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2019 Minerals Yearbook

LEAD [ADVANCE RELEASE]

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Lead

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In 2019, domestic mine production of recoverable lead was 266,000 metric tons (t), slightly less than that in 2018 (table 1). The value of domestic mine production of recoverable lead in 2019 (based on the North American Market price) decreased by 11% to $587 million. In the United States, lead in concentrate was produced at 10 mines that employed 1,690 people. Alaska and Missouri were the leading producing States, accounting for most of the domestic mine production. Primary lead metal has not been produced in the United States since the closure of the last operating smelter at yearend 2013.

Secondary (recycled) lead, derived principally from scrapped lead-acid batteries, equaled 1.18 million metric tons (Mt), essentially unchanged from production in 2018 (tables 1, 3). Recycled lead accounted for 100% of refined lead production in the United States in 2019.

World mine production of lead increased by 4% to 4.72 Mt in 2019 from 4.56 Mt in 2018 (tables 1, 11). The United States was the fourth-leading producer and accounted for 6% of global lead mine production. China, Australia, and Peru were the three leading producers in 2019, accounting for 42%, 11%, and 7%, respectively, of global lead mine production. World production of refined lead (primary and secondary) was 11.6 Mt in 2019, unchanged from 11.6 Mt (revised) in 2018 (table 12). The United States continued to be the second-leading global producer, accounting for 10% of global total refined lead production and 17% of global secondary refined production. China was the leading producer of refined lead, accounting for 43% of global total refined lead production, 68% of primary refined lead production, and 31% of secondary refined lead production in 2019.

In 2019, reported U.S. consumption of refined lead was 2.18 Mt, 5% more than 2.06 Mt (revised) in 2018 (table 4). Lead metal was consumed domestically by more than 60 companies to manufacture such products as ammunition; building-construction materials; coverings for power and communication cables; lead-acid storage batteries; lead oxides for ceramics, chemicals, glass, and pigments; lead sheet; and solders for construction, electronic components and accessories, metal containers, and motor vehicles.

Lead-acid batteries, including starting-lighting-ignition (SLI) and industrial batteries, continued to be the dominant use of lead, accounting for 92% of reported lead consumption (table 4). In 2019, North American producers shipped 133 million SLI automotive-type original equipment and replacement batteries, 4.3 million less than the amount shipped in 2018 (SmithBucklin Statistics Group, 2020).

According to the International Lead and Zinc Study Group (ILZSG), global consumption of refined lead in 2019 was 12.2 Mt, unchanged from 12.3 Mt (revised) in 2018. The leading refined-lead-consuming countries in 2019 were China, 41%; the United States, 13%; India, 7%; the Republic of Korea, 5%; and Germany, 3% (International Lead and Zinc Study Group, 2022, p. 9–10).

The 2019 average annual London Metal Exchange Ltd. (LME) cash price for lead was 90.59 cents per pound, an 11% decrease from that in 2018. The S&P Global Platts Metals Week North American Market price was 99.91 cents per pound, 10% less than that in 2018 (table 1).

Production

Mine.—In 2019, domestic mine production of recoverable lead totaled 266,000 t, slightly less than that in 2018 (table 1). There were 10 lead-producing mines operating in the United States in 2019 (table 2).

Alaska and Missouri accounted for most of the U.S. mine output of lead. Lead also was mined in Idaho and Washington. Domestic mine production data were collected by the U.S. Geological Survey (USGS) from a voluntary survey of lode mines. Eight lead-producing mines responded to the survey in 2019, accounting for about 90% of U.S. production. Production data for the nonrespondents were obtained from publicly available data.

The Doe Run Co. (St. Louis, MO) operated four mills that produced lead concentrates from ore supplied from six underground mines along the Viburnum Trend in southeast Missouri.

Teck Alaska Inc. [a wholly owned subsidiary of Teck Resources Ltd. (Canada)] operated the Red Dog zinc-lead mine in northwestern Alaska under a royalty agreement with NANA Regional Corp., an Alaska Native-owned corporation organized under the provisions of the Alaska Native Claims Settlement Act and the sole owner of the property. Teck reported that production of lead in concentrates at Red Dog increased to 102,800 t in 2019 from 98,400 t in 2018 (Teck Resources Ltd., 2020, p. 22).

Hecla Mining Co. (Coeur d'Alene, ID) operated the Greens Creek gold, lead, silver, and zinc mine near Juneau, AK, and the Lucky Friday lead, silver, and zinc mine in the Coeur d'Alene mining district in northern Idaho. In 2019, Hecla produced 18,200 t of lead in concentrates at Greens Creek, 6% more than that in 2018. Hecla reported that proven and probable reserves at yearend 2019 totaled 280,000 t of lead and the company estimated that the remaining mine life was 11 years (Hecla Mining Co., 2020, p. HL10–K21). In 2019, the Lucky Friday Mine produced 3,720 t of lead in concentrates, a 3.5-fold increase from that in 2018. Hecla reported that proven and probable lead reserves at yearend 2019 totaled 460,000 t of lead and the estimated remaining mine life at the Lucky Friday Mine was 18 years (Hecla Mining Co., 2020, p. HL10–K23-24).

Primary Refined.—There was no primary refined lead production in 2019. Doe Run closed the only domestic primary lead smelter in Herculaneum, MO, at yearend 2013.

Secondary Refined.—Domestic production of secondary refined lead in 2019 was essentially unchanged at 1.18 Mt compared with 1.17 Mt in 2018 (tables 1, 3). The domestic secondary lead industry consisted of several vertically integrated battery producers that operated secondary lead smelters to supply lead for their lead-acid battery plants and several companies that operated stand-alone secondary smelters. The latter typically had tolling agreements with battery manufacturers to recycle their used lead-acid batteries and supply secondary lead. Lead recovered from lead-acid batteries continued to be the dominant source of recoverable lead scrap, accounting for 98% of all secondary lead. Domestic secondary lead data were derived by the USGS from monthly and annual surveys of secondary producers. In 2019, 10 smelters that produced secondary lead were surveyed; 8 responded, representing 82% of the total production of secondary lead. Production for the nonrespondents was estimated from prior-years' production. Of the total lead recycled in 2019, most was recovered by companies operating plants in Alabama, California, Florida, Indiana, Minnesota, Missouri, New York, Pennsylvania, South Carolina, and Tennessee. In Doe Run's 2019 sustainability report, the company reported that 167,000 t of recycled materials were processed, including 106,000 t of lead from batteries and 43,100 t of lead in other lead-bearing materials (Doe Run Co., The, 2020, p. 26).

Consumption

In 2019, reported U.S. consumption of refined lead equaled 2.18 Mt, 5% more than the revised 2.06 Mt in 2018 (table 4). Consumption of lead in SLI batteries and industrial-type lead-acid storage batteries accounted for 92% of the total reported consumption of lead. Demand for lead was heavily reliant on the automotive sector. The Battery Council International reported that 133 million lead-acid automotive batteries containing an estimated 1.11 Mt of lead (based on an average of 8.34 kilograms of lead content per battery) were shipped by North American producers in 2019, a 3% decrease from battery shipments in 2018 (137 million batteries containing an estimated 1.14 Mt of lead). Shipments of replacement lead-acid automotive batteries decreased by 3% to 113 million from those in 2018, and shipments of original equipment lead-acid automotive batteries decreased by 4.6% to 20 million from those in 2018 (SmithBucklin Statistics Group, 2019, 2020).

Prices and Stocks

In 2019, the average annual North American Market price and the LME cash price for lead decreased by 10% and 11%, respectively, from that in 2018 (table 1). The average monthly LME cash price for lead was 90.59 cents per pound in 2019; the highest price of 99.0 cents per pound was in September, and the lowest price of 82.4 cents per pound was in June. The North American premium to the LME cash price in 2019 averaged 9.32 cents per pound; the highest premium of 9.61 cents was in March and the lowest premium of 9.02 was in July and August.

The average scrap price also decreased in 2019 to 33.1 cents per pound from 39.1 cents per pound in 2018, despite an overall increasing trend throughout 2019. According to Platts Metals Week, the average monthly price paid by domestic smelters for whole spent lead-acid batteries (the most prevalent form of lead scrap) generally increased from 29.9 cents per pound in February to 35.9 cents per pound in December.

Global LME lead stocks at the end of December 2019 equaled 66,200 t, 38% less than those at the end of December 2018 (London Metal Exchange Ltd., 2018, 2019).

Foreign Trade

In 2019, U.S. imports for consumption of unwrought (refined) lead metal in pigs and bars totaled 406,000 t, 9% less than that in 2018 (table 10). There were considerable decreases in imports from the Republic of Korea, by 29,600 t; India, by 19,100 t; and Mexico, by 10,500 t. The leading sources of unwrought lead metal imports were Canada, 39%; Mexico, 24%; and the Republic of Korea, 19%.

Total domestic exports of unwrought lead and lead alloys in 2019 totaled 25,500 t, 62% less than that in 2018 (table 9). Exports of unwrought lead significantly decreased to China and the Republic of Korea, by 29,800 t and 9,730 t, respectively. Mexico (39%), China (30%), and Belgium (16%) were the leading destinations for the unwrought lead and lead alloys exported in 2019.

Domestic exports of lead in concentrates in 2019 equaled 259,000 t, 3% more than those in 2018 (table 9). Exports of lead in concentrates decreased to China, by 11,300 t, and Australia, by 7,310 t, but significantly increased to Italy, by 16,200 t. The leading destinations in 2019 were China (24%), Canada (20%), and the Republic of Korea (20%). All lead concentrates have been exported since the closure of Doe Run's Herculaneum primary smelter at yearend 2013.

A substantial quantity of lead contained in new and spent lead-acid batteries was traded annually. U.S. Census Bureau trade data indicated that, in 2019, the United States imported about 37 million SLI lead-acid batteries for consumption, a 6% increase from that in 2018. Mexico was the leading source of SLI batteries, accounting for 51% of those imported in 2019. Other major import sources of SLI batteries were the Republic of Korea (20%), China (7%), and Vietnam (5%). The United States exported 27 million spent SLI lead-acid batteries in 2019, slightly more than that in 2018. Spent batteries were shipped mainly to Mexico (87%) for recycling. Much of the lead recovered from the exported spent batteries was used to manufacture lead-acid batteries in Mexico, which were in turn exported back to the United States.

World Review

World mine production of lead increased by 4% to 4.72 Mt in 2019 from 4.56 Mt in 2018 (tables 1, 11). The United States was the fourth-leading producer and accounted for 6% of global lead mine production. The three leading lead mine producers were China (42%), Australia (11%), and Peru (7%). Globally in 2019, approximately 215,000 metric tons per year (t/yr) of lead mine production capacity was opened, and 54,000 t/yr of capacity was reported closed (International Lead and Zinc Study Group, 2020c, p. 9).

World production of refined lead (primary and secondary) totaled 11.6 Mt, unchanged from that in 2018 (table 12). The United States was the second-leading global producer of refined lead (after China) and accounted for 10% of global production, the same as that in 2018.

According to the ILZSG, global consumption of refined lead in 2019 was 12.2 Mt, unchanged from that in 2018. The leading refined-lead-consuming countries in 2019 were China (41%), the United States (13%), India (7%), the Republic of Korea (5%), and Germany (3%) (International Lead and Zinc Study Group, 2022, p. 9–10).

Outlook

At its October 2019 meeting in Lisbon, Portugal, the ILZSG forecasted a 4% decrease in global refined lead production in 2020 to 11.7 million tons, and metal consumption was forecasted to decrease by 7% to 11.4 Mt. In 2020, the quarantine-related restrictions imposed because of the global coronavirus disease 2019 (COVID-19) pandemic affected the mining industry in several countries, especially Bolivia, Kazakhstan, Mexico, and Peru. Consequently, world mine production was forecasted to fall by 7% in 2020 compared with that in 2019 (International Lead and Zinc Study Group, 2020a, b).

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TABLE 1
SALIENT LEAD STATISTICS[1]

		2015	2016	2017	2018	2019
United States:						
Production:						
Mine, contained lead content	metric tons	370,000	346,000	310,000	280,000	274,000
Mine, recoverable lead content:[2]						
Quantity	do.	360,000	336,000	302,000	271,000	266,000
Value	thousands	$724,000	$699,000	$761,000	$661,000	$587,000
Primary lead, refined content, domestic ores and base bullion	metric tons	--	--	--	--	--
Secondary lead, lead content	do.	1,050,000	1,110,000	1,140,000	1,170,000	1,180,000
Exports:						
Lead ore and concentrates, lead content	do.	350,000	341,000	269,000	251,000	259,000
Refined lead and lead alloys, unwrought, gross weight	do.	55,700	42,700	23,900	66,900	25,500
Imports for consumption, gross weight:						
Base bullion	do.	342	237	--	860	78
Refined lead, unwrought	do.	417,000	416,000	538,000	448,000	406,000
Stocks, December 31, lead content at consumers and secondary smelters	do.	60,100	60,300	64,400	66,800 r	69,500
Consumption of metal, primary and secondary, lead content	do.	1,960,000 r	1,970,000 r	2,110,000 r	2,060,000 r	2,180,000
Price:[3]						
North American Market	cents per pound	91.20	94.39	114.45	110.89	99.91
London Metal Exchange Ltd., pure lead, cash average	do.	81.02	84.84	105.10	101.76	90.59
World production, lead content:						
Mine	metric tons	4,940,000 r	4,790,000 r	4,610,000 r	4,560,000	4,720,000
Refinery:						
Primary	do.	4,400,000 r	4,540,000 r	4,020,000 r	4,040,000 r	4,030,000
Secondary	do.	5,720,000 r	6,100,000 r	6,710,000 r	7,050,000 r	7,080,000
Undifferentiated	do.	419,000 r	490,000 r	552,000 r	540,000 r	473,000
Total	do.	10,500,000 r	11,100,000 r	11,300,000 r	11,600,000 r	11,600,000
Grand total	do.	15,500,000	15,900,000	15,900,000	16,200,000	16,300,000

rRevised. do. Ditto. -- Zero.
[1]Table includes data available through October 7, 2020. Data are rounded to no more than three significant digits, except prices; may not add to totals shown.
[2]Lead recoverable after smelting and refining. Data in table 11 represent lead in concentrate.
[3]Source: Platts Metals Week.

TABLE 2
LEADING LEAD-PRODUCING MINES IN THE UNITED STATES IN 2019, IN ORDER OF OUTPUT[1]

Rank	Mine	County and State[2]	Operator	Source of lead
1	Red Dog	Northern Region, AK	Teck Alaska Inc.	Zinc-lead ore.
2	Fletcher	Reynolds, MO	Doe Run Resources Corp.	Lead ore.
3	Viburnum (#29 and #35)	Washington and Iron, MO	do.	Do.
4	Brushy Creek	Reynolds, MO	do.	Do.
5	Buick	Iron, MO	do.	Do.
6	Sweetwater	Reynolds, MO	do.	Do.
7	Greens Creek	Southeastern Region, AK	Hecla Mining Co.	Silver-zinc ore.
8	Galena Complex	Shoshone, ID	Americas Gold and Silver Corp.	Silver ore.
9	Lucky Friday	do.	Hecla Mining Co.	Do.
10	Pend Oreille	Pend Oreille, WA	Teck American Inc.	Zinc-lead ore.

Do., do. Ditto.
[1]Table includes data available through October 7, 2020. The mines on this list accounted for 100% of the U.S. lead mine production in 2019.
[2]For Alaska, mines are located by geographic region, as delineated by the Alaska Division of Geological & Geophysical Surveys in its Special Report 75, Alaska's mineral industry 2019.

TABLE 3
LEAD RECOVERED FROM SCRAP PROCESSED IN THE UNITED STATES, BY KIND OF SCRAP AND FORM OF RECOVERY[1]

(Metric tons, lead content, unless otherwise specified)

		2018	2019
Kind of scrap:			
New scrap:			
Lead-base		W	W
Tin-base		W	W
Total		20,900	20,100
Old scrap, battery-lead[2]		1,150,000	1,160,000
Total, kind of scrap		1,170,000	1,180,000
Form of recovery:			
As soft lead		957,000 r	967,000
In antimonial lead		W	W
In other lead alloys		W	W
Total		1,170,000	1,180,000
Value, total[3]	thousands	$2,850,000 r	$2,590,000

[r]Revised. W Withheld to avoid disclosing company proprietary data; included in appropriate totals.
[1]Table includes data available through October 7, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]May include small amounts of other lead-base scrap.
[3]Value based on average quoted price of common lead.

TABLE 4
U.S. CONSUMPTION OF LEAD, BY PRODUCT[1]

(Metric tons, lead content)

SIC[2] code	Product	2018	2019
	Metal products:		
3482	Ammunition, shot and bullets	68,700 r	71,900
	Bearing metals:		
35	Machinery except electrical	--	W
371	Motor vehicles and equipment	W	W
37	Other transportation equipment	W	W
	Total	1,010	3,220
3351	Brass and bronze, billets and ingots	1,710	1,630
36	Cable covering, power and communication	1,170 r	1,920
15	Calking lead, building construction	(3)	(3)
	Casting metals:		
371	Motor vehicles and equipment	W	W
37	Other transportation equipment	W	W
3443	Nuclear radiation shielding	W	W
	Total	14,000	13,300
	Pipes, traps, other extruded products:		
15	Building construction	W	W
3443	Storage tanks, process vessels, etc.	W	W
	Total	6,590 r	6,580
	Sheet lead:		
15	Building construction	W	W
3443	Storage tanks, process vessels, etc.	W	W
3693	Medical radiation shielding	5,490	3,960
	Total	7,070	6,520
	Solder:		
15	Building construction	W	W
367	Electronic components, accessories and other electrical equipment	W	W
371	Motor vehicles and equipment	W	W
	Total	6,720	7,030
	Storage batteries:		
3691	Storage battery grids, post, etc.	780,000 r	846,000
3691	Storage battery oxides	1,120,000 r	1,170,000
	Total storage batteries	1,900,000 r	2,010,000
27	Type metal, printing and allied industries	(4)	--
34	Other metal products[5]	109 r	60
	Total, metal products	2,040,000 r	2,150,000
	Other oxides:		
285	Paint	W	W
32	Glass and ceramics products	W	W
28	Other pigments and chemicals	1,410	644
	Total	10,900	10,100
	Miscellaneous uses	10,300	10,300
	Grand total	2,060,000 r	2,180,000

rRevised. W Withheld to avoid disclosing company proprietary data; included in appropriate totals. -- Zero.
[1]Table includes data available through October 7, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Standard Industrial Classification.
[3]Withheld to avoid disclosing company proprietary data; included in "Total, metal products."
[4]Withheld to avoid disclosing company proprietary data; included in "Other metal products."
[5]Includes lead consumed in annealing, collapsible tubes, electrowinning, fishing weights, foil, galvanizing, plating, and terne metal.

TABLE 5
U.S. CONSUMPTION OF LEAD IN 2019, BY CLASS OF PRODUCT[1, 2]

(Metric tons, lead content)

Product	Refined soft lead	Lead in antimonial lead	Lead in alloys	Lead in copper-base scrap[3]	Total
Metal products	65,100	70,600	7,360	(3)	143,000
Storage batteries	1,230,000	401,000	385,000	--	2,010,000
Miscellaneous[4]	W	--	W	--	W
Total	1,290,000	472,000	393,000	(3)	2,150,000

W Withheld to avoid disclosing company proprietary data. -- Zero.
[1]Table includes data available through October 7, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes lead that went directly from scrap to fabricated products.
[3]Data for lead in copper-base scrap are withheld to avoid disclosing company proprietary data; included in "Lead in alloys."
[4]Included in "Miscellaneous" are other oxides and gasoline additives.

TABLE 6
STOCKS OF LEAD AT CONSUMERS AND SECONDARY SMELTERS IN THE UNITED STATES, DECEMBER 31[1]

(Metric tons, lead content)

Year	Refined soft lead	Lead in antimonial lead	Lead in alloys	Lead in copper-base scrap	Total
2018	32,500 r	26,300 r	7,940	W	66,800 r
2019	37,900	23,600	8,030	W	69,500

rRevised. W Withheld to avoid disclosing company proprietary data; included in "Lead in alloys."
[1]Table includes data available through October 7, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 7
PRODUCTION AND SHIPMENTS OF LEAD PIGMENTS AND OXIDES IN THE UNITED STATES[1, 2]

(Metric tons and dollars)

	2018				2019			
	Production		Shipments[e]		Production		Shipments[e]	
Product	Gross weight	Lead content	Quantity (lead content)	Value[3]	Gross weight	Lead content	Quantity (lead content)	Value[3]
Litharge, red lead and white lead, dry	3,170	2,940	2,940	8,530,000	NA	NA	NA	NA
Leady oxide	933,000	887,000	NA	NA	1,000,000	950,000	NA	NA
Total	936,000	889,000	NA	NA	1,000,000	950,000	NA	NA

[e]Estimated. NA Not available.
[1]Table includes data available through October 7, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Excludes basic lead sulfate to avoid disclosing company proprietary data.
[3]At plant, exclusive of container.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF LEAD PIGMENTS AND COMPOUNDS, BY KIND[1]

Kind	Quantity (metric tons, gross weight)	Value (thousands)
2018:		
White lead carbonate	2	$5
Red and orange lead	30	236
Chrome yellow, molybdenum orange pigments, lead-zinc chromates	1,390	6,890
Litharge	898	3,500
Glass frits (undifferentiated)	43,800	93,700
2019:		
White lead carbonate	10	28
Red and orange lead	12	95
Chrome yellow, molybdenum orange pigments, lead-zinc chromates	608	3,260
Litharge	818	3,180
Glass frits (undifferentiated)	52,200	106,000

[1]Table includes data available through September 4, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 9
U.S. EXPORTS OF LEAD, BY COUNTRY OR LOCALITY[1]

Country or locality	2018 Quantity (metric tons)	2018 Value (thousands)	2019 Quantity (metric tons)	2019 Value (thousands)
Lead ore and concentrates, lead content:				
Australia	7,310	$13,100	--	--
Canada	51,200	95,200	52,400	$89,600
China	73,600	147,000	62,300	114,000
Germany	15,100	27,400	--	--
Italy	7,170	14,500	23,400	39,900
Japan	19,100	33,700	25,100	42,700
Korea, Republic of	48,700	91,900	51,300	92,500
Mexico	19,100	39,900	24,700	44,000
Netherlands	7,100	15,500	15,000	26,300
Thailand	2,900	1,970	3,390	2,990
Other	27	25	1,810	1,810
Total	251,000	480,000	259,000	454,000
Base bullion, gross weight:				
Canada	1,890	4,660	1,150	3,030
Other	162	299	102	183
Total	2,060	4,960	1,250	3,220
Refined lead and lead alloys, unwrought, gross weight:[2]				
Belgium	6,280	13,400	4,080	8,570
Canada	238	512	245	302
China	37,400	74,200	7,540	3,380
Ecuador	108	114	167	252
India	130	218	1,310	1,730
Japan	1,320 r	2,750	322	225
Korea, Republic of	10,000	22,300	299	501
Mexico	11,100	23,400	9,930	24,600
Turkey	--	--	553	1,110
Qatar	(3)	5	563	343
Other	354 r	350 r	454	466
Total	66,900	137,000	25,500	41,500
Wrought lead and other products, gross weight:[4]				
Canada	1,070	5,380	1,020	5,430
China	133	938	198	1,160
Ecuador	17	120	1,000	1,800
France	133	1,270	208	1,630
Germany	249	26,000	106	6,710
India	1,350	3,060	1,730	3,590
Kuwait	329	5,820	98	2,430
Mexico	584	3,700	580	3,640
Philippines	266	467	246	776
United Arab Emirates	406	877	260	609
Other	1,440 r	11,700 r	1,160	8,830
Total	5,980	59,400	6,600	36,600
Scrap, gross weight:[5]				
Bangladesh	124	60	--	--
Cayman Islands	136	62	--	--
Colombia	73	22	--	--
Guyana	58	17	--	--
Honduras	571	171	--	--
India	1,090	544	--	--
Korea, Republic of	7,340	11,900	--	--
Mexico	174	54	--	--
Pakistan	1,550	1,340	--	--
United Arab Emirates	225	68	--	--
Other	675	381	--	--
Total	12,000	14,600	--	--

See footnotes at end of table.

TABLE 9—Continued
U.S. EXPORTS OF LEAD, BY COUNTRY OR LOCALITY[1]

[r]Revised. -- Zero.
[1]Table includes data available through September 8, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes refined lead (Schedule B export code 7801.10.0000), containing by weight antimony as the principal other element (Schedule B export code 7801.91.0000), lead alloys (Schedule B export code 7801.99.9030), and other unwrought lead (Schedule B export code 7801.99.9050).
[3]Less than ½ unit.
[4]Includes lead plates, sheets, strip and foil (Schedule B export codes 7804.11.0000, 7804.19.0000); lead bars, rods, profiles and wire (Schedule B export code 7806.00.0300); lead tubes, pipes and tube or pipe fittings (Schedule B export code 7806.00.0500); and other wrought lead (schedule B export code 7806.00.8000).
[5]Includes lead waste and scrap obtained from scrap lead-acid batteries (Schedule B export code 7802.00.0030).

Source: U.S. Census Bureau.

TABLE 10
U.S. IMPORTS FOR CONSUMPTION OF LEAD, BY COUNTRY OR LOCALITY[1]

Country or locality	2018 Quantity (metric tons)	2018 Value (thousands)	2019 Quantity (metric tons)	2019 Value (thousands)
Base bullion, gross weight:				
Canada	--	--	53	$116
Chile	785	$1,710	--	--
Ecuador	75	201	25	62
Total	860	1,910	78	178
Refined lead, unwrought, gross weight:[2]				
Argentina	6,050	13,900	4,300	8,430
Australia	2,780	5,620	--	--
Brazil	15,500	38,000	9,920	20,900
Burma	100	253	1,500	3,210
Canada	148,000	327,000	159,000	322,000
Colombia	491	1,320	801	1,770
Dominican Republic	250	595	50	102
Ecuador	10,900	26,500	19,800	41,700
Honduras	199	487	--	--
India	23,200	59,100	4,090	8,780
Israel	1,820	4,660	2,200	4,620
Kazakhstan	5,130	12,300	17,800	36,300
Korea, Republic of	106,000	271,000	76,000	168,000
Mexico	107,000	188,000	96,700	163,000
Nigeria	47	98	994	2,060
Panama	125	278	400	774
Peru	3,350	7,670	3,030	6,400
Russia	6,460	16,800	6,070	12,600
South Africa	174	398	20	87
Sri Lanka	625	1,630	--	--
Thailand	7,500	19,000	1,250	2,740
United Kingdom	485	1,230	404	987
Venezuela	2,460	5,730	2,080	4,280
Other	100 r	230 r	251	568
Total	448,000	1,000,000	406,000	809,000
Wrought lead and other products, gross weight:[3]				
Argentina	109	299	95	247
Canada	3,190	11,700	2,290	8,230
China	887	4,840 r	3,110	7,080
Germany	589	4,690 r	444	4,150
Mexico	148	514	100	515
Peru	120	319	132	328
Taiwan	117	522	167	594
Thailand	69	284	82	347
United Kingdom	843	2,390	1,140	3,170
Vietnam	229	999	165	674
Other	590 r	3,810 r	294	3,560
Total	6,890	30,400	8,020	28,900
Scrap, lead content:[4]				
Cayman Islands	263	266	197	177
Dominican Republic	--	--	745	388
St. Vincent and the Grenadines	16	4	407	568
Sint Maarten	194	98	136	67
Suriname	728	1,270	--	--
Other	462 r	560 r	838	1,080
Total	1,660	2,200	2,320	2,280

rRevised. -- Zero.
[1]Table includes data available through September 8, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes refined lead [Harmonized Tariff Schedule of the United States (HTS) code 7801.10.0000].
[3]Includes lead plates, sheets, strip and foil (HTS codes 7804.11.0000, 7804.19.0000); lead bars, rods, profiles and wire (HTS code 7806.00.0300); lead tubes, pipes and tube or pipe fittings (HTS code 7806.00.0500); and other wrought lead (HTS code 7806.00.8000).
[4]Includes lead waste and scrap obtained from scrap lead-acid batteries (HTS code 7802.00.0030).

Source: U.S. Census Bureau.

TABLE 11
LEAD: WORLD MINE PRODUCTION OF LEAD IN CONCENTRATE BY COUNTRY OR LOCALITY[1]

(Metric tons, lead content)

Country or locality	2015	2016	2017	2018	2019
Argentina	29,834	28,016	40,135	28,260 r	32,000 e
Australia	653,488	441,338	459,487	431,552 r	509,198
Bolivia	75,273	89,510	111,566	112,140	88,000 e
Bosnia and Herzegovina	6,700 r	6,800	6,700 r	7,100 r	6,600
Brazil	9,440	8,134 r	7,000 e	7,000 e	6,000 e
Bulgaria	18,700	23,600	21,100	26,532 r	35,453
Burkina Faso	1,100	--	--	--	--
Burma[e]	13,600	14,000	20,900	38,200 r	37,800
Canada	3,699	12,020	13,494	18,947	21,782
Chile	2,979	1,110	1,562	712	7
China	2,335,000	2,337,500	2,032,000 r	1,976,000 r	2,010,000 e
Congo (Kinshasa)	653	101	--	--	625
Cuba	--	--	3,000 e	24,000 e	32,000 e
Greece	9,200	11,300	8,700	9,800	10,500
Guatemala	10,193	4,181	13,803	264	--
Honduras	9,844	4,400	6,760	9,893	12,308
India	136,000	147,000	175,000	192,496	200,000 e
Indonesia[e]	5,000	5,000	8,000	11,000	11,000
Iran[e, 2]	40,800	47,000	48,000	48,000	50,000
Ireland	31,300	19,600	17,083	16,712	16,100
Kazakhstan	40,700	70,500	111,200	86,500 r	56,000 e
Korea, North[e]	35,000	42,000	35,000	30,000	26,000
Korea, Republic of	2,921	2,839	3,762	2,341	1,933
Kosovo	6,400	8,100	6,500	6,800	5,300
Laos[e]	200 r	230 r	660 r	340 r	380
Macedonia	28,698	23,487	24,823	32,100 e	33,700 e
Mexico	263,772	241,271	243,022	240,000 e	259,000 e
Mongolia[e]	--	5,000	7,000	11,000	12,000
Montenegro	3,476	5,188	4,447	4,427	4,971
Morocco	32,165	28,670	38,041	30,382 r	30,000 e
Namibia[e]	9,300	7,500	7,100	8,200	7,000
Nigeria[e]	8,000	13,000	21,000 r	18,000 r	24,000
Pakistan	--	1,280 e	3,250 e	5,140 e	8,630 e
Peru	315,525	314,422	306,794	289,195	308,116
Poland	20,000	17,000	12,706	13,234	20,156
Portugal	3,077	4,126	5,164	18,397 r	27,852
Russia	171,200	204,300	210,800 r	220,000	230,000 e
Serbia[e]	3,300	3,500	3,200	3,200	3,000
South Africa	34,573	39,344	48,150	35,118 r	42,936
Spain	1,490	4,946	3,268	21,000 e	22,000 e
Sweden	79,354	76,066	71,112	64,751	68,635
Tajikistan[e]	38,000	57,000	61,000	59,000	65,000
Turkey[e]	74,000	65,000	68,000	76,000	71,000
United Kingdom[e]	100	100	100	100	100
United States	370,000	346,000	310,000	280,000	274,000
Uzbekistan[e]	3,000	5,000	5,000	30,000	35,000
Vietnam[e]	1,890	810	4,560	14,500 r	12,500
Total	4,940,000 r	4,790,000 r	4,610,000 r	4,560,000	4,720,000

[e]Estimated. [r]Revised. -- Zero.

[1]Table includes data available through December 1, 2020. All data are reported unless otherwise noted. Totals, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

[2]Production is based on fiscal year, with a starting date of March 21 of the year shown.

TABLE 12
LEAD: WORLD REFINERY PRODUCTION, BY COUNTRY OR LOCALITY[1]

(Metric tons)

Country or locality[2]	2015	2016	2017	2018	2019
Argentina:					
Primary	8,000 e	8,000 e	10,000 e	14,000 e	--
Secondary[e]	33,000	33,000	35,000	26,000	28,000
Total	41,000 e	41,000 e	45,000 e	40,000 e	28,000
Australia:					
Primary	182,258	182,830	168,300	155,482 r	90,000
Secondary[e]	45,000 r	41,000 r	43,000 r	33,000	35,000
Total	227,000 r	224,000 r	211,000 r	188,000	125,000
Austria, secondary	24,399	24,000 e	24,000 e	24,000 e	27,000 e
Belgium, secondary	130,000	141,000	139,000 r	138,000 r	140,000
Bolivia, primary	459	41	1,160	635	600 e
Bosnia and Herzegovina, secondary	145	182	25	25	NA
Brazil, secondary	152,161 r	156,186 r	180,000 e	195,000 e	195,000 e
Bulgaria, primary and secondary	96,900	100,817	103,105	102,808	102,473
Burma, primary[e]	600	5,900	12,000	12,000	12,000
Canada:					
Primary	127,264	142,076	-- r	-- r	--
Secondary	141,600	132,150	149,506	129,508 r	147,358
Total	269,000	274,000	150,000 r	130,000 r	147,000
China:					
Primary	2,870,000	3,017,000	2,649,000 r	2,691,000 r	2,749,000
Secondary	1,552,000	1,663,000	2,049,000 r	2,252,000 r	2,210,000
Total	4,422,000 r	4,680,000	4,698,000 r	4,943,000 r	4,959,000
Czechia, secondary	45,000	43,000	45,000	45,000	45,000
Estonia, secondary	8,329	8,348	9,606	7,393	7,400 e
France, secondary	72,000 e	70,000	70,000	70,000	70,000
Germany:					
Primary	125,000	115,000	113,000	98,000 r	100,000 e
Secondary	253,000	224,000	241,000	217,000 r	215,000 e
Total	378,000	339,000	354,000	315,000	315,000 e
Ghana, secondary	3,048	1,800	1,150	1,000 e	--
India:					
Primary	143,000	134,000	165,122	195,055 r	185,000
Secondary	358,000	555,000 r	647,000 r	688,000 r	737,000
Total	501,000	689,000 r	812,122 r	883,055 r	922,000
Indonesia, secondary[e]	46,000	48,000	46,000	54,000	54,000
Iran:[e]					
Primary	30,000 r	22,000 r	29,000 r	25,000 r	24,000
Secondary	100,000 r	108,000 r	103,000 r	100,000 r	98,000
Total	130,000 r	130,000 r	132,000 r	125,000 r	122,000
Ireland, secondary	17,200	18,000	17,500	15,000	16,300
Israel, secondary	26,000	24,128	25,261	28,700	24,090
Italy:					
Primary	52,100	47,300	30,400	32,900	32,900
Secondary	157,800	139,900	143,300	134,600	126,000
Total	209,900 r	187,200 r	173,700 r	167,500 r	158,900
Japan:					
Primary	85,700 r	84,700 r	87,400 r	78,200 r	82,100
Secondary	109,000 r	114,000 r	112,000 r	118,000 r	116,000
Total	194,000	199,000	199,000	197,000	198,000
Kazakhstan, primary and secondary	120,108	134,192	149,129	152,767 r	132,669
Kenya, secondary[e]	1,100	1,100	1,400	1,500 r	1,500
Korea, North, primary[e]	1,000	2,000	2,000	2,000	3,000
Korea, Republic of:					
Primary	291,000	441,000	423,000 r	410,000 r	404,000
Secondary	350,000	390,000	380,000	390,000	390,000
Total	641,000	831,000	803,000	800,000	794,000
Lebanon, secondary[e]	10,600	11,300	11,900	6,000	1,600

See footnotes at end of table.

TABLE 12—Continued
LEAD: WORLD REFINERY PRODUCTION , BY COUNTRY OR LOCALITY[1]

(Metric tons)

Country or locality[2]	2015	2016	2017	2018	2019
Mexico:					
Primary[3]	263,772	94,725	92,535	104,000 e	119,000
Secondary	230,000 e	230,000	230,000 e	330,000 e	328,000
Total	494,000	325,000	323,000 e	434,000 e	447,000
Morocco, secondary[e]	8,000 r	11,000 r	8,000 r	8,000	8,000
Mozambique, secondary	2,310	2,494	3,828	3,422 r	3,943
Netherlands, secondary[e]	30,000	33,000	36,000	36,000	36,000
Nigeria, secondary	2,000 e	9,000 e	8,300 r	6,000 e	12,000 e
Oman, secondary	--	--	5,000	10,000	10,000
Pakistan, secondary	5,000	8,000	5,000 r	18,000 r	32,000
Peru, secondary[e]	10,000	10,000	15,000	15,000	15,000
Philippines, secondary[e]	28,000	14,000	10,000	10,000	10,000
Poland:					
Primary	40,000	40,000	41,000	40,000	48,000
Secondary	114,000	115,000	119,000	120,000	114,000
Total	154,000	155,000	160,000	160,000	162,000
Portugal, secondary	8,000 r	8,000 r	10,000 r	9,000	10,000
Romania:					
Primary	1,300	290	--	--	--
Secondary	12,000	13,000	18,000	15,000	16,000
Total	13,300	13,290 r	18,000	15,000	16,000
Russia, primary and secondary	106,000	130,000 r	140,000 r	140,000 r	140,000 e
Senegal, secondary	1,857	3,576	3,424	3,693	3,500 e
Serbia, primary and secondary	15,000 e	15,000 e	15,000 e	13,000 r	14,400
Slovenia, secondary[e]	12,000	12,000	12,000	12,000	12,000
South Africa, secondary[e]	52,000	54,000	54,000	56,000	56,000
Spain, secondary[e]	165,000	169,000 r	188,000 r	190,000 r	188,000
Sri Lanka, secondary[e]	3,000 r	2,900 r	3,400 r	3,600 r	3,700
Sweden:					
Primary	26,200 r	28,400 r	28,300 r	28,900 r	28,500
Secondary	44,800	46,000	50,200	47,200	49,500
Total	71,000 r	74,400 r	78,500 r	76,100 r	78,000
Taiwan, secondary	46,000	48,000	48,000	58,000	55,000
Tajikistan	59,295	84,749	114,000 r	99,000 r	49,000
Turkey, secondary[e]	56,000	58,000	58,000	58,000	56,000
Uganda, secondary[e]	800	800	800	800	800
Ukraine, secondary	30,000 e	28,465	33,633	29,755 r	24,050
United Kingdom:					
Primary[4]	149,000 r	170,000 r	165,000 r	153,000 r	153,000 e
Secondary[5]	158,000	158,000	160,000	165,000 r	165,000
Total	307,000 r	328,000 r	325,000 r	318,000 r	318,000
United States, secondary	1,050,000	1,110,000	1,140,000	1,170,000	1,180,000
Venezuela, secondary[e]	20,000	16,000	16,000	9,000	8,000
Vietnam	22,000	25,000	31,000	32,000	34,000
Grand total	10,500,000 r	11,100,000 r	11,300,000 r	11,600,000 r	11,600,000
Of which:					
Primary	4,400,000 r	4,540,000 r	4,020,000 r	4,040,000 r	4,030,000
Secondary	5,720,000 r	6,100,000 r	6,710,000 r	7,050,000 r	7,080,000
Undifferentiated	419,000 r	490,000 r	552,000 r	540,000 r	473,000

[e]Estimated. [r]Revised. NA Not available. -- Zero.

[1]Table includes data available through January 7, 2021. All data are reported unless otherwise noted. Grand totals, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

[2]In addition to the countries and (or) localities listed, Algeria, Colombia, Egypt, El Salvador, Iraq, Malaysia, Saudi Arabia, Trinidad and Tobago, and Zambia may have produced secondary lead, but available information was inadequate to make reliable estimates of output.

[3]Includes lead content in antimonial lead.

[4]Produced entirely from imported bullion and includes the lead content of alloys.

[5]Includes a small quantity of primary lead from domestic concentrate.