

# Mineral Industry Surveys

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## COBALT IN APRIL 2023

The amount of cobalt contained in U.S. imports of cobalt metals and chemicals in April 2023 was 29% less than that imported during March 2023. For the first 4 months of 2023, the amount of cobalt contained in imports was 4% more than that imported during the same period in 2022 (table 2). The amount of cobalt contained in U.S. exports of unwrought cobalt and chemicals in April 2023 was 18% less than that exported during March 2023 and during the first 4 months of 2023, the amount exported was unchanged from the amount exported during the same period in 2022 (table 4).

declined in 2023. In April 2023, the LME cash mean price increased slightly compared with that in March 2023 and was 58% lower than that in April 2022. Monthly average U.S. spot prices reported by S&P Global Platts Metals Week trended upward from August to October 2022, then declined through February 2023, with only slight changes since. The April 2023 monthly average U.S. spot cobalt price was essentially unchanged from that in March 2023 and was 57% lower than that in April 2022 (fig.1, table 1). The following listed prices are for cobalt metal in April, in dollars per pound.

## Prices and Stocks

During the past 2 years, London Metal Exchange (LME) cobalt stocks trended downward until October 2022 and remained essentially unchanged through December 2022. Beginning in 2023, LME cobalt stocks resumed their downward trend. Cobalt stocks in April 2023 were 4% less than those of March 2023. Monthly average cobalt prices generally trended up into the second quarter of 2022 before sharply declining through August. From September to December 2022, monthly average LME cash mean prices remained unchanged then

Type	Price range	Average price
U.S. spot <sup>1</sup>	15.20–18.40	16.85
LME cash mean <sup>2</sup>	15.53–15.54	15.53

<sup>1</sup>Source: S&P Global Platts Metals Week, minimum 99.8% cobalt cathode.

<sup>2</sup>London Metal Exchange, mean of the cash buyer and cash seller price, minimum 99.8% cobalt briquettes, cathode, coarse grain powder, or rounds (converted from dollars per metric ton and rounded to the nearest cent).

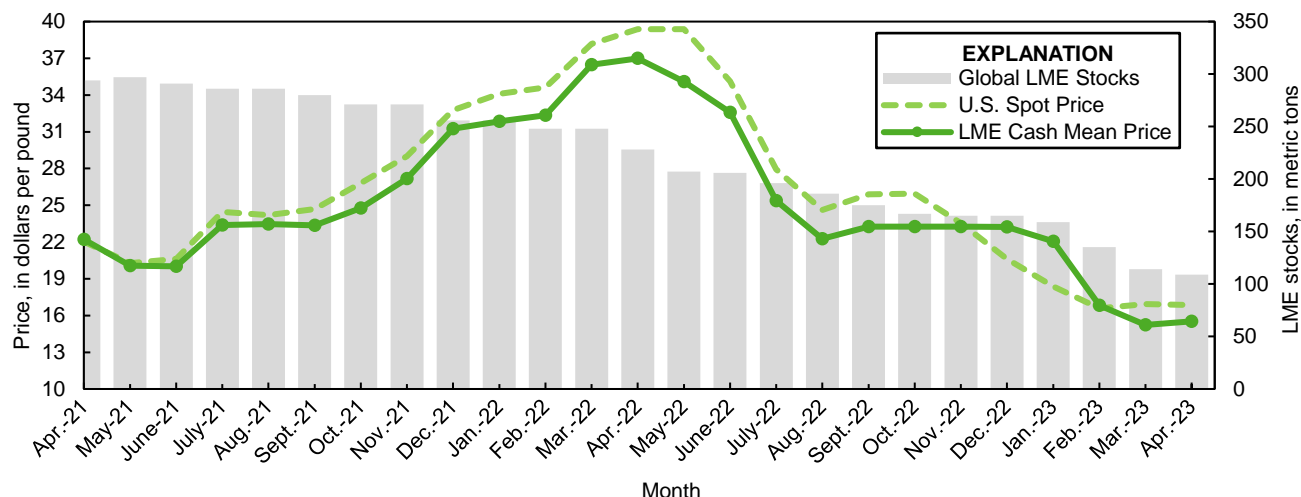


Figure 1. Global LME cobalt stocks, average U.S. spot cobalt prices, and average LME cash mean cobalt prices for April 2021 through April 2023. Sources: S&P Global Platts Metals Week and London Metal Exchange.

## Industry News

In April, Jervois Global Ltd. announced it would initiate a bankable feasibility (BFS) study for a cobalt refinery in the United States. Jervois was working with consulting firm AFRY Finland Oy to progress a BFS for an expansion of its refinery at the Kokkola Industrial Park in Finland. Jervois re-directed work to date to be applied to a refinery to be built in the United States and expects to benefit from incentives included in the U.S. Inflation Reduction Act (Public Law 117-169) supporting domestic cobalt refining and recycling. The BFS would be based on a refinery with capacity of 6,000 metric tons per year of cobalt in cobalt sulfate targeting the lithium-ion battery industry, including batteries for electric vehicles. Jervois expected to fund the BFS with a U.S. Department of Defense, Defense Production Act Title III award in the amount of \$15 million, subject to the company's successful completion of final documentary steps. Funding discussions with government and industry for the refinery in the United States and the expansion of the refinery in Finland were ongoing (Jervois Global Ltd., 2023).

On April 18, CMOC Group Ltd. (China) and state-owned La Générale des Carrières et des Mines SA (Gécamines) reached agreement regarding royalty payments for reserves at the Tenke Fungurume Mine in Congo (Kinshasa). The dispute over calculating reserves and corresponding royalty payments had been ongoing since 2021. Exports of production from the mine had been halted since the third quarter of 2022. In 2022, Tenke

Fungurume produced 20,286 metric tons (t) of cobalt in crude cobalt hydroxide, a 10% increase from that in 2021. The 2022 sales volume of cobalt was 12,560 t (a 26% decrease compared with that in 2021), and the 2022 year-end inventory was 11,318 t of cobalt in hydroxide (a 25% increase compared with that in 2021) (CMOC Group Ltd., 2023a, p. 33, 40–41; 2023b).

## References Cited

- CMOC Group Ltd., 2023a, 2022 Annual report: Luoyang City, China, CMOC Group Ltd., 372 p. (Accessed June 6, 2023, at <https://www1.hkexnews.hk/listedco/listconews/sehk/2023/0428/2023042804425.pdf>.)
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- Jervois Global Ltd., 2023, Jervois pivots Kokkola refinery expansion BFS to Unites States: Cremorne, Victoria, Australia, Jervois Global Ltd. news release, April 18, 3 p. (Accessed June 6, 2023, at <https://wcsecure.weblink.com.au/pdf/JRV/02655319.pdf>.)

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TABLE 1  
REPORTED STOCKS OF COBALT METAL, END OF PERIOD

(Metric tons, contained cobalt)

Period	U.S. Government <sup>1</sup>	LME <sup>2</sup>		Total
		U.S. warehouse	Non-U.S. warehouse	
2022:				
April	302	54	174	228
May	302	39	168	207
June	302	39	167	206
July	302	39	157	196
August	302	39	147	186
September	302	34	141	175
October	302	34	133	167
November	302	34	131	165
December	302	34	131	165
2023:				
January	302	34	125	159
February	302	34	101	135
March	302	34	80	114
April	302	34	75	109

<sup>1</sup>Data from Defense Logistics Agency Strategic Materials.

<sup>2</sup>London Metal Exchange.

TABLE 2  
U.S. IMPORTS FOR CONSUMPTION OF COBALT, BY COUNTRY OR LOCALITY<sup>1</sup>

Period and country or locality of origin	Metals <sup>2</sup>		Oxides and hydroxides		Salts and compounds <sup>3</sup>		Total cobalt content for the period <sup>4</sup> (metric tons)	Cobalt content, year to date <sup>4, 5</sup> (metric tons)
	Gross weight (metric tons)	Value <sup>6</sup> (thousands)	Gross weight (metric tons)	Value <sup>6</sup> (thousands)	Gross weight (metric tons)	Value <sup>6</sup> (thousands)		
2022:								
April	343	\$24,000	193	\$10,100	487	\$4,040	624	3,260
May	900	68,900	211	10,800	1,290	6,910	1,410	4,670
June	499 <sup>r</sup>	37,900 <sup>r</sup>	160	8,640	993 <sup>r</sup>	5,750	886 <sup>r</sup>	5,550 <sup>r</sup>
July	685	50,500	193	10,500	1,430	7,190	1,210	6,760 <sup>r</sup>
August	530	36,900	134	6,130	153	2,010	671	7,440
September	578	34,600	200	7,120	310	4,410	827	8,260 <sup>r</sup>
October	579	29,600	117	5,030	200	2,550	725	8,990
November	571	29,100	109	4,990	260	2,810	721	9,710
December	678	34,400	100	3,400	197	1,700	805	10,500
January–April	2,180	136,000	694	32,500	2,060	16,900	3,260	XX
January–December	7,200 <sup>r</sup>	458,000	1,920	89,100	6,900	50,200	10,500	XX
2023:								
January	593	27,700	184	6,160	262	3,760	803	803
February	559	26,200	94	3,220	243	1,870	694	1,500
March	838	33,000	287	7,220	226	2,940	1,120	2,610
April:								
Australia	7	302	--	--	--	--	7	14
Belgium	1	17	18	655	--	--	14	30
Brazil	--	--	--	--	37	219	11	39
Canada	104	4,520	--	--	--	--	104	628
China	10	159	19	350	(7)	8	24	34
Finland	15	644	28	704	108	1,010	66	612
France	--	--	--	--	--	--	--	5
Germany	6	406	(7)	4	--	--	6	28
Japan	97	3,880	--	--	--	--	97	345
Madagascar	--	--	--	--	--	--	--	187
Mexico	14	467	--	--	--	--	14	16
Morocco	16	534	--	--	--	--	16	56
Netherlands	--	--	--	--	--	--	--	7
Norway	390	13,700	--	--	--	--	390	1,130
Russia	--	--	--	--	--	--	--	50
South Africa	--	--	--	--	--	--	--	58
Taiwan	--	--	16	507	--	--	12	40
Turkey	7	135	--	--	--	--	7	7
United Kingdom	3	199	14	404	26	462	22	114
Other	1	55	(7)	5	--	--	1	3
Total	670	25,100	96	2,630	170	1,700	790	3,400
January–April	2,660	112,000	660	19,200	901	10,300	3,400	XX

<sup>r</sup>Revised. XX Not applicable. -- Zero.

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

<sup>2</sup>Unwrought cobalt, excluding alloys; includes cobalt cathode and cobalt metal powder; may include intermediate products of cobalt metallurgy.

<sup>3</sup>Includes cobalt acetates, cobalt carbonates, cobalt chlorides, and cobalt sulfates.

<sup>4</sup>Estimated from gross weights.

<sup>5</sup>May include revisions to previously published data.

<sup>6</sup>Customs value.

<sup>7</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 3  
U.S. IMPORTS FOR CONSUMPTION OF ADDITIONAL COBALT MATERIALS, BY COUNTRY OR LOCALITY<sup>1</sup>

Period and country or locality of origin	Unwrought cobalt alloys		Cobalt waste and scrap		Wrought cobalt and cobalt articles	
	Gross weight (metric tons)	Value <sup>2</sup> (thousands)	Gross weight (metric tons)	Value <sup>2</sup> (thousands)	Gross weight (metric tons)	Value <sup>2</sup> (thousands)
2022:						
April	21	\$1,240	192	\$2,830	26 <sup>r</sup>	\$3,130 <sup>r</sup>
May	24	1,400	175	2,340	42	4,690 <sup>r</sup>
June	25	1,690	155	2,070	44	4,940 <sup>r</sup>
July	29	1,760	99	2,060	38	4,080
August	14 <sup>r</sup>	867 <sup>r</sup>	152	2,530	27	3,950 <sup>r</sup>
September	35	1,780	200	2,850	33	4,190 <sup>r</sup>
October	32	1,730	133	2,200	42	3,790
November	31	1,670	117 <sup>r</sup>	1,710 <sup>r</sup>	33	4,480 <sup>r</sup>
December	39	1,970	88 <sup>r</sup>	1,930 <sup>r</sup>	36	4,780
January–April	78 <sup>r</sup>	4,160 <sup>r</sup>	623	9,040	140	15,800 <sup>r</sup>
January–December	307 <sup>r</sup>	17,000 <sup>r</sup>	1,740	26,700	433 <sup>r</sup>	50,700 <sup>r</sup>
2023:						
January	61	3,180	150	2,350	26	3,850
February	19	1,240	140	2,210	36	5,740
March	30	1,510	146	2,220	42	4,830
April:						
Belgium	9	497	--	--	--	--
Canada	1	35	1	16	3	1,010
China	--	--	3	35	1	365
France	--	--	32	710	18	826
Ireland	--	--	50	140	(3)	39
Japan	--	--	4	124	(3)	109
Mexico	--	--	3	39	--	--
Singapore	--	--	23	183	--	--
Tunisia	--	--	9	81	--	--
United Kingdom	8	398	13	197	13	1,570
Other	--	--	1	19	2	532
Total	18	929	139	1,540	38	4,450
January–April	129	6,860	574	8,320	141	18,900

<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>Customs value.

<sup>3</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 4  
U.S. EXPORTS OF COBALT MATERIALS<sup>1</sup>

Period	Unwrought cobalt, powders, matte, waste and scrap <sup>2</sup>		Oxides and hydroxides		Salts and compounds <sup>3</sup>		Total cobalt content for the period <sup>4</sup> (metric tons)	Cobalt content, year to date <sup>4,5</sup> (metric tons)
	Gross weight (metric tons)	Value <sup>6</sup> (thousands)	Gross weight (metric tons)	Value <sup>6</sup> (thousands)	Gross weight (metric tons)	Value <sup>6</sup> (thousands)		
2022:								
April	373 <sup>r</sup>	\$13,000 <sup>r</sup>	1	\$44	(7)	\$5	374 <sup>r</sup>	1,720 <sup>r</sup>
May	493	17,600	7	304	--	--	498	2,220
June	414 <sup>r</sup>	12,500 <sup>r</sup>	2	79	(7)	6	416 <sup>r</sup>	2,640 <sup>r</sup>
July	381	14,500 <sup>r</sup>	3	145	--	--	384	3,020 <sup>r</sup>
August	420 <sup>r</sup>	12,300 <sup>r</sup>	7	297	(7)	4	425 <sup>r</sup>	3,450 <sup>r</sup>
September	335 <sup>r</sup>	11,900 <sup>r</sup>	7	298	--	--	340 <sup>r</sup>	3,790 <sup>r</sup>
October	584	16,900	2	64	--	--	585	4,370 <sup>r</sup>
November	525 <sup>r</sup>	13,800 <sup>r</sup>	7	281	--	--	530 <sup>r</sup>	4,900 <sup>r</sup>
December	460	13,600	1	31	--	--	460	5,360
January–April	1,720	55,400 <sup>r</sup>	7	271	(7)	5	1,720 <sup>r</sup>	XX
January–December	5,330 <sup>r</sup>	169,000	43	1,770	1	16	5,360	XX
2023:								
January	408	13,000	3	114	(7)	4	411	411
February	327	12,500	1	41	--	--	328	738
March	535	15,300	6	202	--	--	539	1,280
April	434	15,900	12	175	--	--	442	1,720
January–April	1,700	56,800	22	532	(7)	4	1,720	XX

<sup>r</sup>Revised. XX Not applicable. -- 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 other intermediate products of cobalt metallurgy and unwrought cobalt alloys.

<sup>3</sup>Cobalt acetates and cobalt chlorides.

<sup>4</sup>Estimated from gross weights.

<sup>5</sup>May include revisions to previously published data.

<sup>6</sup>Free alongside ship (f.a.s.) value.

<sup>7</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 5  
U.S. EXPORTS OF WROUGHT COBALT, COBALT ORE,  
AND CONCENTRATES<sup>1</sup>

Period	Wrought cobalt and cobalt articles		Cobalt ore and concentrates	
	Gross weight (metric tons)	Value <sup>2</sup> (thousands)	Gross weight (metric tons)	Value <sup>2</sup> (thousands)
2022:				
April	232 <sup>r</sup>	\$20,600 <sup>r</sup>	(3)	\$4
May	143	16,600	--	--
June	164	16,400	--	--
July	200 <sup>r</sup>	22,900 <sup>r</sup>	--	--
August	115 <sup>r</sup>	18,600 <sup>r</sup>	--	--
September	182 <sup>r</sup>	25,400	(3)	8
October	121	17,200	--	--
November	181	24,400 <sup>r</sup>	--	--
December	182	21,000	--	--
January–April	586 <sup>r</sup>	65,200 <sup>r</sup>	(3)	4
January–December	1,870 <sup>r</sup>	228,000 <sup>r</sup>	(3)	12
2023:				
January	186	27,000	--	--
February	118	19,300	(3)	4
March	126	18,500	(3)	7
April	157	19,700	1	20
January–April	587	84,500	1	31

<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>Free alongside ship (f.a.s.) value.

<sup>3</sup>Less than ½ unit.

Source: U.S. Census Bureau.