

Mineral Industry Surveys

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COBALT IN MAY 2022

The amount of cobalt contained in U.S. imports of cobalt metals and chemicals in May 2022 was 126% more than that imported during April 2022. For the first 5 months of 2022, the amount of cobalt contained in imports was 17% more than that imported during the same period in 2021 (table 2). The amount of cobalt contained in U.S. exports of unwrought cobalt and chemicals in May 2022 was 32% more than that exported during April 2022 and during the first 5 months of 2022, the amount exported was 7% less than that exported during the same period in 2021 (table 4).

Prices

During the past 2 years, cobalt prices trended upward and London Metal Exchange (LME) stocks trended downward (fig. 1, table 1). In May, the monthly average U.S. spot cobalt price was unchanged from that in April 2022 and was 94% higher than that in May 2021. The monthly average LME cash mean price decreased by 5% from that in April 2022 and was 75%

higher than that in May 2021. The following listed prices are for cobalt metal in May, in dollars per pound.

Type	Price range	Average price
U.S. spot ¹	38.70–40.00	39.38
LME cash mean ²	33.28–36.95	35.08

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

²London Metal Exchange, mean of the cash buyer and cash seller price, minimum 99.3% cobalt briquettes, cathode, ingot, or rounds (converted from dollars per metric ton and rounded to the nearest cent).

Industry News

In May, the Cobalt Institute (CI) released a report on the 2021 cobalt market prepared for them by CRU International Ltd. (Cobalt Institute, 2022). In 2021, annual global cobalt demand grew by 22% to 175,000 metric tons (t). In the 6 years prior to 2021, the global cobalt market grew at a compound annual growth rate of 9.2% from less than 100,000 t in 2015 to 143,000

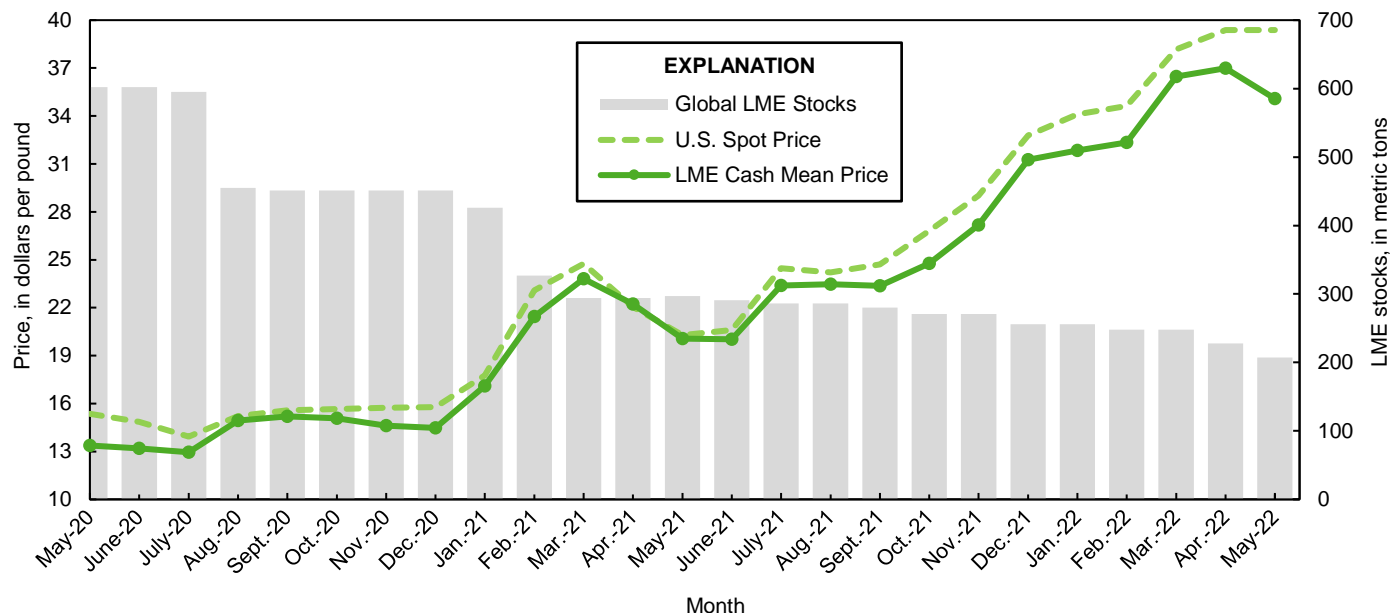


Figure 1. Global LME cobalt stocks, average U.S. spot cobalt prices, and average LME cash mean cobalt prices for May 2020 through May 2022. Sources: S&P Global Platts Metals Week and London Metal Exchange.

t in 2020. Total cobalt demand in 2020 was unchanged from that of 2019, however, as a result of the COVID-19 pandemic negatively affecting consumption from most end-use sectors with the exception of lithium-ion batteries.

The unprecedented annual growth in 2021 was mainly from growth in lithium-ion battery applications, which accounted for 63% of 2021 consumption and 85% of the total year-on-year growth. In addition, 2021 was the first year in which cobalt consumption in batteries for electric vehicles was greater than cobalt consumption in other battery applications and electric vehicle batteries became the largest cobalt end-use sector at 34% of 2021 demand.

Cobalt supply also increased in 2021. Mine production increased by 12% to 160,000 t, following a decrease in 2020. Congo (Kinshasa) represented 74% of 2021 global mine production and accounted for 87% of the annual growth. Production by artisanal and small-scale mining in 2021 was estimated to have increased to 14,500 t or 12% of Congo (Kinshasa)'s total supply. Production of refined cobalt increased by 14% to 144,000 t. China continued to be the leading producer of refined cobalt and provided approximately 70% of 2021 global refined cobalt production and 70% of the annual growth.

These market conditions—increasing downstream demand and limited supply—resulted in increased prices during 2021 and into 2022 (fig. 1). The report stated that cobalt demand was

expected to continue to increase rapidly with the transition from internal combustion engine vehicles to electric vehicles. Total cobalt demand was forecast to increase from 175,000 t in 2021 to nearly 320,000 t by 2026, at which time electric vehicle batteries would represent one-half of global cobalt consumption. Cobalt supply was expected meet demand until 2024, when the market was forecast to shift into a deficit. From 2024 to 2026 supply was forecast to grow at an average of 8% per year in contrast to demand, which was forecast to grow at an average of more than 12% per year.

Reference Cited

Cobalt Institute, 2022, Cobalt market report 2021: Guildford, United Kingdom, Cobalt Institute, May, 45 p. (Accessed December 2, 2022, at https://www.cobaltinstitute.org/wp-content/uploads/2022/05/FINAL_Cobalt-Market-Report-2021_Cobalt-Institute-1.pdf.)

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TABLE 1
REPORTED STOCKS OF COBALT METAL, END OF PERIOD

(Metric tons, contained cobalt)

Period	U.S. Government ²	LME ¹		Total
		U.S. warehouse	Non-U.S. warehouse	
2021:				
May	302	50	247	297
June	302	50	241	291
July	302	50	236	286
August	302	50	236	286
September	302	50	230	280
October	302	50	221	271
November	302	50	221	271
December	302	50	206	256
2022:				
January	302	50	206	256
February	302	54	194	248
March	302	54	194	248
April	302	54	174	228
May	302	39	168	207

¹London Metal Exchange.

²Data from Defense Logistics Agency Strategic Materials.

TABLE 2
U.S. IMPORTS FOR CONSUMPTION OF COBALT, BY COUNTRY OR LOCALITY¹

Period and country or locality of origin	Metals ²		Oxides and hydroxides		Salts and compounds ³		Total cobalt content for the period ⁵ (metric tons)	Cobalt content, year to date ^{5, 6} (metric tons)
	Gross weight (metric tons)	Value ⁴ (thousands)	Gross weight (metric tons)	Value ⁴ (thousands)	Gross weight (metric tons)	Value ⁴ (thousands)		
2021:								
May	508	\$21,800	172	\$6,370	335	\$4,430	722	4,000
June	740	31,200	236	7,410	392	4,120	1,020	5,020
July	437	20,700	202	6,600	318	3,260	672	5,690
August	801	37,800	187	6,620	216	2,300	1,000	6,690
September	577	28,500	174	6,590	199	3,070	766	7,460
October	722	35,200	168	6,040	269	3,710	926	8,380
November	475	25,500	267	10,100	230	3,310	736	9,120
December	440	25,500	169	6,410	410	5,070	679	9,800
January–May	3,020	119,000	820	25,000	1,280	15,600	4,000	XX
January–December	7,210	323,000	2,220	74,700	3,320	40,400	9,800	XX
2022:								
January	754	44,600	84	3,540	148	2,860	859	859
February	440	24,800	161	7,460	382	3,790	667	1,530
March	648	42,400	256	11,400	1,040	6,200	1,110	2,640
April	343	24,000	193	10,100	487	4,040	624	3,260
May:								
Australia	20	1,630	--	--	--	--	20	28
Belgium	--	--	33	2,110	--	--	24	97
Brazil	--	--	--	--	98	376	26	107
Canada	129	8,460	--	--	--	--	129	446
China	1	50	2	90	--	--	2	83
Finland	33	2,910	112	5,490	1,010	5,140	401	1,120
Germany	9	642	5	54	--	--	12	45
Hong Kong	--	--	--	--	--	--	--	49
Japan	246	18,000	--	--	--	--	246	541
Korea, Republic of	--	--	17	174	--	--	12	31
Madagascar	10	575	--	--	--	--	10	157
Malaysia	--	--	--	--	--	--	--	3
Morocco	20	1,450	--	--	--	--	20	40
Netherlands	--	--	--	--	--	--	--	6
Norway	338	27,800	--	--	--	--	338	1,230
Russia	36	2,720	--	--	--	--	36	286
South Africa	5	269	--	--	--	--	5	10
Taiwan	--	--	--	--	46	650	11	56
Turkey	--	--	--	--	--	--	--	24
United Kingdom	4	322	42	2,890	131	705	65	253
Zambia	46	3,780	--	--	--	--	46	46
Other	4	236	(7)	2	2	34	4	7
Total	900	68,900	211	10,800	1,290	6,910	1,410	4,670
January–May	3,090	205,000	905	43,300	3,350	23,800	4,670	XX

XX Not applicable. -- Zero.

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

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

³Includes cobalt acetates, cobalt carbonates, cobalt chlorides, and cobalt sulfates.

⁴Customs value.

⁵Estimated from gross weights.

⁶May include revisions to previously published data.

⁷Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 3
U.S. IMPORTS FOR CONSUMPTION OF ADDITIONAL COBALT MATERIALS, BY COUNTRY OR LOCALITY¹

Period and country or locality of origin	Unwrought cobalt alloys		Cobalt waste and scrap		Wrought cobalt and cobalt articles	
	Gross weight (metric tons)	Value ² (thousands)	Gross weight (metric tons)	Value ² (thousands)	Gross weight (metric tons)	Value ² (thousands)
2021:						
May	3	\$166	145	\$1,840	9	\$3,130
June	11	546	149	1,480	22	3,540
July	13	648	136	1,870	25	4,230
August	3	120	128	1,680	51	4,530
September	11	476	99	1,590	34	4,790
October	20	1,110	160	2,300	27	4,470
November	17	838	188	2,710	24	4,150
December	30	1,460	135	1,200	32	4,710
January–May	105	4,600	560	6,950	99	15,100 ^r
January–December	210	9,800	1,560	19,800	315	45,500
2022:						
January	51	2,440	163	1,840	53	5,770
February	19	1,020	79	1,390	16	3,060
March	6	326	189	2,980	44	4,830
April	21	1,240	192	2,830	27	3,200
May:						
Austria	(3)	10	--	--	3	285
Belgium	4	329	--	--	--	--
Canada	(3)	8	33	330	3	1,120
China	--	--	5	14	3	1,020
France	--	--	9	303	15	740
Germany	--	--	17	184	3	405
India	--	--	--	--	3	56
Ireland	--	--	69	288	--	--
Japan	--	--	7	157	(3)	54
Korea, Republic of	--	--	4	153	(3)	8
Mexico	--	--	4	42	--	--
Norway	--	--	--	--	4	139
Taiwan	--	--	6	232	(3)	23
United Kingdom	20	1,050	20	636	8	826
Other	--	--	--	--	(3)	46
Total	24	1,400	175	2,340	42	4,720
January–May	121	6,420	797	11,400	182	21,600

^rRevised. -- Zero.

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

²Customs value.

³Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 4
U.S. EXPORTS OF COBALT MATERIALS¹

Period	Unwrought cobalt, powders, matte, waste and scrap ²		Oxides and hydroxides		Salts and compounds ³		Total cobalt content for the period ⁵ (metric tons)	Cobalt content, year to date ^{5,6} (metric tons)
	Gross weight (metric tons)	Value ⁴ (thousands)	Gross weight (metric tons)	Value ⁴ (thousands)	Gross weight (metric tons)	Value ⁴ (thousands)		
2021:								
May	439	\$14,300	3	\$68	--	--	441	2,380
June	295	8,020	3	106	1	\$18	298	2,680
July	367	13,100	1	25	1	32	368	3,050
August	285	9,810	2	79	6	58	288	3,340
September	339	11,500	1	32	--	--	340	3,680
October	493	15,600	2	85	(7)	10	494	4,170
November	424	10,400	2	101	--	--	426	4,600
December	333	10,000	2	96	--	--	335	4,930
January–May	2,360	60,500	30	540 ^r	1	15	2,380	XX
January–December	4,900	139,000	43	1,060	9	133	4,930	XX
2022:								
January	454	14,400	2	83	--	--	456	456
February	293	11,600	1	50	--	--	293	749
March	597	16,600	3	94	--	--	599	1,350
April	378	13,200	1	44	(7)	5	379	1,730
May	493	17,600	7	304	--	--	498	2,220
January–May	2,210	73,400	14	575	(7)	5	2,220	XX

¹Revised. XX Not applicable. -- Zero.

²Data are rounded to no more than three significant digits; may not add to totals shown.

³May include other intermediate products of cobalt metallurgy and unwrought cobalt alloys.

⁴Cobalt acetates and cobalt chlorides.

⁵Free alongside ship (f.a.s.) value.

⁶Estimated from gross weights.

⁷May include revisions to previously published data.

⁸Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 5
U.S. EXPORTS OF WROUGHT COBALT, COBALT ORE,
AND CONCENTRATES¹

Period	Wrought cobalt and cobalt articles		Cobalt ore and concentrates	
	Gross weight (metric tons)	Value ² (thousands)	Gross weight (metric tons)	Value ² (thousands)
2021:				
May	105	\$11,000	--	--
June	115	12,000	--	--
July	213	17,700	--	--
August	191	16,300	--	--
September	121	10,900	(3)	\$8
October	274	22,500	--	--
November	139	13,400	--	--
December	217	18,600	(3)	4
January–May	552 ^r	58,700 ^r	2	14
January–December	1,820	170,000	2	26
2022:				
January	139	15,400	--	--
February	103	13,300	--	--
March	105	15,300	--	--
April	204	19,200	(3)	4
May	143	16,600	--	--
January–May	695	79,900	(3)	4

^rRevised. -- Zero.

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

²Free alongside ship (f.a.s.) value.

³Less than ½ unit.

Source: U.S. Census Bureau.