



# Mineral Industry Surveys

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**For information, contact:**

Kim B. Shedd, Cobalt Commodity Specialist

U.S. Geological Survey

989 National Center

Reston, VA 20192

Telephone: (703) 648-4974, Fax: (703) 648-7757

E-mail: [kshedd@usgs.gov](mailto:kshedd@usgs.gov)

Jo-Ann Sterling (Data)

Telephone: (703) 649-7953

Fax: (703) 648-7975

**Internet:** <http://minerals.usgs.gov/minerals>

## COBALT IN MAY 2003

U.S. consumption of cobalt in January through May 2003 was 13% lower than consumption during the first 5 months of 2002, according to the U.S. Geological Survey. The cobalt content of U.S. imports of cobalt metals and chemicals was 21% lower in

January through April 2003 than that of imports during the same period in 2002. The cobalt content of U.S. exports of unwrought cobalt and chemicals was 19% higher in January through April 2003 than that during the same period in 2002.

TABLE 1  
U.S. REPORTED CONSUMPTION OF COBALT MATERIALS<sup>1</sup>

(Metric tons, contained cobalt)

Period	Metal <sup>2</sup>	Oxide and other chemical compounds <sup>3</sup>	Scrap	Total
2002:				
May	349	101	215	665
June	300	113	215	628
July	312	105	215	632
August	321	113	215	648
September	313	119	215	646
October	311	102	215	627
November	334	102	215	651
December	305	101	215	621
January-May	1,750	515	1,070	3,340
January-December <sup>4</sup>	3,940	1,270	2,580	7,790
2003:				
January	258	155	167	580
February	251	160	167	578
March <sup>r</sup>	250	170	167	588
April	251	164	167	582
May	254	166	167	587
January-May	1,270	815	836	2,920

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

<sup>2</sup>Includes metal powder.

<sup>3</sup>Data may include other cobalt materials.

<sup>4</sup>Data based on monthly reports.

TABLE 2  
U.S. REPORTED CONSUMPTION OF COBALT, BY END USE<sup>1</sup>

(Metric tons, contained cobalt)

End use	2002		2003	
	January-May	January-December <sup>2</sup>	May	January-May <sup>3</sup>
Steel	237 <sup>r</sup>	543	29	158
Superalloys	1,750 <sup>r</sup>	3,970	266	1,310
Magnetic alloys	158 <sup>r</sup>	374	31	152
Other alloys <sup>4</sup>	W	W	W	W
Cemented carbides <sup>5</sup>	304 <sup>r</sup>	747	56	282
Chemical and ceramic uses <sup>6</sup>	760 <sup>r</sup>	1,860	182	898
Miscellaneous and unspecified	125 <sup>r</sup>	300	23	114
Total	3,340 <sup>r</sup>	7,790	587	2,920

<sup>r</sup>Revised. W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous and unspecified."

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

<sup>2</sup>Data based on monthly reports.

<sup>3</sup>May include revisions to prior months.

<sup>4</sup>Includes nonferrous alloys, welding materials, and wear-resistant alloys.

<sup>5</sup>Includes diamond tool matrices, cemented and sintered carbides, and cast carbide dies or parts.

<sup>6</sup>Includes catalysts, driers in paints or related usage, feed or nutritive additive, glass decolorizer, ground coat frit, pigments, and other uses.

TABLE 3  
U.S. REPORTED STOCKS OF COBALT MATERIALS<sup>1</sup>

(Metric tons, contained cobalt)

Period	Industry <sup>2</sup>			Total	U.S. Government, metal <sup>5</sup>
	Metal <sup>3</sup>	Oxide and other chemical compounds <sup>4</sup>	Scrap		
2002:					
May	359	240	134	733	NA
June	354	231	134	719	7,100
July	362	223	134	720	6,950
August	409	231	135	774	6,890
September	422	217	135	773	6,860
October	400	214	134	749	6,800
November	388	207	135	730	6,740
December <sup>6</sup>	445	228	135	808	6,680
2003:					
January	434 <sup>r</sup>	222 <sup>r</sup>	188 <sup>r</sup>	844 <sup>r</sup>	6,370
February	411 <sup>r</sup>	210 <sup>r</sup>	188 <sup>r</sup>	809 <sup>r</sup>	6,200
March	405 <sup>r</sup>	209 <sup>r</sup>	188 <sup>r</sup>	801 <sup>r</sup>	6,180
April	368 <sup>r</sup>	200	188 <sup>r</sup>	756 <sup>r</sup>	5,750
May	374	206	188	768	5,450

<sup>r</sup>Revised. NA Not available.

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

<sup>2</sup>Stocks reported by cobalt processors and consumers.

<sup>3</sup>Includes metal powder.

<sup>4</sup>Data may include other cobalt materials.

<sup>5</sup>Data from Defense National Stockpile Center. Includes material committed for sale pending shipment.

<sup>6</sup>Data based on monthly reports.

TABLE 4  
U.S. IMPORTS FOR CONSUMPTION OF COBALT, BY COUNTRY<sup>1</sup>

(Kilograms, gross weight of material, except as noted)

Period and country of origin	Metals <sup>2</sup>		Oxides and hydroxides		Salts and compounds <sup>3</sup>		Total cobalt content for the month <sup>5</sup>	Cobalt content, year to date <sup>5, 6</sup>
	Quantity	Value <sup>4</sup>	Quantity	Value <sup>4</sup>	Quantity	Value <sup>4</sup>		
2002:								
April	676,000	\$11,100,000	79,000	\$1,230,000	268,000	\$1,080,000	805,000	3,370,000
May	731,000	12,500,000	155,000	2,310,000	176,000	801,000	893,000	4,260,000
June	560,000	10,200,000	82,600	1,330,000	163,000	831,000	669,000	4,930,000
July	569,000	9,910,000	102,000	1,730,000	253,000	1,090,000	713,000	5,640,000
August	309,000	5,510,000	81,600	1,400,000	188,000	886,000	421,000	6,060,000
September	599,000	9,120,000	115,000	1,690,000	235,000	815,000	744,000	6,810,000
October	574,000	9,710,000	106,000	1,480,000	274,000	942,000	725,000	7,530,000
November	321,000	5,550,000	77,000	1,040,000	195,000	657,000	430,000	7,960,000
December	415,000	6,480,000	90,600	1,220,000	147,000	587,000	520,000	8,480,000
January-December	6,840,000	114,000,000	1,300,000	20,000,000	2,580,000	10,500,000	8,480,000	XX
2003:								
January	384,000	6,640,000	65,200	1,020,000	66,300	234,000	449,000	449,000
February	511,000	8,840,000	121,000	1,630,000	91,100	382,000	623,000	1,070,000
March	794,000	13,700,000	124,000	2,050,000	68,100	424,000	903,000	1,970,000
April:								
Australia	21,000	280,000	--	--	--	--	21,000	59,000
Belgium	10,400	370,000	56,100	1,070,000	3,200	20,400	51,500	304,000
Brazil	20,000	324,000	--	--	--	--	20,000	93,300
Canada	51,100	919,000	--	--	--	--	51,100	238,000
China	2,000	47,400	7,000	66,400	1,340	24,200	7,660	14,800
Congo (Kinshasa)	27,900	434,000	--	--	--	--	27,900	67,600
Finland	98,500	2,100,000	43,900	633,000	81,500	400,000	152,000	398,000
France	2,710	148,000	2,290	95,600	--	--	4,360	24,300
Germany	3,100	77,500	--	--	--	--	3,100	4,660
Ireland	--	--	--	--	--	--	--	6,160
Japan	8,980	214,000	--	--	344	2,390	9,070	42,000
Korea, Republic of	66	3,430	--	--	--	--	66	171
Luxembourg	--	--	--	--	--	--	--	4,580
Norway	123,000	2,170,000	--	--	--	--	123,000	513,000
Philippines	--	--	--	--	23,600	117,000	7,120	10,800
Russia	110,000	1,960,000	--	--	--	--	110,000	567,000
South Africa	3,980	68,800	--	--	--	--	3,980	55,600
Sweden	454	9,890	--	--	--	--	454	16,900
Switzerland	900	54,000	--	--	--	--	900	2,620
Taiwan	120	4,720	--	--	--	--	120	120
Uganda	--	--	--	--	--	--	--	5,100
United Kingdom	1,950	111,000	10,000	142,000	34,000	174,000	17,500	79,300
Zambia	70,400	1,230,000	--	--	--	--	70,400	149,000
Total	556,000	10,500,000	119,000	2,000,000	144,000	739,000	681,000	2,660,000

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>Customs value.

<sup>5</sup>Estimated from gross weights.

<sup>6</sup>May include revisions to prior months.

Source: U.S. Census Bureau, with adjustments by the U.S. Geological Survey.

TABLE 5  
U.S. IMPORTS FOR CONSUMPTION OF ADDITIONAL COBALT MATERIALS, BY COUNTRY <sup>1</sup>

(Kilograms, gross weight of material, except as noted)

Period and country of origin	Unwrought cobalt alloys		Cobalt waste and scrap		Wrought cobalt and cobalt articles	
	Quantity	Value <sup>2</sup>	Quantity	Value <sup>2</sup>	Quantity	Value <sup>2</sup>
2002:						
April	210	\$6,350	15,300	\$124,000	33,500	\$1,320,000
May	3,600	144,000	13,100	107,000	29,000	977,000
June	679	24,700	21,000	161,000	13,200	855,000
July	11,400	135,000	5,780	63,600	18,900	1,060,000
August	1,860	126,000	10,000	87,900	14,100 <sup>3</sup>	811,000 <sup>3</sup>
September	21,300	241,000	20,600	168,000	14,600	779,000
October	4,680	84,800	34,700	169,000	12,300	854,000
November	200	13,900	9,310	96,000	19,300	1,010,000
December	843	45,700	6,550	100,000	16,600	960,000
January-December	56,900	1,310,000	206,000	1,720,000	231,000	11,600,000
2003:						
January	2,270	99,800	11,900	168,000	12,600	659,000
February	844	31,600	2,820	43,100	14,800	722,000
March	1,910	68,700	79,300	536,000	12,200	953,000
April:						
Austria	262	13,400	--	--	--	--
Belgium	--	--	6,300	104,000	2,070	113,000
Canada	--	--	--	--	2,330	318,000
China	--	--	--	--	98	8,620
France	--	--	1,420	4,170	1	2,760
Germany	1,680	11,200	--	--	125	7,540
Ireland	--	--	7,640	107,000	--	--
Japan	932	67,100	--	--	2,520	72,000
United Kingdom	2,300	60,300	5,130	37,900	8,410	412,000
Total	5,170	152,000	20,500	253,000	15,500	933,000

-- 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>All or part of these data have been referred to the U.S. Census Bureau for verification.

Source: U.S. Census Bureau, with adjustments by the U.S. Geological Survey.

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

(Kilograms, gross weight of material, except as noted)

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 month <sup>5</sup>	Cobalt content, year to date <sup>5, 6</sup>
	Quantity	Value <sup>4</sup>	Quantity	Value <sup>4</sup>	Quantity	Value <sup>4</sup>		
2002:								
April	161,000	\$3,690,000	35,500	\$483,000	19,000	\$97,200	191,000	662,000
May	77,700	1,800,000	57,600	656,000	36,300	185,000	128,000	790,000
June	233,000	4,800,000	71,400	663,000	29,800	208,000	292,000	1,080,000
July	69,700	1,680,000	62,800	1,150,000	12,200	52,700	118,000	1,200,000
August	132,000	3,180,000	71,100	765,000	16,600	75,100	188,000	1,390,000
September	110,000	2,380,000	46,600	511,000	12,700	59,500	146,000	1,530,000
October	99,400	2,900,000	84,700	926,000	5,970	24,600	162,000	1,700,000
November	173,000	3,520,000	47,000	741,000	61,700	233,000	221,000	1,920,000
December	110,000	1,730,000	44,100	606,000	95,000	244,000	165,000	2,080,000
January-December	1,600,000	34,800,000	558,000	7,040,000	329,000	1,430,000	2,080,000	XX
2003:								
January	151,000	2,800,000	39,200	475,000	17,100	82,000	183,000	183,000
February	143,000	2,820,000	23,700	336,000	54,200	316,000	173,000	357,000
March	101,000	3,070,000	44,800	459,000	17,000	102,000	146,000	503,000
April	199,000	3,300,000	66,000	936,000	146,000	672,000	288,000	791,000

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

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

<sup>4</sup>Free alongside ship (f.a.s.) value.

<sup>5</sup>Estimated from gross weights.

<sup>6</sup>Year to date may include revisions to prior months.

Source: U.S. Census Bureau, with adjustments by the U.S. Geological Survey.

TABLE 7  
U.S. EXPORTS OF WROUGHT COBALT, COBALT ORE, AND CONCENTRATES<sup>1</sup>

(Kilograms, gross weight of material, except as noted)

Period	Wrought cobalt and cobalt articles		Cobalt ore and concentrates	
	Quantity	Value <sup>2</sup>	Quantity	Value <sup>2</sup>
2002:				
April	106,000	\$2,450,000	--	--
May	74,500	2,100,000	2,910 <sup>3</sup>	\$49,200 <sup>3</sup>
June	68,100	2,340,000	2,610 <sup>3</sup>	25,700 <sup>3</sup>
July	87,100	2,630,000	27,700 <sup>3</sup>	110,000 <sup>3</sup>
August	83,300	2,570,000	5,290 <sup>3</sup>	70,600 <sup>3</sup>
September	90,600	2,500,000	1,780 <sup>3</sup>	20,700 <sup>3</sup>
October	60,000	1,940,000	16,300 <sup>3</sup>	87,800 <sup>3</sup>
November	51,400	1,880,000	158 <sup>3</sup>	5,450 <sup>3</sup>
December	64,700	1,650,000	10,200 <sup>3</sup>	61,000 <sup>3</sup>
January-December	923,000	26,600,000	307,000	1,310,000
2003:				
January	76,900	2,700,000	817 <sup>3</sup>	8,240 <sup>3</sup>
February	55,600	1,540,000	4,020 <sup>3</sup>	44,500 <sup>3</sup>
March	124,000	3,740,000	100 <sup>3</sup>	3,860 <sup>3</sup>
April	71,900	2,210,000	2,680 <sup>3</sup>	24,100 <sup>3</sup>

-- 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>All or part of these data have been referred to the U.S. Census Bureau for verification.

Source: U.S. Census Bureau, with adjustments by the U.S. Geological Survey.