

LEAD

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

Domestic Production and Use: Five lead mines in Missouri, plus five mines in Alaska, Idaho, and Washington that produced lead as a principal product or byproduct, accounted for all domestic lead mine production. The value of the lead in concentrates mined in 2018, based on the average North American Market price for refined lead, was about \$660 million. It was estimated that the lead-acid battery industry accounted for more than 85% of reported U.S. lead consumption during 2018. Lead-acid batteries were primarily used as starting-lighting-ignition (SLI) batteries for automobiles, as industrial-type batteries for standby power for computer and telecommunications networks, and for motive power. During the first 10 months of 2018, 116 million lead-acid automotive batteries were shipped by North American producers, a 3% increase from those shipped in the same period of 2017.

Salient Statistics—United States:	2014	2015	2016	2017	2018^e
Production:					
Mine, lead in concentrates	378	370	346	310	260
Primary refinery	—	—	—	—	—
Secondary refinery, old scrap	1,020	1,050	986	1,130	1,300
Imports for consumption:					
Lead in concentrates	—	—	(1)	—	—
Refined metal, unwrought	593	521	533	658	580
Exports:					
Lead in concentrates	357	350	341	269	270
Refined metal, unwrought (gross weight)	55	56	43	24	54
Consumption:					
Reported	1,510	1,630	1,470	NA	NA
Apparent ²	1,560	1,520	1,480	1,760	1,800
Price, average, cents per pound: ³					
North American market	106.2	91.2	94.4	114.5	115.0
London Metal Exchange (LME), cash	95.0	81.0	84.8	105.1	104.0
Stocks, metal, producers, consumers, yearend	66	64	101	NA	NA
Employment, number:					
Mine and mill (average) ⁴	1,890	1,970	1,970	1,890	1,870
Primary smelter, refineries	—	—	—	—	—
Secondary smelters, refineries	1,800	1,800	1,850	1,850	1,850
Net import reliance ⁵ as a percentage of apparent consumption, refined lead	35	31	33	36	29

Recycling: In 2018, about 1.3 million tons of secondary lead was produced, an amount equivalent to 71% of apparent domestic consumption. Nearly all secondary lead was recovered from old scrap, mostly lead-acid batteries.

Import Sources (2014–17): Refined metal: Canada, 45%; Mexico, 18%; Republic of Korea, 14%; India, 5%; and other, 18%.

Tariff: Item	Number	Normal Trade Relations 12–31–18
Lead ores and concentrates, lead content	2607.00.0020	1.1¢/kg on lead content.
Refined lead	7801.10.0000	2.5% on the value of the lead content.
Antimonial lead	7801.91.0000	2.5% on the value of the lead content.
Alloys of lead	7801.99.9030	2.5% on the value of the lead content.
Other unwrought lead	7801.99.9050	2.5% on the value of the lead content.

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

Government Stockpile: None.

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Events, Trends, and Issues: During the first 10 months of 2018, the average LME cash price for lead was \$1.04 per pound, essentially unchanged from that in the same period of 2017. In the second half of 2017, prices reached a 6-year high owing to a tight supply of concentrate and increased demand for refined lead. During the first 10 months of 2018, prices decreased by 23%, bringing down the year average. Global stocks of lead in LME-approved warehouses were 106,950 tons in mid-December, which was 25% less than those at yearend 2017.

In 2018, domestic mine production was estimated to have decreased from that in the previous year in all four lead-producing States. Production at one mine in Idaho continued to be relatively low owing to an employee strike, which began in March 2017. The United States has become more reliant on imported refined lead in recent years owing to the closure of the last primary lead smelter in 2013. Exports of spent SLI batteries had been decreasing since 2014. During the first 10 months of 2018, however, 22.9 million spent SLI lead-acid batteries were exported, which was 44% more than exports in 2017.

In November 2018, an industrial conglomerate, which was a leading lead-acid automotive battery manufacturer and secondary lead producer in the United States, announced the sale of its battery-making component.

According to the International Lead and Zinc Study Group,⁶ global refined lead production in 2018 increased by 0.4% to 11.59 million tons, and metal consumption increased by 0.2% to 11.71 million tons, resulting in a production-to-consumption deficit of about 120,000 tons of refined lead.

World Mine Production and Reserves: Reserves estimates for Australia, China, India, and Turkey were revised based on new information from company or Government reports.

	Mine production		Reserves ⁷
	2017	2018 ^e	
United States	310	260	5,000
Australia	459	450	⁸ 24,000
Bolivia	110	100	1,600
China	2,150	2,100	18,000
India	170	170	2,500
Kazakhstan	112	100	2,000
Mexico	243	240	5,600
Peru	307	300	6,000
Russia	200	200	6,400
Sweden	74	70	1,100
Turkey	68	60	6,100
Other countries	<u>379</u>	<u>380</u>	<u>5,000</u>
World total (rounded)	4,580	4,400	83,000

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 by 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 (old scrap) + refined imports – refined exports.

³Source: Platts Metal Week.

⁴Includes lead and zinc-lead mines for which lead was either a principal product or significant byproduct.

⁵Defined as imports – exports.

⁶International Lead and Zinc Study Group, 2018, ILZSG session/forecasts: Lisbon, Portugal, International Lead and Zinc Study Group news release, October 8, 5 p.

⁷See Appendix C for resource and reserve definitions and information concerning data sources.

⁸For Australia, Joint Ore Reserves Committee-compliant reserves were about 12 million tons.