

# Mineral Industry Surveys

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## LEAD IN DECEMBER 2017

Domestic mine production (recoverable) of lead in December was 22,000 metric tons (t). Average daily mine production in December was 711 t, 22% less than that in the previous month. The total mine production at yearend 2017 was 302,000 t, 10% less than that at yearend 2016. Total secondary refined lead production in December was 84,300 t, which was 4% more than that in the previous month and 3% more than that in December 2016 (fig. 1; tables 1, 5). At yearend 2017, total secondary refined lead production was 1,010,000 t, essentially unchanged from that at yearend 2016.

average U.S. used lead-acid batteries (Midwest) price in December 2017 was \$0.43 per pound, essentially unchanged from that in November and 26% more than that in December 2016 (table 2). The majority of secondary lead is recovered from used lead-acid batteries.

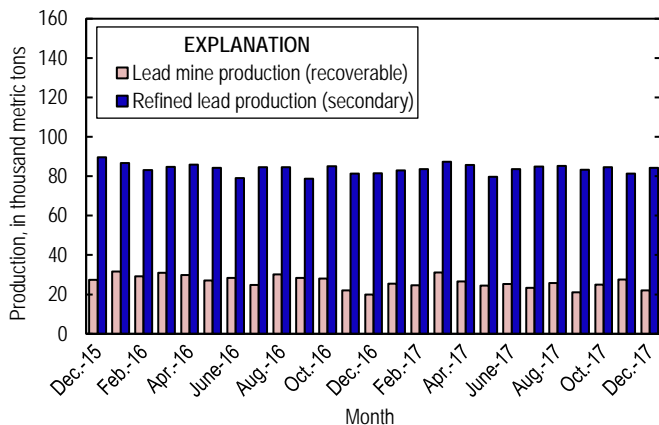


Figure 1. U.S. production of lead from December 2015 through December 2017. Source: U.S. Geological Survey.

The Platts Metals Week average North American Market price for lead in December 2017 was \$1.23 per pound, and the London Metal Exchange, Ltd. (LME) cash price was \$1.14 per pound, which were slightly more than those in the previous month, but 12% more than those in December 2016. North American Market price and LME cash price were 40% and 47% more than that in 2015, respectively (fig. 2, table 2). The Platts

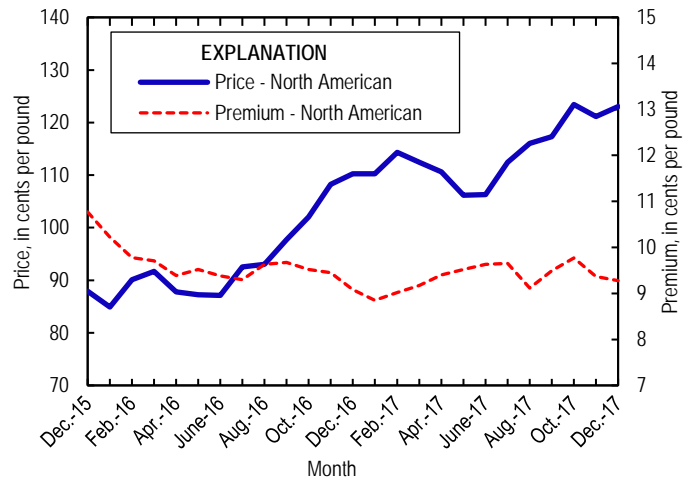


Figure 2. Average monthly North American price and premium for refined lead metal from December 2015 through December 2017. Source: Platts Metals Week.

Global LME lead stocks at yearend 2017 were 142,225 t, which were slightly less than those at the end of November 2017 and 27% lower than those at the end of December 2016 (table 10).

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TABLE 1  
SALIENT LEAD STATISTICS IN THE UNITED STATES<sup>1</sup>

(Metric tons, lead content, unless otherwise specified)

	2016	2017		
	January– December <sup>2</sup>	November	December	January– December <sup>2</sup>
<b>Production:</b>				
Mine (recoverable)	336,000	27,500 <sup>r</sup>	22,000	302,000
Secondary refinery, reported by smelters/refineries	1,000,000	81,400	84,300	1,010,000
Consumption of refined lead, apparent <sup>e, 3</sup>	1,490,000	129,000	120,000	1,640,000
Stocks, end of period, consumers and secondary smelters	101,000	139,000 <sup>r</sup>	161,000	161,000
<b>Imports for consumption:</b>				
Ore and concentrate	3	--	--	--
Bullion	237	--	--	--
Unwrought	533,000	48,600	37,700	657,000
<b>Exports:</b>				
Ore and concentrate	341,000	17,800	2,610	269,000
Bullion (gross weight)	1,310	79	--	1,550
Unwrought (gross weight)	42,700	1,350	1,700	23,900
Platts Metals Week North American Market				
price (cents per pound)	94.39	121.13	123.05	114.45

<sup>e</sup>Estimated. <sup>r</sup>Revised. -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits, except prices; may not add to totals shown.

<sup>2</sup>May include revisions to previously published data.

<sup>3</sup>Smelter production plus imports for consumption minus domestic exports.

TABLE 2  
MONTHLY AVERAGE LEAD PRICES

	North	London Metal Exchange		Used lead-acid
	American Market <sup>1</sup>	cash		batteries <sup>2</sup>
	¢/lb	¢/lb	\$/t	¢/lb
2016:				
December	110.24	101.16	2,230.30	34.25
January–December	94.39	84.84	1,870.33	32.46
2017:				
January	110.28	101.43	2,236.25	34.75
February	114.31	105.29	2,321.24	36.94
March	112.44	103.27	2,276.75	38.31
April	110.59	101.19	2,230.78	39.94
May	106.19	96.67	2,131.16	41.00
June	106.27	96.64	2,130.64	41.88
July	112.43	102.78	2,265.85	42.44
August	116.02	106.90	2,356.76	43.13
September	117.30	107.81	2,376.81	43.31
October	123.43	113.66	2,505.76	43.08
November	121.13	111.76	2,463.80	43.28
December	123.05	113.77	2,508.20	43.00
January–December	114.45	105.10	2,317.00	40.92

<sup>1</sup>Platts Metals Week North American Market price. Reflects the LME lead cash price plus the Platts premium for 99.97% lead.

<sup>2</sup>Platts Metals Week assessment for used lead-acid automotive batteries (50% lead) picked up in U.S. Midwest, suitable for delivery to secondary smelters within 30 days.

Source: Platts Metals Week.

TABLE 3  
CONSUMPTION OF PURCHASED LEAD-BASE SCRAP IN DECEMBER 2017<sup>1</sup>

(Metric tons, gross weight)

Item	Stocks November 30, 2017	Net receipts	Consumption	Stocks December 31, 2017
Battery-lead	52,700	83,200	82,300	53,600
Other <sup>2</sup>	4,340	1,900	2,030	4,210
Total	57,100	85,100	84,400	57,800
Percent change from preceding month <sup>3</sup>	XX	1.2	0.2	1.3

XX Not applicable.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes soft lead, solder, drosses and residues, common babbitt, antimonial lead, cable covering, type metals, and other lead-base scrap.

<sup>3</sup>Based on unrounded data; preceding monthly data may have been revised.

TABLE 4  
LEAD, TIN, AND ANTIMONY RECOVERED FROM  
LEAD-BASE SCRAP IN DECEMBER 2017<sup>1</sup>

(Metric tons)

Product recovered	Secondary metal content		
	Lead	Tin	Antimony
Soft and calcium lead	77,500	W	--
Remelt lead	--	--	W
Antimonial lead	6,770	W	W
Other <sup>2</sup>	--	W	--
Total lead-base	84,300	29	322

W Withheld to avoid disclosing company proprietary data; included in "Total." -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes cable lead, lead-base babbitt, solder, type metals, and other products.

TABLE 5  
U.S. APPARENT CONSUMPTION OF LEAD<sup>1</sup>

(Metric tons)

Period	Production	Imports <sup>2,3</sup>	Exports <sup>2,3</sup>	Apparent consumption <sup>4</sup>
2016: <sup>p</sup>				
December	81,500	55,100	3,320	133,000
January–December	1,000,000	533,000	42,700	1,490,000
2017:				
January	82,900	65,700	2,660	146,000
February	83,600	55,500	3,530	136,000
March	87,300	60,800	1,740	146,000
April	85,700	51,800	2,740	135,000
May	79,700	72,700	2,090	150,000
June	83,700	42,900	1,490	125,000
July	85,000	64,000	1,950	147,000
August	85,300	45,900	2,890	128,000
September	83,300	65,200	959	147,000
October	84,600	46,600	834	130,000
November	81,400	48,600	1,350	129,000
December	84,300	37,700	1,700	120,000
January–December	1,010,000	657,000	23,900	1,640,000

<sup>p</sup>Preliminary.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Import and export data are for Harmonized Tariff Schedule of the United States (HTS) codes 7801.10.0000, 7801.91.0000, 7801.99.9030, 7801.99.9050.

<sup>3</sup>Source: U.S. Census Bureau.

<sup>4</sup>Smelter production plus imports for consumption minus domestic exports.

TABLE 6  
U.S. EXPORTS OF LEAD, BY CLASS<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

	2016	2017		
	January– December <sup>2</sup>	November	December	January– December
Ores and concentrate (lead content):	341,000	17,800	2,610	269,000
Bullion	1,310	79	--	1,550
Unwrought:				
Refined lead	617	8	113	2,020
Refined lead containing antimony as the principal alloying element	6,020	--	81	2,330
Lead alloys	35,800	1,290	1,510	19,300
Other	239	47	--	283
Total	42,700	1,350	1,700	23,900
Wrought:				
Bars, rods, profiles, and wire	1,560	96	86	1,040
Pipes and tubes, including fittings	387	4	53	251
Plates, sheets, strip, foil	2,440	340	452	4,700
Other	1,510	92	164	2,000
Total	5,900	532	755	7,990
Powders and flakes	146	29	10	186
Tetraethyl lead and tetramethyl lead	302	59	35	260
Waste and scrap:				
Spent lead-acid storage batteries for starting engines	24,200	1,890	1,910	19,700
Lead waste and scrap obtained from lead-acid storage batteries	16,700	1,820	1,850	20,000
Other lead waste and scrap	29,200	3,930	4,020	36,000

-- Zero.

<sup>1</sup>Data are rounded to more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 7  
U.S. EXPORTS OF LEAD ORES AND CONCENTRATES, BY COUNTRY<sup>1</sup>

(Metric tons, lead content)

	2016	2017		January– December
	January– December <sup>2</sup>	November	December	
Australia	--	--	--	7,370
Belgium	8,940	--	--	--
Canada	48,100	6,690	1,350	37,000
China	161,000	11,000	1,100	134,000
Germany	32,700	--	--	14,800
Italy	17,700	--	--	7,470
Japan	20,200	--	111	24,400
Korea, Republic of	51,700	--	--	43,300
Mexico	535	130	30	868
Peru	--	--	29	29
Saudi Arabia	--	--	--	15
Total	341,000	17,800	2,610	269,000

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.



TABLE 8  
U.S. IMPORTS FOR CONSUMPTION OF LEAD, BY CLASS<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

	2016	2017		
	January– December <sup>2</sup>	November	December	January– December
Ores and concentrate (lead content):	3	--	--	--
Bullion (lead content)	237	--	--	--
Unwrought:				
Refined lead	416,000	39,100	29,000	538,000
Refined lead containing antimony as the principal alloying element (lead content)	40,400	3,020	2,710	40,800
Lead alloys (lead content)	28,900	1,940	1,650	22,300
Other (lead content)	48,100	4,620	4,360	56,500
Total	533,000	48,600	37,700	657,000
Wrought:				
Bars, rods, profiles, and wire	3,360	106	44	2,020
Pipes and tubes, including fittings	45	4	(2)	37
Plates, sheets, strip, foil	1,550	78	73	1,590
Other	3,270	353	363	3,840
Total	8,230	541	480	7,480
Powders and flakes	1,310	41	27	343
Tetraethyl lead and tetramethyl lead	576	48	80	1,030
Waste and scrap:				
Spent lead-acid storage batteries for starting engines (units)	1,070	65	92	1,460
Lead waste and scrap obtained from lead-acid storage batteries (lead content)	1,480	177	77	4,180
Other lead waste and scrap (lead content)	4,420	121	255	2,430

-- Zero.

<sup>1</sup>Data are rounded to more than three significant digits; may not add to totals shown.

<sup>2</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 9  
U.S. IMPORTS FOR CONSUMPTION OF UNWROUGHT LEAD BY  
COUNTRY OR LOCALITY<sup>1</sup>

(Metric tons, lead content)

Material and country or locality of origin	2016	2017		January– December
	January– December <sup>2</sup>	November	December	
<b>Refined lead:</b>				
Argentina	281	405	753	2,880
Australia	3,820	507	--	7,570
Azerbaijan	--	72	72	955
Bolivia	511	--	--	889
Brazil	8,090	3,530	1,460	20,800
Burma	--	--	--	1,150
Canada	176,000	9,530	11,200	160,000
China	273	1	--	12
Colombia	2,020	--	--	1,500
Dominican Republic	317	24	--	693
Ecuador	4,280	1,470	1,300	14,400
Germany	1,230	--	--	--
Ghana	--	--	--	97
India	20,200	4,980	2,010	55,400
Israel	--	--	--	1,990
Kazakhstan	10,600	--	509	5,550
Korea, Republic of	89,300	9,210	--	127,000
Mexico	71,800	7,720	7,630	103,000
Nigeria	1,040	--	--	1,480
Peru	1,410	500	500	3,900
Poland	--	--	--	51
Russia	13,200	187	3,110	14,700
Saudi Arabia	608	--	--	999
Serbia	--	--	--	2,020
South Africa	677	--	--	654
Sri Lanka	1,720	250	250	2,500
Sweden	4,000	--	--	--
Thailand	200	396	195	3,450
Ukraine	79	--	--	--
United Arab Emirates	682	100	--	148
United Kingdom	289	117	--	532
Venezuela	3,480	50	--	3,030
<b>Total</b>	<b>416,000</b>	<b>39,100</b>	<b>29,000</b>	<b>538,000</b>
<b>Other unwrought lead:<sup>2</sup></b>				
Argentina	20	--	--	882
Australia	189	--	--	--
Bolivia	75	224	--	456
Brazil	368	--	--	1,550
Canada	88,600	7,550	7,620	91,200
Chile	730	190	335	2,220
Costa Rica	--	--	--	171
Ecuador	3,710	22	--	2,310
Egypt	24	--	--	402
Ghana	246	--	--	98
Guatemala	646	--	--	96
Honduras	--	685	684	3,840
India	2,210	--	--	1,780

See footnotes at end of table.

TABLE 9—Continued  
U.S. IMPORTS FOR CONSUMPTION OF UNWROUGHT LEAD BY  
COUNTRY OR LOCALITY<sup>1</sup>

(Metric tons, lead content)

Material and country or locality of origin	2016	2017		January– December
	January– December <sup>2</sup>	November	December	
Korea, Republic of	10,200	--	--	--
Mexico	5,350	604	--	6,430
Mozambique	590	--	--	--
Netherlands	(3)	--	--	--
Panama	495	297	--	997
Paraguay	--	--	--	411
Peru	--	--	--	223
Russia	2,020	--	--	2,960
Senegal	438	--	--	1,470
Spain	619	--	--	--
Turkey	--	--	--	1
United Kingdom	--	--	78	794
Venezuela	752	--	--	626
Vietnam	--	--	--	683
Total	117,000	9,570	8,720	120,000
Grand total	533,000	48,600	37,700	657,000

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes the lead content (Quantity 2) of Harmonized Tariff Schedule of the United States (HTS) codes 7801.91.0000, 7801.99.9030, 7801.99.9050. Excludes bullion.

<sup>3</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 10  
LONDON METAL EXCHANGE (LME) STOCKS OF LEAD, END OF PERIOD

(Metric tons)

Period	United States	Asia	Europe	Total
2016:				
December	--	79,300	116,000	195,000
2017:				
January	--	78,500	111,000	189,000
February	--	77,500	112,000	190,000
March	--	76,700	108,000	184,000
April	--	77,000	92,400	169,000
May	--	71,900	108,000	180,000
June	--	68,200	95,900	164,000
July	--	65,400	87,400	153,000
August	--	62,500	86,000	148,000
September	--	54,500	103,000	157,000
October	--	49,200	101,000	149,000
November	--	48,400	96,600	145,000
December	--	49,600	92,700	142,000

-- Zero.

Source: London Metal Exchange, Ltd.