

# Mineral Industry Surveys

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## ZINC IN APRIL 2023

Domestic mine production (recoverable) of zinc in April 2023 was 54,500 metric tons (t) (tables 1, 2). Mine production (recoverable) for the year through April was 233,000 t, 5% less than that in the same period in 2022. Average daily (recoverable) mine production in April was 1,820 t, 3% less than the revised amount in the previous month and 18% less than that in April 2022 (fig. 1, table 2).

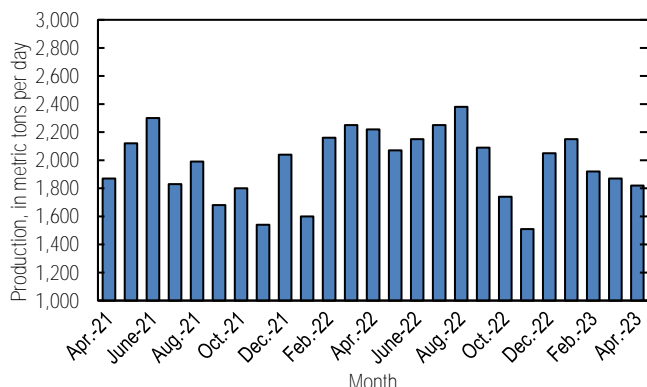


Figure 1. Average daily domestic zinc mine production (recoverable) from April 2021 through April 2023.

## Stocks and Prices

There were no London Metal Exchange Ltd. (LME) stocks of Special High Grade (SHG) zinc held in U.S. warehouses at the end of April 2023, unchanged since the end of January 2023 and down from 19,600 t at the end of April 2022. Global LME stocks were 52,925 t at the end of April 2023, 17% more compared with stocks at the end of March 2023 but 44% less than 95,350 t at the end of April 2022 (fig. 2, table 9). Reported off-warrant stocks of SHG zinc in LME-approved warehouses at the end of April 2023 increased to 15,671 t from 13,982 t at the end of March 2023; all of which were held in Asia (London Metal Exchange Ltd., 2023).

The monthly average S&P Global Platts Metals Week North American SHG zinc price in April 2023 was 160 cents per pound, 6% less than that in the previous month and 29% less than that in April 2022. The April 2023 average LME cash price for SHG zinc was \$2,772.06 per metric ton (126 cents per

pound), 6% less than that in the previous month and 37% less than that in April 2022 (fig. 3, table 8).

The North American premium to the LME cash price in April 2023 averaged 34 cents per pound, 5% less than that in the previous month but 19% more than that in April 2022 (fig. 3, table 8).

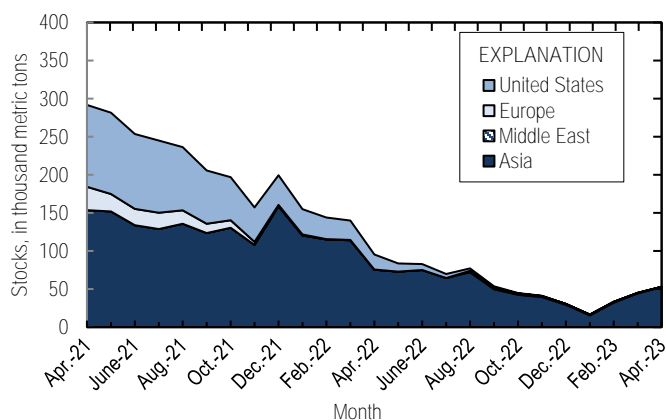


Figure 2. Global LME stocks of Special High Grade zinc, end of month, from April 2021 through April 2023. Source: London Metal Exchange Ltd.

## World News

On March 21, MMG Ltd. (Australia, majority owned by China Minmetals Corp.) restarted operations at the Dugald River Mine in northwestern Queensland, Australia. Operations were suspended on February 16 following two fatalities at the mine. Dugald River produces around 170,000 t to 180,000 t of zinc in concentrate annually (MMG Ltd., 2023a, b).

MAG Silver Corp. (Canada) announced that production and shipments of commercial lead and zinc concentrates at the Juanicipio silver-gold-lead-zinc mine in Zacatecas State, Mexico, commenced in late March. The Juanicipio Mine was jointly owned by Fresnillo plc (Mexico) and MAG Silver and was expected to produce an annual average of about 31,000 t of payable zinc in concentrate over an initial 19-year mine life. (MAG Silver Corp., 2017, 2023).

In April, Ivanhoe Mines Ltd. (Canada) announced that it had signed a financing and offtake agreement with Glencore

International AG (Switzerland) to restart the Kipushi zinc mine in the Congo (Kinshasa). The Kipushi Mine was jointly owned by Ivanhoe Mines and state-owned mining company La Générale des Carrières et des Mines SA (Gécamines), and is a high-grade zinc mine with an expected average ore grade of 36% zinc during the first 5 years of production, according to Ivanhoe Mines. As part of the offtake agreement, Glencore would receive 100% of Kipushi's zinc concentrate production during the first 5 years of operation. The mine was anticipated to produce 437,000 metric tons per year of zinc concentrate grading 55% zinc over a 14-year mine life. Mining activities and concentrate production were expected to commence in 2024 (Ivanhoe Mines Ltd., 2023, p. 3, 9).

## References Cited

Ivanhoe Mines Ltd., 2023, Ivanhoe Mines and Gécamines agree on off-take and financing terms to return the ultra-high-grade Kipushi Mine in the DRC to production: Kipushi, Congo (Kinshasa), Ivanhoe Mines Ltd. news release,

April 27, 18 p. (Accessed April 27, 2023, at [https://ivanhoemines.com/site/assets/files/5784/20230427\\_kipushi\\_offtake\\_financing\\_and\\_construction\\_update.pdf](https://ivanhoemines.com/site/assets/files/5784/20230427_kipushi_offtake_financing_and_construction_update.pdf).)

London Metal Exchange Ltd., 2023, Off-warrant stock reporting: London, United Kingdom, London Metal Exchange Ltd. (Accessed May 16, 2023, via <https://www.lme.com/en/Market-data/Reports-and-data/Warehouse-and-stocks-reports/Off-warrant-stock-reporting>.)

MAG Silver Corp., 2017, MAG announces robust new PEA based on substantially increased Juanicipio mineral resource: Vancouver, British Columbia, Canada, MAG Silver Corp. news release, November 7, 12 p. (Accessed November 7, 2017, at <https://magsilver.com/site/assets/files/4991/2017-11-07-nr1-mag.pdf>.)

MAG Silver Corp., 2023, Juanicipio ships first commercial concentrates: Vancouver, British Columbia, Canada, MAG Silver Corp. news release, April 19, 2 p. (Accessed April 19, 2023, at <https://magsilver.com/site/assets/files/6516/2023-04-20-nr-mag-cp42hs9ogh1.pdf>.)

MMG Ltd., 2023a, Dugald River: MMG Ltd. website. (Accessed March 21, 2023, at <https://www.mmg.com/our-business/dugald-river/>.)

MMG Ltd., 2023b, Dugald River to restart: Melbourne, Victoria, Australia, MMG Ltd. news release, March 21, 1 p. (Accessed March 21, 2023, at [https://www.mmg.com/wp-content/uploads/2023/03/e\\_2023-03-21\\_Dugald-River-Mine-Update.pdf](https://www.mmg.com/wp-content/uploads/2023/03/e_2023-03-21_Dugald-River-Mine-Update.pdf).)

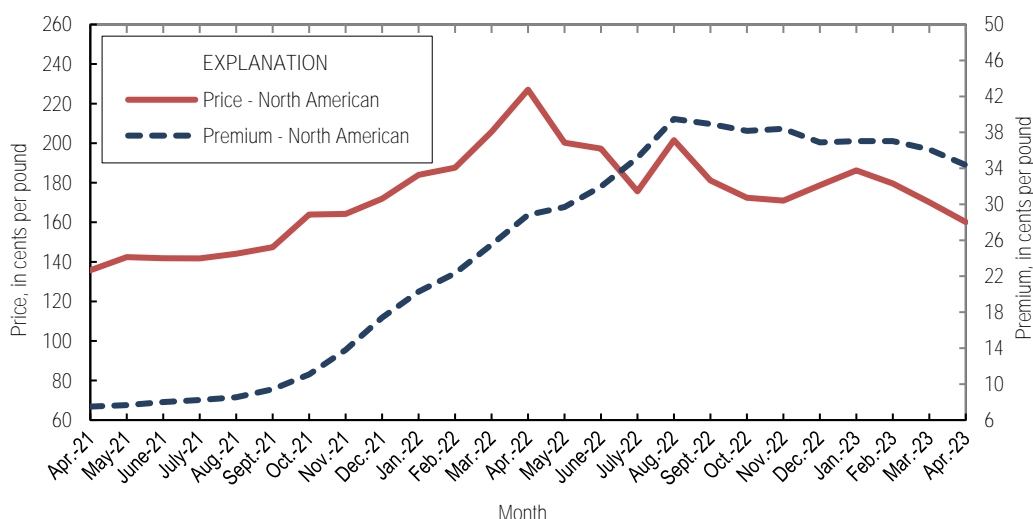


Figure 3. Average monthly North American price and premium for Special High Grade zinc from April 2021 through April 2023. The North American price is based on the London Metal Exchange cash price plus the North American premium. Source: S&P Global Platts Metals Week.

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TABLE 1  
SALIENT ZINC STATISTICS<sup>1</sup>

(Metric tons, unless otherwise specified)

	2022	2023		
	January– December <sup>p</sup>	March	April	January– April <sup>2</sup>
<b>Production:</b>				
Mine, zinc content of concentrate <sup>3</sup>	761,000	59,500 <sup>r</sup>	55,800	239,000
Mine, recoverable zinc <sup>3</sup>	744,000	58,100 <sup>r</sup>	54,500	233,000
Smelter, refined zinc <sup>e, 4</sup>	220,000	18,000	18,000	72,000
Consumption of refined zinc, apparent <sup>5</sup>	974,000 <sup>r</sup>	87,500	78,900	376,000
<b>Imports for consumption:</b>				
Ore and concentrate (zinc content)	4,870	588	1,400	12,200
Refined zinc	762,000	69,600	61,000	305,000
<b>Exports:</b>				
Ore and concentrate (zinc content)	644,000	18,900	14,700	44,400
Refined zinc	8,070 <sup>r</sup>	82	141	923
<b>Price:<sup>6</sup></b>				
London Metal Exchange cash, average, dollars per metric ton	3,484.42	2,955.59	2,772.06	3,039.81
North American, <sup>7</sup> average, cents per pound	190.19	170.16	160.11	174.02

<sup>e</sup>Estimated. <sup>p</sup>Preliminary. <sup>r</sup>Revised.

<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>Reported zinc content in both zinc and lead concentrates.

<sup>4</sup>Monthly and annual smelter production data are estimated to avoid disclosing company proprietary data and do not reflect actual production reported to the U.S. Geological Survey.

<sup>5</sup>Smelter production plus imports for consumption minus domestic exports. Apparent consumption may not reflect actual consumption owing to significant changes in unreported stocks.

<sup>6</sup>Special High Grade Zinc.

<sup>7</sup>S&P Global Platts Metals Week.

TABLE 2  
MINE AND SMELTER PRODUCTION OF ZINC  
IN THE UNITED STATES<sup>1</sup>

(Metric tons)

Period	Mine <sup>2</sup>		Smelter <sup>3</sup>
	Zinc content	Recoverable	
2022:			
April	68,200	66,700	18,000
May	65,500	64,100	18,000
June	65,900	64,400	18,000
July	71,500	69,900	18,000
August	75,400	73,800	18,000
September	64,100	62,700	18,000
October	55,300	54,000	18,000
November	46,400	45,400	18,000
December	64,900	63,500	18,000
January–December	761,000	744,000	220,000
2023:			
January	68,300 <sup>r</sup>	66,800 <sup>r</sup>	18,000
February	55,200 <sup>r</sup>	53,900 <sup>r</sup>	18,000
March	59,500 <sup>r</sup>	58,100 <sup>r</sup>	18,000
April	55,800	54,500	18,000
January–April	239,000	233,000	72,000

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

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

<sup>2</sup>Includes the zinc content in both lead and zinc concentrates.

<sup>3</sup>Monthly and annual smelter production data are estimated to avoid disclosing company proprietary data and do not reflect actual production reported to the U.S. Geological Survey.

TABLE 3  
U.S. SHIPMENTS OF  
GALVANIZED STEEL SHEET AND STRIP<sup>1</sup>

Period	Quantity (metric tons)
2022:	
April	1,460,000
May	1,440,000
June	1,360,000
July	1,320,000
August	1,370,000
September	1,310,000
October	1,350,000
November	1,320,000
December	1,250,000
January–April	5,620,000
January–December	16,300,000
2023:	
January	1,290,000
February	1,280,000
March	1,380,000
April	1,410,000
January–April	5,350,000

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

Source: American Iron and Steel Institute.

TABLE 4  
U.S. IMPORTS FOR CONSUMPTION OF ZINC<sup>1</sup>

(Gross weight, unless otherwise specified)

Material	2022		2023			
	Quantity (metric tons)	Value (thousands)	April		January–April <sup>2</sup>	
			Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Ore and concentrate (zinc content)	4,870	\$9,880	1,400	\$1,610	12,200	\$13,600
Unwrought:						
Refined zinc	762,000	2,710,000 <sup>†</sup>	61,000	208,000	305,000	1,060,000
Zinc alloys	3,770	15,200	639	2,390	1,900	7,170
Wrought:						
Bars, rods, profiles, wire	3,500 <sup>†</sup>	16,200 <sup>†</sup>	319	1,450	1,150	5,160
Plates, sheets, strip, foil	1,680	9,840	112	564	441	2,580
Ash and residues: <sup>3</sup>						
Hard zinc spelter	--	--	(4)	22	(4)	22
Zinc dross and skimmings	4,370	8,550	192	316	1,810	4,420
Other (zinc content)	5,610	12,000	107	128	1,110	712
Other:						
Powders, flakes, dust	19,800	92,600	1,040	4,850	5,840	27,200
Waste and scrap	10,900	23,300	625	1,480	3,780	8,260
Chemicals:						
Lithopone	1,110	4,520	76	207	119	306
Zinc chloride	419 <sup>†</sup>	2,830 <sup>†</sup>	69	364	229	1,170
Zinc oxide	104,000	371,000 <sup>†</sup>	7,670	27,000	33,900	116,000
Zinc sulfate	95,200 <sup>†</sup>	124,000 <sup>†</sup>	4,930	4,860	22,500	22,000
Zinc sulfide	1,930	9,710	299	1,570	778	4,060

<sup>†</sup>Revised. -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits.

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

<sup>3</sup>Other than from the manufacture of iron and steel; containing mainly zinc.

<sup>4</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 5  
U.S. IMPORTS OF ZINC, BY TYPE OF MATERIAL AND COUNTRY OR LOCALITY<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

Material and country or locality	General imports			Imports for consumption		
	2022	2023		2022	2023	
		April	January–April <sup>2</sup>		April	January–April <sup>2</sup>
Ore and concentrate (zinc content):						
Canada	1,610	--	--	1,610	--	--
China	358	--	--	358	--	--
Korea, Republic of	--	1,400	2,290	--	1,400	2,290
Peru	2,670	--	--	2,670	--	--
Turkey	--	--	9,950	--	--	9,950
Other	232 <sup>r</sup>	--	8	232 <sup>r</sup>	--	8
Total	4,870	1,400	12,200	4,870	1,400	12,200
Refined zinc:						
Australia	69,000	11,200	38,800	74,000	11,200	38,800
Belgium	--	--	--	1,800	--	--
Brazil	--	2,950	10,400	10	2,950	10,400
Bulgaria	--	--	43	--	--	43
Canada	378,000	28,100	108,000	378,000	28,100	108,000
China	(3)	16	1,790	502	16	1,790
Denmark	(3)	--	--	(3)	--	--
Germany	983	--	--	983	--	--
India	--	2,400	4,920	--	2,400	4,920
Italy	3	--	1	3	--	1
Japan	2	197	1,290	2	197	1,290
Kazakhstan	17,700	--	24,400	17,700	--	24,400
Korea, Republic of	88,600	1,220	42,500	94,000	1,220	42,500
Luxembourg	--	75	75	--	75	75
Mexico	108,000	9,840	37,800	108,000	9,840	37,800
Netherlands	--	--	--	1,240	--	--
Nigeria	320	--	--	320	--	--
Peru	52,900	4,530	32,600	52,900	4,530	32,600
Poland	241	487	487	241	487	487
Singapore	21	--	25	21	--	25
Spain	5,500	--	--	31,600	--	--
Taiwan	21	9	9	21	9	9
Thailand	(3)	--	--	(3)	--	--
United Kingdom	20	--	1,640	20	--	1,640
Total	722,000	61,000	305,000	762,000	61,000	305,000
Oxide:						
Australia	197	35	162	148	35	187
Canada	44,200	3,100	12,600	44,200	3,100	12,600
China	800 <sup>r</sup>	39	94	800 <sup>r</sup>	26	81
Germany	1,870	9	225	1,870	9	225
Greece	375	24	127	375	24	127
Japan	1,210 <sup>r</sup>	53	226	1,210 <sup>r</sup>	53	226
Korea, Republic of	428	--	107	428	--	107
Mexico	41,300	3,640	17,600	41,300	3,640	17,600
Netherlands	6,900	326	1,210	6,900	326	1,210
Peru	5,850 <sup>r</sup>	439	1,510	5,850 <sup>r</sup>	439	1,510
Other	494	15	49	494	15	49
Total	104,000	7,690	33,900	104,000	7,670	33,900

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

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

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

<sup>3</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 6  
U.S. EXPORTS OF ZINC<sup>1</sup>

(Gross weight, unless otherwise specified)

Material	2022		2023			
	Quantity (metric tons)	Value (thousands)	April		January–April <sup>2</sup>	
			Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Ore and concentrate (zinc content)	644,000	\$1,530,000 <sup>†</sup>	14,700	\$18,900	44,400	\$63,100
Unwrought:						
Refined zinc	8,070 <sup>†</sup>	28,300 <sup>†</sup>	141	627	923	3,680
Zinc alloys	44,300	124,000	3,240	10,000	13,600	40,500
Wrought:						
Bars, rods, profiles, wire	3,220	21,200	93	613	827	3,910
Plates, sheets, strip, foil	5,830 <sup>†</sup>	24,800 <sup>†</sup>	371	1,700	1,390	5,770
Ash and residues: <sup>3</sup>						
Hard zinc spelter	12,300	29,300 <sup>†</sup>	936	2,210	3,160	6,690
Other (zinc content)	26,900	52,900	2,290	3,950	7,120	12,900
Other:						
Powders, flakes, dust	10,600	51,700 <sup>†</sup>	645	3,130	2,530	12,800
Waste and scrap	190,000	183,000	5,690	6,310	18,700	21,800
Chemicals:						
Lithopone	510	1,900	69	163	198	533
Zinc chloride	1,250	1,550	144	154	557	855
Zinc oxide	71,400	137,000	4,660	7,130	27,000	44,100
Zinc sulfate	808 <sup>†</sup>	769 <sup>†</sup>	228	148	310	227
Zinc sulfide	2,400	14,500	232	1,560	881	5,330

<sup>†</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits.

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

<sup>3</sup>Other than from the manufacture of iron and steel; containing mainly zinc.

Source: U.S. Census Bureau.



TABLE 7  
U.S. EXPORTS OF ZINC, BY TYPE OF MATERIAL AND COUNTRY OR LOCALITY<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

Material and country or locality	2022	2023	
		April	January–April <sup>2</sup>
Ore and concentrate (zinc content):			
Australia	19,300	--	--
Belgium	45,200	2,700	5,930
Canada	241,000	5,430	25,100
China	49,400	--	--
Finland	23,300	--	--
Japan	63,400	6,600	6,670
Korea, Republic of	120,000 <sup>r</sup>	--	6,740
Netherlands	3,080	--	--
Spain	79,500	--	--
Other	43	5	10
Total	644,000	14,700	44,400
Refined zinc:			
Belgium	758 <sup>r</sup>	--	--
Canada	1,460 <sup>r</sup>	91	336
Italy	2,470 <sup>r</sup>	--	(3)
Mexico	2,840	50	574
Spain	250	--	--
Other	293	--	13
Total	8,070 <sup>r</sup>	141	923
Oxide:			
Australia	187	1	27
Belgium	387 <sup>r</sup>	1	56
Brazil	285	(3)	106
Canada	3,710	135	429
Colombia	275	(3)	81
Finland	797	--	215
India	828	136	518
Italy	108	--	173
Mexico	63,500	4,200	24,700
Poland	147	9	59
Other	1,110	175	633
Total	71,300 <sup>r</sup>	4,660	27,000

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

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

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

<sup>3</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 8  
AVERAGE PRICES FOR SPECIAL HIGH GRADE ZINC

Period	North American		London Metal Exchange	
	Premium	Price <sup>1</sup>	cash <sup>2</sup>	
	¢/lb.	¢/lb.	¢/lb.	\$/t
2022:				
April	28.8	227.06	198.24	4,370.41
May	29.7	200.19	170.50	3,758.77
June	32.0	197.24	165.26	3,643.29
July	35.2	175.63	140.46	3,096.58
August	39.5	201.52	162.03	3,572.13
September	39.0	181.18	142.23	3,135.72
October	38.2	172.40	134.22	2,959.05
November	38.4	170.98	132.58	2,922.97
December	36.9	178.75	141.86	3,127.50
January–December	32.1	190.19	158.05	3,484.42
2023:				
January	37.0	186.20	149.17	3,288.55
February	37.0	179.60	142.57	3,143.04
March	36.1	170.16	134.06	2,955.59
April	34.4	160.11	125.74	2,772.06
January–April	36.1	174.02	137.88	3,039.81

<sup>1</sup>S&P Global Platts Metals Week North American price. Based on the London Metal Exchange cash price plus the North American premium.

<sup>2</sup>Average of the cash buyer price and the cash seller and settlement price.

Source: S&P Global Platts Metals Week.

TABLE 9  
LONDON METAL EXCHANGE (LME) STOCKS OF SPECIAL HIGH GRADE ZINC, END OF PERIOD

(Metric tons)

Period	United States			Asia	Europe	Middle East	Total LME
	Baltimore, MD	New Orleans, LA	Total				
2022:							
April	3,700	15,900	19,600	75,375	375	--	95,350
May	1,800	8,875	10,675	72,875	25	--	83,575
June	1,650	6,075	7,725	75,050	25	--	82,800
July	1,300	3,950	5,250	64,450	25	--	69,725
August	1,000	2,150	3,150	72,025	25	1,950	77,150
September	975	750	1,725	49,925	25	1,950	53,625
October	650	--	650	42,450	25	1,700	44,825
November	350	--	350	39,550	25	1,300	41,225
December	25	--	25	29,425	25	1,000	30,475
2023:							
January	--	--	--	15,475	--	1,000	16,475
February	--	--	--	32,225	--	1,000	33,225
March	--	--	--	44,300	--	750	45,050
April	--	--	--	52,525	--	400	52,925
-- Zero.							

-- Zero.

Source: London Metal Exchange, Ltd.