

# Mineral Industry Surveys

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## COBALT IN SEPTEMBER 2003

Reported consumption of cobalt in the United States during January through September 2003 was nearly equal in amount to consumption during the first 9 months of 2002, according to the U.S. Geological Survey. The cobalt content of U.S. imports of cobalt metals and chemicals was 14% lower in January through August 2003 than that of imports during the same period in 2002. The cobalt content of U.S. exports of unwrought cobalt and chemicals was 24% higher in January through August 2003 than that of exports during the same period in 2002. Trade data for September 2003 will be available in a subsequent issue.

Platts Metals Week, are listed below.

<u>Date</u>	<u>Price range</u>
October 9	10.00-10.50
October 16	10.00-10.30
October 23	10.50-11.00
October 30	12.00-13.00
November 6	13.00-13.50
November 13	14.00-14.50

**Price**

Prices for electrolytic cobalt, in dollars per pound from

<u>Month</u>	<u>Average price</u>
October	10.78

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:				
September	229	118	223	570
October	228	101	223	552
November	253	100	223	576
December	226	100	222	548
January-September <sup>r</sup>	2,270	963	2,000	5,240
January-December <sup>4</sup>	2,980	1,260	2,670	6,920
2003:				
January	259	155	167	581
February	252	160	167	579
March	251	170	167	588
April	254	164	167	585 <sup>r</sup>
May	266	166	167	599
June	254	169	167	590 <sup>r</sup>
July	250	157 <sup>r</sup>	167	574
August	254	164 <sup>r</sup>	167	585 <sup>r</sup>
September	259	166	167	592
January-September	2,300	1,470	1,510	5,270

<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 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- September	January- December <sup>2</sup>	September	January- September <sup>3</sup>
Steel	326 <sup>r</sup>	418	31	277
Superalloys	2,500 <sup>r</sup>	3,300	266	2,380
Magnetic alloys	272 <sup>r</sup>	364	32	289
Other alloys <sup>4</sup>	W	W	W	W
Cemented carbides <sup>5</sup>	463 <sup>r</sup>	617	59	508
Chemical and ceramic uses <sup>6</sup>	1,470 <sup>r</sup>	1,940	182	1,620
Miscellaneous and unspecified	205 <sup>r</sup>	272	23	205
Total	5,240 <sup>r</sup>	6,920	592	5,270

<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:					
September	434	211	188	832	6,860
October	412	208	188	808	6,800
November	403	203	188	794	6,740
December <sup>6</sup>	456	222	188	867	6,680
2003:					
January	425	222	188	836	6,360
February	402	210	188	800	6,200
March	396	209	188	793	6,170
April	359	200	188	748	5,750
May	366	206	188	760	5,450
June	366	200	188	754	5,240
July	369	216	188	773	5,040
August	389	208	188	784	4,990
September	402	206	188	795	4,930

<sup>1</sup>Revised.

<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:								
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	556,000	10,500,000	119,000	2,000,000	144,000	739,000	681,000	2,660,000
May	546,000	10,700,000	237,000	4,210,000	127,000	764,000	755,000	3,410,000
June	454,000	9,210,000	108,000	1,960,000	133,000	797,000	568,000	3,980,000
July	641,000	13,000,000	104,000	1,690,000	130,000	824,000	752,000	4,730,000
August:								
Australia	--	--	--	--	--	--	--	127,000
Austria	--	--	--	--	--	--	--	1,760
Belgium	10,400	409,000	8,800	161,000	4,800	31,800	18,000	514,000
Brazil	20,900	393,000	--	--	--	--	20,900	154,000
Canada	7,000	159,000	--	--	--	--	7,000	376,000
China	--	--	14,000	180,000	--	--	10,100	78,800
Congo (Kinshasa)	42,100	697,000	--	--	--	--	42,100	158,000
Finland	19,500	621,000	24,600	409,000	42,200	274,000	49,600	766,000
France	2,150	132,000	1,680	67,800	--	--	3,360	41,400
Germany	720	21,000	--	--	--	--	720	10,800
India	--	--	--	--	--	--	--	5,400
Ireland	--	--	--	--	--	--	--	6,160
Japan	14,100	402,000	--	--	7,510	77,800	16,000	94,400
Korea, Republic of	50	3,150	--	--	--	--	50	3,790
Luxembourg	--	--	--	--	--	--	--	4,580
Morocco	--	--	--	--	--	--	--	20,000
Netherlands	--	--	--	--	--	--	--	20,000
Norway	171,000	3,670,000	--	--	--	--	171,000	1,190,000
Philippines	--	--	--	--	226	3,400	104	29,900
Russia	46,300	882,000	--	--	--	--	46,300	963,000
Saudi Arabia	1,700 <sup>7</sup>	34,000 <sup>7</sup>	--	--	--	--	1,700	1,700
South Africa	1,000	18,600	--	--	--	--	1,000	98,300
Sweden	--	--	--	--	--	--	--	18,800
Switzerland	593	25,500	--	--	--	--	593	5,350
Taiwan	--	--	--	--	--	--	--	240
Uganda	--	--	--	--	--	--	--	5,100
United Kingdom	1,160	34,600	10,000	144,000	16,000	93,700	12,400	178,000
Zambia	51,400	941,000	--	--	--	--	51,400	314,000
Total	390,000	8,440,000	59,100	963,000	70,700	480,000	452,000	5,180,000

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.

<sup>7</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 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:						
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	5,170	152,000	20,500	253,000	15,500	933,000
May	1,510	46,000	55,100	558,000	20,400	1,220,000
June	3,010	33,900	15,100	256,000	13,700	1,050,000
July	230	14,600	30,600	175,000	18,400	1,280,000
August:						
Austria	--	--	16,800	39,300	--	--
Belgium	--	--	3,570	75,300	240	9,490
Canada	--	--	--	--	1,940	216,000
Czech Republic	--	--	--	--	1	3,360
France	--	--	--	--	2,850	161,000
Germany	240	9,780	4,440	34,400	--	--
Ireland	--	--	12,100	185,000	--	--
Japan	200	13,800	--	--	3,780	155,000
Mexico	--	--	1,580	14,800	--	--
United Kingdom	--	--	47,700	269,000	5,600	242,000
Total	440	23,500	86,200	618,000	14,400	787,000

-- 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:								
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	110,000	3,110,000	44,800	459,000	17,000	102,000	146,000	503,000
April	205,000	3,330,000	66,000	936,000	146,000	672,000	288,000	791,000
May	220,000	3,600,000	14,200	340,000	27,800	158,000	237,000	1,030,000
June	232,000	4,770,000	18,600	238,000	9,710	54,600	248,000	1,280,000
July	191,000	6,570,000	43,000	845,000	41,800	294,000	232,000	1,510,000
August	187,000	4,270,000	17,400	338,000	56,600	324,000	213,000	1,720,000

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:				
August	83,300	\$2,570,000	5,290	\$70,600
September	90,600	2,500,000	1,780	20,700
October	60,000	1,940,000	16,300	87,800
November	51,400	1,880,000	158	5,450
December	64,700	1,650,000	10,200	61,000
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>
May	56,100	2,060,000	53,000 <sup>3</sup>	705,000 <sup>3</sup>
June	100,000	2,940,000	238,000 <sup>3</sup>	257,000 <sup>3</sup>
July	69,200	2,240,000	33,100 <sup>3</sup>	372,000 <sup>3</sup>
August	65,500	2,720,000	73,700 <sup>3</sup>	473,000 <sup>3</sup>

<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.