

Mineral Industry Surveys

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COBALT IN MAY 2009

Preliminary data for 2008 and 2009 indicate that U.S. cobalt consumption during January through May 2009 was 6% lower than that during the first 5 months of 2008, according to the U.S. Geological Survey. The amount of cobalt contained in U.S. imports of cobalt metals and chemicals was 39% lower during January through April 2009 than that during the same period in 2008. The amount of cobalt contained in U.S. exports of unwrought cobalt and chemicals during January through April

2009 was 38% lower than that exported during the same period in 2008.

Update

Prices for electrolytic cobalt, in dollars per pound from Platts Metals Week, are listed below.

| <u>Month</u> | <u>Price range</u> | <u>Average price</u> |
|--------------|--------------------|----------------------|
| May 2009 | 13.60-17.50 | 15.51 |

TABLE 1
U.S. REPORTED CONSUMPTION OF COBALT MATERIALS¹

(Metric tons, contained cobalt)

| Period | Metal ² | Oxide and other chemical compounds ³ | Scrap | Total |
|-------------------------------|--------------------|---|-------|-------|
| 2008: | | | | |
| May | 335 | 185 | 162 | 682 |
| June | 312 | 187 | 164 | 664 |
| July | 312 | 183 | 150 | 644 |
| August | 309 | 188 | 166 | 663 |
| September | 311 | 186 | 154 | 651 |
| October | 306 | 184 | 170 | 660 |
| November | 328 | 180 | 147 | 655 |
| December | 300 | 178 | 148 | 626 |
| January-May ^f | 1,600 | 925 | 817 | 3,340 |
| January-December ⁴ | 3,780 | 2,210 | 1,920 | 7,900 |
| 2009: | | | | |
| January | 303 | 182 | 149 | 634 |
| February | 308 | 183 | 142 | 633 |
| March | 300 | 182 | 146 | 628 |
| April | 296 | 180 | 146 | 622 |
| May | 292 | 179 | 146 | 617 |
| January-May | 1,500 | 906 | 729 | 3,130 |

^fRevised.

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

²Includes metal powder.

³Data may include other cobalt materials.

⁴Data based on monthly reports.

TABLE 2
U.S. REPORTED CONSUMPTION OF COBALT, BY END USE¹

(Metric tons, contained cobalt)

| End use | 2008 | | 2009 | |
|--|--------------------|-------------------------------|------|--------------------------|
| | January-May | January-December ² | May | January-May ³ |
| Steel | 339 ^f | 835 | 56 | 281 |
| Superalloys | 1,460 ^f | 3,410 | 277 | 1,420 |
| Magnetic alloys | 128 | 295 | 22 | 111 |
| Other alloys ⁴ | W | W | W | W |
| Cemented carbides ⁵ | 313 | 739 | 56 | 280 |
| Chemical and ceramic uses ⁶ | 994 ^f | 2,360 | 183 | 928 |
| Miscellaneous and unspecified | 112 | 270 | 22 | 112 |
| Total | 3,340 ^f | 7,900 | 617 | 3,130 |

^fRevised. W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous and unspecified."

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

²Data based on monthly reports.

³Includes revisions to prior months' data.

⁴Includes nonferrous alloys, welding materials, and wear-resistant alloys.

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

⁶Includes catalysts, driers in paints or related usages, feed or nutritive additives, glass decolorizer, ground coat frit, pigments, and other uses.

TABLE 3
U.S. REPORTED STOCKS OF COBALT MATERIALS¹

(Metric tons, contained cobalt)

| Period | Industry ² | | | Total | U.S. Government, metal ⁵ |
|-----------------------|-----------------------|---|-------|-------|---|
| | Metal ³ | Oxide and other chemical compounds ⁴ | Scrap | | |
| 2008: | | | | | |
| May | 300 | 170 | 54 | 524 | 612 |
| June | 300 | 163 | 54 | 516 | 612 |
| July | 308 | 162 | 62 | 533 | 606 |
| August | 320 | 157 | 63 | 540 | 576 |
| September | 313 | 158 | 66 | 537 | 497 |
| October | 296 | 175 | 59 | 531 | 497 |
| November | 294 | 175 | 70 | 539 | 497 |
| December ⁶ | 296 | 179 | 78 | 553 | 473 |
| 2009: | | | | | |
| January | 299 | 177 | 96 | 572 | 455 |
| February | 295 | 173 | 90 | 558 | 455 |
| March | 290 | 169 | 97 | 556 | 455 |
| April | 297 | 167 | 97 | 561 | 455 |
| May | 300 | 167 | 97 | 564 | 455 |

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

²Stocks reported by cobalt processors and consumers.

³Includes metal powder.

⁴Data may include other cobalt materials.

⁵Data from Defense National Stockpile Center; uncommitted material only.

⁶Data based on monthly reports.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF COBALT BY COUNTRY¹

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

| Period and country of origin | Metals ² | | Oxides and hydroxides | | Salts and compounds ³ | | Total cobalt content for the period ⁵ | Cobalt content, year to date ^{5,6} |
|---------------------------------|---------------------|--------------------|-----------------------|--------------------|----------------------------------|--------------------|--|--|
| | Quantity | Value ⁴ | Quantity | Value ⁴ | Quantity | Value ⁴ | | |
| 2008: | | | | | | | | |
| April | 622,000 | \$49,200,000 | 57,400 | \$4,450,000 | 601,000 | \$7,570,000 | 853,000 | 3,700,000 |
| May | 721,000 | 62,800,000 | 66,100 | 5,230,000 | 523,000 | 5,810,000 | 945,000 | 4,640,000 |
| June | 875,000 | 79,000,000 | 135,000 | 8,430,000 | 523,000 | 6,670,000 | 1,140,000 | 5,780,000 |
| July | 550,000 | 46,100,000 | 100,000 | 6,750,000 | 589,000 | 5,000,000 | 793,000 | 6,580,000 |
| August | 523,000 | 40,600,000 | 91,500 | 5,770,000 | 529,000 | 4,120,000 | 748,000 | 7,320,000 |
| September | 799,000 | 51,000,000 | 77,100 | 4,210,000 | 536,000 | 4,180,000 | 1,010,000 | 8,340,000 |
| October | 791,000 | 53,000,000 | 80,600 | 4,020,000 | 248,000 | 2,200,000 | 922,000 | 9,260,000 |
| November | 685,000 | 43,600,000 | 148,000 | 4,710,000 | 234,000 | 2,610,000 | 862,000 | 10,100,000 |
| December | 490,000 | 23,200,000 | 96,900 | 3,460,000 | 33,400 | 422,000 | 570,000 | 10,700,000 |
| January-April | 3,000,000 | 219,000,000 | 315,000 | 20,800,000 | 1,490,000 | 18,900,000 | 3,700,000 | XX |
| January-December | 8,430,000 | 618,000,000 | 1,110,000 | 63,400,000 | 4,710,000 | 49,900,000 | 10,700,000 | XX |
| 2009: | | | | | | | | |
| January | 345,000 | 10,500,000 | 37,700 | 901,000 | 101,000 | 1,360,000 | 410,000 | 410,000 |
| February | 574,000 | 18,600,000 | 23,400 | 757,000 | 161,000 | 1,730,000 | 644,000 | 1,050,000 |
| March | 424,000 | 12,300,000 | 109,000 | 2,720,000 | 139,000 | 1,610,000 | 549,000 | 1,600,000 |
| April: | | | | | | | | |
| Australia | 51,000 | 1,300,000 | -- | -- | -- | -- | 51,000 | 117,000 |
| Belgium | 3,150 | 101,000 | 47,100 | 927,000 | 31,800 | 500,000 | 51,600 | 182,000 |
| Brazil | 40,000 | 852,000 | -- | -- | 500 | 9,680 | 40,100 | 56,900 |
| Canada | 5,650 | 308,000 | 19,700 | 490,000 | -- | -- | 19,800 | 193,000 |
| China | 107,000 | 3,720,000 | 10,100 | 289,000 | 17,900 | 263,000 | 121,000 | 428,000 |
| Congo (Kinshasa) | 1,000 | 29,600 | -- | -- | -- | -- | 1,000 | 11,000 |
| Finland | 450 | 19,100 | 14,000 | 373,000 | 152,000 | 2,590,000 | 70,200 | 165,000 |
| France | 305 | 21,800 | -- | -- | -- | -- | 305 | 2,940 |
| Germany | -- | -- | -- | -- | -- | -- | -- | 1,180 |
| Hong Kong | -- | -- | -- | -- | -- | -- | -- | 9,720 |
| India | -- | -- | -- | -- | -- | -- | -- | 9,720 |
| Japan | 17,500 | 820,000 | 594 | 30,600 | -- | -- | 18,000 | 32,500 |
| Korea, Republic of | -- | -- | -- | -- | -- | -- | -- | 1,840 |
| Mexico | -- | -- | 2,270 | 62,500 | -- | -- | 1,630 | 1,630 |
| Morocco | 34,000 | 953,000 | -- | -- | -- | -- | 34,000 | 85,000 |
| Norway | 155,000 | 5,470,000 | -- | -- | -- | -- | 155,000 | 482,000 |
| Peru | -- | -- | -- | -- | -- | -- | -- | 234 |
| Russia | 40,000 | 1,150,000 | -- | -- | -- | -- | 40,000 | 216,000 |
| South Africa | 500 | 18,300 | -- | -- | -- | -- | 500 | 1,500 |
| Spain | -- | -- | 4,730 | 112,000 | -- | -- | 3,400 | 3,400 |
| Sweden | -- | -- | -- | -- | -- | -- | -- | 500 |
| Taiwan | -- | -- | -- | -- | 39,600 | 90,700 | 9,500 | 9,500 |
| Uganda | -- | -- | -- | -- | -- | -- | -- | 19,400 |
| United Kingdom | 10,600 | 345,000 | -- | -- | 9,210 | 160,000 | 14,800 | 37,000 |
| Zambia | 3,000 | 88,700 | -- | -- | -- | -- | 3,000 | 173,000 |
| Total | 469,000 | 15,200,000 | 98,400 | 2,280,000 | 251,000 | 3,610,000 | 635,000 | 2,240,000 |
| January-April | 1,810,000 | 56,600,000 | 268,000 | 6,660,000 | 651,000 | 8,310,000 | 2,240,000 | 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 prior months.

Source: U.S. Census Bureau.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF ADDITIONAL COBALT MATERIALS BY COUNTRY¹

(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 ² | Quantity | Value ² | Quantity | Value ² |
| 2008: | | | | | | |
| April | 15,500 | \$871,000 | 214,000 | \$4,870,000 | 22,800 | \$2,180,000 |
| May | 1,140 | 93,800 | 127,000 | 2,600,000 | 15,600 | 1,750,000 |
| June | 14,300 | 776,000 | 117,000 | 2,130,000 | 28,900 | 3,070,000 |
| July | 12,300 | 700,000 | 145,000 | 3,430,000 | 27,200 | 2,540,000 |
| August | 1,900 | 156,000 | 56,400 | 1,110,000 | 39,300 | 3,580,000 |
| September | 214 | 40,700 | 34,800 | 613,000 | 27,600 | 2,900,000 |
| October | 20,600 | 1,150,000 | 85,000 | 1,330,000 | 33,900 | 2,390,000 |
| November | 44 | 6,220 | 59,700 | 875,000 | 26,200 | 2,930,000 |
| December | 21,000 | 1,030,000 | 60,400 | 836,000 | 48,800 | 2,450,000 |
| January-April | 43,100 | 2,390,000 | 428,000 | 9,810,000 | 97,400 | 8,770,000 |
| January-December | 115,000 | 6,340,000 | 1,110,000 | 22,700,000 | 345,000 | 30,400,000 |
| 2009: | | | | | | |
| January | 29,300 | 694,000 | 68,900 | 992,000 | 9,430 | 1,470,000 |
| February | 59,500 | 2,360,000 | 31,500 | 490,000 | 20,600 | 2,190,000 |
| March | 40,300 | 1,030,000 | 57,800 | 865,000 | 20,100 | 1,800,000 |
| April: | | | | | | |
| Canada | 109,000 | 1,830,000 | 291 | 2,540 | 1,110 | 262,000 |
| China | -- | -- | -- | -- | 372 | 58,100 |
| France | -- | -- | 8,120 | 87,900 | 76 | 48,000 |
| Germany | -- | -- | 2,210 | 41,100 | 1,110 | 215,000 |
| Ireland | -- | -- | 21,100 | 305,000 | -- | -- |
| Japan | -- | -- | 8,530 | 120,000 | 86 | 6,350 |
| Mexico | -- | -- | 564 | 2,560 | -- | -- |
| New Zealand | -- | -- | 271 | 3,180 | -- | -- |
| Taiwan | -- | -- | 10,000 | 25,100 | -- | -- |
| Tunisia | -- | -- | 2,110 | 50,200 | -- | -- |
| United Kingdom | 455 | 40,700 | 25,800 | 331,000 | 7,620 | 629,000 |
| Total | 109,000 | 1,870,000 | 79,100 | 969,000 | 10,400 | 1,220,000 |
| January-April | 238,000 | 5,950,000 | 237,000 | 3,310,000 | 60,500 | 6,680,000 |

-- Zero.

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

²Customs value.

Source: U.S. Census Bureau.

TABLE 6
U.S. EXPORTS OF COBALT MATERIALS¹

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

| Period | Unwrought cobalt, powders, matte, waste and scrap ² | | Oxides and hydroxides | | Salts and compounds ³ | | Total cobalt content for the period ⁵ | Cobalt content, year to date ^{5,6} |
|------------------|---|--------------------|-----------------------|--------------------|----------------------------------|--------------------|--|--|
| | Quantity | Value ⁴ | Quantity | Value ⁴ | Quantity | Value ⁴ | | |
| 2008: | | | | | | | | |
| April | 181,000 | \$8,030,000 | 48,000 | \$3,980,000 | 1,770 | \$26,600 | 216,000 | 931,000 |
| May | 261,000 | 11,100,000 | 81,200 | 1,780,000 | 67,200 | 789,000 | 336,000 | 1,270,000 |
| June | 180,000 | 9,470,000 | 21,100 | 785,000 | 3,520 | 43,400 | 196,000 | 1,460,000 |
| July | 181,000 | 9,410,000 | 54,800 | 2,930,000 | 32,900 | 624,000 | 229,000 | 1,690,000 |
| August | 239,000 | 16,200,000 | 34,800 | 2,090,000 | 3,200 | 37,600 | 265,000 | 1,960,000 |
| September | 197,000 | 8,740,000 | 52,600 | 1,530,000 | 14,600 | 208,000 | 239,000 | 2,190,000 |
| October | 227,000 | 6,780,000 | 36,300 | 1,060,000 | 36,300 | 496,000 | 262,000 | 2,460,000 |
| November | 156,000 | 7,090,000 | 22,800 | 334,000 | 56,200 | 356,000 | 186,000 | 2,640,000 |
| December | 174,000 | 10,900,000 | 31,800 | 929,000 | 43,600 | 658,000 | 207,000 | 2,850,000 |
| January-April | 768,000 | 31,900,000 | 196,000 | 7,980,000 | 88,600 | 3,110,000 | 931,000 | XX |
| January-December | 2,380,000 | 112,000,000 | 531,000 | 19,400,000 | 346,000 | 6,320,000 | 2,850,000 | XX |
| 2009: | | | | | | | | |
| January | 222,000 | 12,600,000 | 49,900 | 1,120,000 | 28,100 | 12,300 | 264,000 | 264,000 |
| February | 138,000 | 5,180,000 | 19,500 | 357,000 | 23,600 | 176,000 | 158,000 | 423,000 |
| March | 166,000 | 7,080,000 | 25,600 | 412,000 | 24,600 | 577,000 | 190,000 | 613,000 |
| April | 164,000 | 5,560,000 | 15,300 | 337,000 | 5,800 | 83,300 | 176,000 | 789,000 |
| January-April | 690,000 | 30,400,000 | 110,000 | 2,220,000 | 82,100 | 849,000 | 789,000 | XX |

XX Not applicable.

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

²May include other intermediate products of cobalt metallurgy and unwrought cobalt alloys.

³Cobalt acetates and cobalt chlorides.

⁴Free alongside ship (f.a.s.) value.

⁵Estimated from gross weights.

⁶Year to date may include revisions to prior months.

Source: U.S. Census Bureau.

TABLE 7
U.S. EXPORTS OF WROUGHT COBALT, COBALT ORE,
AND CONCENTRATES¹

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

| Period | Wrought cobalt and cobalt articles | | Cobalt ore and concentrates | |
|------------------|------------------------------------|--------------------|-----------------------------|--------------------|
| | Quantity | Value ² | Quantity | Value ² |
| 2008: | | | | |
| April | 127,000 | \$9,300,000 | 89,000 | \$4,520,000 |
| May | 98,400 | 6,990,000 | 19,300 | 1,830,000 |
| June | 117,000 | 9,900,000 | 103,000 | 9,940,000 |
| July | 93,600 | 7,990,000 | 4,610 | 300,000 |
| August | 109,000 | 8,800,000 | 6,190 | 307,000 |
| September | 98,200 | 8,120,000 | 147,000 | 4,360,000 |
| October | 133,000 | 9,580,000 | 158,000 | 843,000 |
| November | 146,000 | 10,500,000 | 17,000 | 436,000 |
| December | 91,200 | 6,230,000 | 2,000 | 106,000 |
| January-April | 480,000 | 35,700,000 | 183,000 | 10,400,000 |
| January-December | 1,370,000 | 104,000,000 | 640,000 | 28,500,000 |
| 2009: | | | | |
| January | 90,300 | 5,710,000 | 5,710 | 10,500 |
| February | 118,000 | 6,500,000 | 41,500 | 54,100 |
| March | 148,000 | 8,680,000 | -- | -- |
| April | 82,800 | 5,620,000 | 30,500 | 454,000 |
| January-April | 439,000 | 26,500,000 | 77,700 | 518,000 |

-- Zero.

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

²Free alongside ship (f.a.s.) value.

Source: U.S. Census Bureau.