operations of a lead smelter in Vernon, CA, owing to environmental concerns from State regulators. The company had intended to restart operations in 2015 but closed the plant instead. In March, one secondary producer announced plans to build a new secondary lead refinery in Nevada capable of producing high-purity lead for use in advanced lead-acid batteries. The plant would use an electrochemical battery recycling technology and be built in 2016. The United States has become more reliant on imported refined lead during the past few years owing to the closure of the last primary lead smelter in 2013, and increased exports of spent SLI lead-acid batteries have reduced the amount of scrap available to secondary smelters. During the first 8 months of the year, 19.3 million spent SLI lead-acid batteries, containing an estimated 167,000 tons of lead, were exported.

Global mine production of lead was expected to decline to about 4.70 million tons in 2015. The International Lead and Zinc Study Group (ILZSG) forecast global refined lead production to be 10.8 million tons, a slight decrease from that in 2014, primarily driven by decreases in China and Peru. ILZSG projected global lead consumption to be 10.8 million tons in 2015, a slight decline from that in 2014, partially owing to a decrease in China's consumption. In 2015, global refined lead production was expected to be essentially the same as consumption.⁶

World Mine Production and Reserves: Reserve estimates for India, Peru, and Turkey were revised based on information from Government and industry sources.

	Mine production ^e		Reserves ⁷
	2014	2015	
United States	379	385	5,000
Australia	728	633	35,000
Bolivia	94	82	1,600
China	2,400	2,300	15,800
India	106	130	2,200
Ireland	41	33	600
Kazakhstan	38	38	NA
Korea, North	45	45	NA
Mexico	250	240	5,600
Peru	278	300	6,700
Poland	38	40	1,700
Russia	90	90	9,200
South Africa	29	40	300
Sweden	71	76	1,100
Turkey	65	54	860
Other countries	214	225	3,000
World total (rounded)	4,870	4,710	89,000

World Resources: Identified world lead resources total more than 2 billion tons. In recent years, significant lead resources have been identified 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. The electronics industry has moved 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.

^eEstimated. NA Not available. — Zero.

¹Less than ½ unit.

²Defined as primary refined production + secondary refined production + refined imports – refined exports + adjustments for industry stock changes.

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

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

⁵No tariff for Canada, Mexico, and Peru for items shown.

⁶International Lead and Zinc Study Group, 2015, ILZSG session/forecasts: Lisbon, Portugal, International Lead and Zinc Study Group news release, October 9, 5 p. (Accessed November 10, 2015, via <http://www.ilzsg.org/>).

⁷See [Appendix C](#) for resource/reserve definitions and information concerning data sources.