

## LEAD

(Data in thousand metric tons, lead content, unless otherwise specified)

**Domestic Production and Use:** Lead was produced domestically by five lead mines in Missouri plus as a byproduct at two zinc mines in Alaska and two silver mines in Idaho. The value of recoverable lead from ore mined in 2023 was an estimated \$660 million, unchanged from that in 2022. Nearly all lead concentrate production has been exported since the last primary lead refinery closed in 2013. The value of the secondary lead produced in 2022 was \$2.4 billion, 10% less than that in 2022. The lead-acid battery industry accounted for an estimated 85% of reported U.S. lead consumption during 2023. 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.

<b><u>Salient Statistics—United States:</u></b>	<b><u>2019</u></b>	<b><u>2020</u></b>	<b><u>2021</u></b>	<b><u>2022</u></b>	<b><u>2023<sup>e</sup></u></b>
Production:					
Mine, lead in concentrates	274	306	294	273	270
Mine, recoverable lead	266	297	286	264	260
Primary refinery	—	—	—	—	—
Secondary refinery, old scrap	1,150	1,090	1,050	1,010	1,000
Imports for consumption:					
Lead in concentrates	(1)	(1)	1	(1)	(1)
Refined metal, unwrought	501	382	614	651	570
Exports:					
Lead in concentrates	259	265	262	255	270
Refined metal, unwrought (gross weight)	25	17	22	26	25
Consumption, apparent <sup>2</sup>	1,630	1,450	1,640	1,630	1,600
Price, average, North American, cents per pound <sup>3</sup>	99.9	91.3	113.0	116.5	115
Employment, mine and mill (average), number <sup>4</sup>	1,600	1,790	1,830	1,870	1,800
Net import reliance <sup>5</sup> as a percentage of apparent consumption, refined metal	29	25	36	38	35

**Recycling:** In 2023, an estimated 1,000,000 tons of secondary lead was produced, an amount equivalent to 62% of apparent domestic consumption. Nearly all secondary lead was recovered from old scrap, mostly lead-acid batteries.

**Import Sources (2019–22):** Refined metal: Canada, 37%; Mexico, 16%; Republic of Korea, 14%; Australia, 8%; and other, 25%.

<b><u>Tariff:</u></b>	<b><u>Item</u></b>	<b><u>Number</u></b>	<b><u>Normal Trade Relations</u></b>
			<b><u>12–31–23</u></b>
	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 2023, the average North American price for lead was 115 cents per pound, less than the annual average price of 116.5 cents per pound in 2022. Global stocks of lead in LME-approved warehouses were 128,350 tons at the end of October, which was five times more than those at yearend 2022.

In 2023, domestic mine production of recoverable lead decreased slightly, and production of secondary lead was essentially unchanged from that in 2022. Estimated U.S. apparent consumption of refined lead decreased slightly from that in 2022, and the net import reliance decreased to 35% from 38%. In the first 9 months of 2023, 31 million spent SLI lead-acid batteries were exported, a 26% increase from 24.6 million batteries exported in the same period in 2022. In August, a fire took place at an underground silver-lead-zinc mine in Idaho; no personnel were in the mine at the time of the fire. Production was suspended for the remainder of 2023 while work was carried out to bypass the damaged area.

According to the International Lead and Zinc Study Group,<sup>6</sup> global refined lead production in 2023 was forecast to increase by 2.7% to 12.8 million tons and refined lead consumption to increase by 1.1% to 12.8 million tons.

**World Mine Production and Reserves:** Reserves for Australia, China, India, Peru, Russia, and Turkey were revised based on Government reports.

	Mine production		Reserves <sup>7</sup>
	2022	2023 <sup>e</sup>	
United States	273	270	4,600
Australia	435	440	<sup>8</sup> 35,000
Bolivia	90	90	1,600
China	1,950	1,900	20,000
India	220	220	1,900
Iran	<sup>e</sup> 52	50	2,000
Mexico	273	270	5,600
Peru	255	250	5,000
Russia	<sup>e</sup> 210	200	8,700
Sweden	75	70	1,700
Tajikistan	<sup>e</sup> 53	50	NA
Turkey	<sup>e</sup> 67	70	1,600
Other countries	507	610	5,900
World total (rounded)	4,460	4,500	95,000

**World Resources:**<sup>7</sup> 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.

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

<sup>1</sup>Less than ½ unit.

<sup>2</sup>Defined as primary refined production + secondary refined production from old scrap + refined imports – refined exports.

<sup>3</sup>Source: S&P Global Platts Metals Week.

<sup>4</sup>Includes lead and zinc-lead mines for which lead was either a principal product or significant byproduct. Data from the Mine Safety and Health Administration.

<sup>5</sup>Defined as refined imports – refined exports.

<sup>6</sup>Source: International Lead and Zinc Study Group, 2023, ILZSG session/forecasts: Lisbon, Portugal, International Lead and Zinc Study Group press release, October 9, [4] p.

<sup>7</sup>See Appendix C for resource and reserve definitions and information concerning data sources.

<sup>8</sup>For Australia, Joint Ore Reserves Committee-compliant or equivalent reserves were 10 million tons.