

Mineral Industry Surveys

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COBALT IN AUGUST 2002

U.S. consumption of cobalt during January through August 2002 was 8% lower than consumption during the first 8 months of 2001, according to the U.S. Geological Survey (USGS). The cobalt content of U.S. imports of cobalt metal and chemicals during January through July 2002 was approximately the same as that of imports during the first 7 months of 2001. The cobalt content of U.S. exports of unwrought cobalt and chemicals was 41% lower during January through July 2002 than that during the same period in 2001. Trade data for August 2002 will be available in a subsequent issue.

Note

With the exception of prices, all data in this report have

been rounded to no more than three significant digits. Totals and percentages were calculated by using unrounded data.

Price

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

| <u>Date</u> | <u>Price range</u> |
|--------------|--------------------|
| September 26 | 6.00-6.30 |
| October 3 | 6.00-6.50 |
| October 10 | 6.00-6.45 |

| <u>Month</u> | <u>Average price</u> |
|--------------|----------------------|
| September | 6.62 |

TABLE 1
U.S. REPORTED CONSUMPTION OF COBALT MATERIALS 1/

(Metric tons, contained cobalt)

| Period | Metal 2/ | Oxide and other chemical compounds 3/ | Scrap | Total |
|---------------------|----------|---|-------|-------|
| 2001: | | | | |
| August | 347 | 110 | 217 | 674 |
| September | 349 | 137 | 217 | 703 |
| October | 371 | 104 | 217 | 692 |
| November | 383 | 105 | 217 | 705 |
| December | 382 | 112 | 217 | 711 |
| January-August r/ | 2,940 | 1,050 | 1,740 | 5,720 |
| January-December 4/ | 4,420 | 1,510 | 2,610 | 8,540 |
| Year 5/ | 5,240 | 1,510 | 2,740 | 9,490 |
| 2002: | | | | |
| January | 362 | 98 | 215 | 674 |
| February | 349 | 99 | 215 | 663 |
| March | 358 | 105 | 215 | 677 |
| April | 345 | 112 | 215 | 672 |
| May | 353 | 101 | 215 | 669 |
| June | 304 | 113 | 215 | 632 |
| July | 316 | 105 | 215 | 636 |
| August | 320 | 113 | 215 | 648 |
| January-August | 2,710 | 847 | 1,720 | 5,270 |

r/ Revised.

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

2/ Includes metal powder.

3/ Data may include other cobalt materials.

4/ Data based on monthly reports.

5/ Includes annual reports.

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

(Metric tons, contained cobalt)

| End use | 2001 | | | 2002 | |
|-------------------------------|--------------------|-------------------------|------------|--------|-----------------------|
| | January- August | January- December 2/ | Year p/ 3/ | August | January- August 4/ |
| Steel | 345 r/ | 503 | 624 | 47 | 380 |
| Superalloys | 2,950 r/ | 4,480 | 4,850 | 316 | 2,680 |
| Magnetic alloys | 310 r/ | 441 | 472 | 34 | 280 |
| Other alloys 5/ | W | W | 661 | W | W |
| Cemented carbides 6/ | 480 r/ | 720 | 720 | 64 | 493 |
| Chemical and ceramic uses 7/ | 1,440 r/ | 2,090 | 2,100 | 162 | 1,240 |
| Miscellaneous and unspecified | 203 r/ | 302 | 63 | 25 | 200 |
| Total | 5,720 r/ | 8,540 | 9,490 | 648 | 5,270 |

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous and unspecified."

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

2/ Data based on monthly reports.

3/ Includes annual reports.

4/ May include revisions to prior months.

5/ Includes nonferrous alloys, welding materials, and wear-resistant alloys.

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

7/ 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 1/

(Metric tons, contained cobalt)

| Period | Industry 2/ | | | | U.S. Government, metal 5/ |
|-------------|-------------|---|-------|-------|---------------------------------|
| | Metal 3/ | Oxide and other chemical compounds 4/ | Scrap | Total | |
| 2001: | | | | | |
| August | 367 | 246 | 181 | 794 | 8,260 |
| September | 361 | 248 | 181 | 790 | 8,180 |
| October | 386 | 240 | 181 | 808 | NA |
| November | 372 | 233 | 182 | 787 | NA |
| December 6/ | 382 | 222 | 181 | 786 | 7,200 e/ |
| Yearend 7/ | 427 | 242 | 181 | 851 | 7,200 e/ |
| 2002: | | | | | |
| January | 415 | 251 | 134 | 800 | NA |
| February | 406 | 247 | 134 | 787 | NA |
| March | 379 | 257 | 135 | 771 | NA |
| April | 368 | 247 | 134 | 749 | NA |
| May | 359 | 240 | 134 | 733 | NA |
| June | 354 | 231 | 134 | 719 | 7,100 |
| July | 362 | 223 | 134 | 720 | 6,950 r/ |
| August | 348 | 231 | 135 | 714 | 6,890 |

e/ Estimated. r/ Revised. NA Not available.

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

2/ Stocks reported by cobalt processors and consumers.

3/ Includes metal powder.

4/ Data may include other cobalt materials.

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

6/ Data based on monthly reports.

7/ Industry data include annual reports.

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

(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 month 5/ | Cobalt content, year to date 5/ 6/ |
|---------------------------------|-----------|--------------|-----------------------|-------------|------------------------|------------|---|---|
| | Quantity | Value 4/ | Quantity | Value 4/ | Quantity | Value 4/ | | |
| 2001: | | | | | | | | |
| July | 527,000 | \$12,500,000 | 119,000 | \$2,090,000 | 184,000 | \$966,000 | 660,000 | 5,540,000 |
| August | 646,000 | 14,300,000 | 106,000 | 1,910,000 | 174,000 | 872,000 | 768,000 | 6,310,000 |
| September | 569,000 | 12,300,000 | 64,600 | 1,310,000 | 198,000 | 973,000 | 668,000 | 6,980,000 |
| October | 879,000 | 17,500,000 | 91,900 | 1,760,000 | 332,000 | 1,690,000 | 1,040,000 | 8,020,000 |
| November | 604,000 | 10,600,000 | 81,000 | 1,330,000 | 142,000 | 654,000 | 700,000 | 8,720,000 |
| December | 553,000 | 9,200,000 | 91,900 | 1,340,000 | 254,000 | 1,080,000 | 689,000 | 9,410,000 |
| January-December | 7,910,000 | 183,000,000 | 1,280,000 | 25,700,000 | 2,150,000 | 11,000,000 | 9,410,000 r/ | XX |
| 2002: | | | | | | | | |
| January | 729,000 | 11,500,000 | 101,000 | 1,550,000 | 267,000 | 1,220,000 | 877,000 | 877,000 |
| February | 564,000 | 9,020,000 | 148,000 | 2,300,000 | 202,000 | 727,000 | 725,000 | 1,600,000 |
| March | 679,000 | 11,000,000 | 162,000 | 2,690,000 | 216,000 | 849,000 | 854,000 | 2,460,000 |
| April | 660,000 | 10,700,000 | 79,000 | 1,230,000 | 268,000 | 1,080,000 | 790,000 | 3,250,000 |
| May | 723,000 | 12,200,000 | 155,000 | 2,310,000 | 176,000 | 801,000 | 885,000 | 4,130,000 |
| June | 554,000 | 10,000,000 | 82,600 | 1,330,000 | 163,000 | 831,000 | 662,000 | 4,790,000 |
| July: | | | | | | | | |
| Australia | 80,000 | 1,330,000 | -- | -- | -- | -- | 80,000 | 140,000 |
| Belgium | 26,000 | 477,000 | 26,300 | 377,000 | -- | -- | 44,900 | 529,000 |
| Brazil | -- | -- | -- | -- | -- | -- | -- | 200,000 |
| Canada | 67,000 | 1,430,000 | -- | -- | -- | -- | 67,000 | 538,000 |
| China | -- | -- | -- | -- | -- | -- | -- | 39,000 |
| Congo (Kinshasa) | 36,900 | 519,000 | -- | -- | -- | -- | 36,900 | 251,000 |
| Finland | 85,600 | 1,800,000 | 61,200 | 861,000 | 220,000 | 890,000 | 189,000 | 1,180,000 |
| France | 1,570 | 93,700 | 8,150 | 346,000 | -- | -- | 7,440 | 34,500 |
| Germany | -- | -- | -- | -- | -- | -- | -- | 11,500 |
| Japan | -- | -- | -- | -- | 200 | 2,960 | 48 | 16,900 |
| Korea, Republic of | 51 | 3,240 | -- | -- | -- | -- | 51 | 483 |
| Morocco | -- | -- | -- | -- | -- | -- | -- | 56,000 |
| Norway | 150,000 | 2,370,000 | -- | -- | -- | -- | 150,000 | 1,130,000 |
| Philippines | -- | -- | -- | -- | 22,200 | 152,000 | 8,420 | 26,400 |
| Russia | 68,900 | 1,070,000 | -- | -- | -- | -- | 68,900 | 827,000 |
| South Africa | -- | -- | -- | -- | -- | -- | -- | 94,800 |
| Sweden | 9,050 | 184,000 | -- | -- | -- | -- | 9,050 | 20,200 |
| Switzerland | -- | -- | -- | -- | -- | -- | -- | 3 |
| Uganda | -- | -- | -- | -- | -- | -- | -- | 25,200 |
| United Kingdom | 18,700 | 87,500 | 6,480 | 148,000 | 10,200 | 49,800 | 26,100 | 114,000 |
| Zambia | 15,000 | 222,000 | -- | -- | -- | -- | 15,000 | 258,000 |
| Total | 559,000 | 9,580,000 | 102,000 | 1,730,000 | 253,000 | 1,090,000 | 702,000 | 5,500,000 |

r/ Revised. XX Not applicable. -- Zero.

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

2/ Unwrought cobalt, excluding alloys; includes cobalt cathode and cobalt metal powder.

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

4/ Customs value.

5/ Estimated from gross weights.

6/ May include revisions to prior months.

7/ 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 1/

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

| Period and country of origin | Unwrought cobalt alloys | | Other cobalt: matte, waste and scrap 2/ | | Wrought cobalt and cobalt articles | |
|---------------------------------|----------------------------|-----------|--|--------------|---------------------------------------|------------|
| | Quantity | Value 3/ | Quantity | Value 3/ | Quantity | Value 3/ |
| 2001: | | | | | | |
| July | 6,570 | \$147,000 | 55,600 | \$492,000 | 14,500 | \$989,000 |
| August | 3,480 | 64,600 | 45,800 | 1,050,000 | 13,200 | 845,000 |
| September | 1,140 | 51,500 | 18,500 | 515,000 | 15,400 | 947,000 |
| October | 3,410 | 105,000 | 19,700 | 395,000 | 19,400 | 1,170,000 |
| November | 10,800 | 250,000 | 22,400 | 519,000 | 17,000 | 1,030,000 |
| December | 2,130 | 47,500 | 49,200 | 1,010,000 | 21,800 | 1,370,000 |
| January-December | 76,100 | 1,770,000 | 583,000 | 10,200,000 | 233,000 | 13,400,000 |
| 2002: | | | | | | |
| January | 6,990 | 152,000 | 73,900 4/ | 1,170,000 4/ | 23,000 | 925,000 |
| February | 3,650 | 154,000 | 15,800 | 379,000 | 15,300 | 932,000 |
| March | 1,420 | 187,000 | 88,200 | 1,270,000 | 20,900 | 1,080,000 |
| April | 210 | 6,350 | 30,500 | 546,000 | 33,500 | 1,320,000 |
| May | 3,600 | 144,000 | 21,000 | 417,000 | 29,000 | 977,000 |
| June | 679 | 24,700 | 27,800 | 384,000 | 13,200 | 855,000 |
| July: | | | | | | |
| Austria | 250 | 13,900 | -- | -- | -- | -- |
| Belgium | 680 | 10,800 | -- | -- | 2,490 | 58,400 |
| Canada | -- | -- | 571 | 85,100 | 1,750 | 323,000 |
| China | -- | -- | -- | -- | 3 | 2,410 |
| France | -- | -- | 1,110 | 32,200 | 5,620 | 292,000 |
| Germany | 3,370 | 40,800 | 400 | 21,400 | 297 | 14,500 |
| Ireland | -- | -- | 4,990 | 54,000 | -- | -- |
| Japan | 3,200 | 45,700 | 8,740 | 178,000 | 2,650 | 74,100 |
| Sweden | -- | -- | 155 | 4,170 | -- | -- |
| Switzerland | -- | -- | 328 | 14,100 | 5 | 12,100 |
| United Kingdom | 3,940 | 23,800 | -- | -- | 6,080 | 284,000 |
| Total | 11,400 | 135,000 | 16,300 | 389,000 | 18,900 | 1,060,000 |

-- Zero.

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

2/ Includes other intermediate products of cobalt metallurgy; may include other cobalt-bearing materials from which cobalt is extracted, or from which cobalt-containing chemical compounds are manufactured.

3/ Customs value.

4/ 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 1/

(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 month 5/ | Cobalt content, year to date 5/ 6/ |
|------------------|--|-------------|-----------------------|-------------|------------------------|-----------|---------------------------------------|------------------------------------|
| | Quantity | Value 4/ | Quantity | Value 4/ | Quantity | Value 4/ | | |
| 2001: | | | | | | | | |
| July | 146,000 | \$3,960,000 | 211,000 | \$1,160,000 | 30,000 | \$231,000 | 306,000 | 2,040,000 |
| August | 189,000 | 5,270,000 | 27,400 | 241,000 | 29,800 | 173,000 | 216,000 | 2,250,000 |
| September | 186,000 | 4,730,000 | 32,100 | 473,000 | 3,030 | 27,100 | 210,000 | 2,460,000 |
| October | 184,000 | 5,100,000 | 6,530 | 155,000 | 35,400 | 221,000 | 197,000 | 2,660,000 |
| November | 306,000 | 4,520,000 | 41,600 | 581,000 | 7,770 | 34,300 | 338,000 | 3,000,000 |
| December | 182,000 | 3,220,000 | 32,500 | 701,000 | 9,110 | 77,100 | 207,000 | 3,210,000 |
| January-December | 2,240,000 | 57,300,000 | 1,260,000 | 10,200,000 | 254,000 | 1,980,000 | 3,210,000 | XX |
| 2002: | | | | | | | | |
| January | 127,000 | 2,870,000 | 25,600 | 379,000 | 14,100 | 98,500 | 149,000 | 149,000 |
| February | 140,000 | 2,850,000 | 6,090 | 88,100 | 13,400 | 85,300 | 148,000 | 297,000 |
| March | 167,000 | 3,370,000 | 5,820 | 71,700 | 12,200 | 67,700 | 174,000 | 471,000 |
| 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 |

XX Not applicable.

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

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

3/ Cobalt acetates and cobalt chlorides.

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

5/ Estimated from gross weights.

6/ 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 1/

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

| Period | Wrought cobalt and cobalt articles | | Cobalt ore and concentrates | |
|------------------|------------------------------------|-------------|-----------------------------|------------|
| | Quantity | Value 2/ | Quantity | Value 2/ |
| 2001: | | | | |
| July | 73,800 | \$2,040,000 | 78,300 | \$342,000 |
| August | 66,400 | 2,320,000 | 21,400 | 321,000 |
| September | 50,700 | 1,990,000 | 71,500 | 446,000 |
| October | 30,600 | 1,250,000 | 19,400 | 411,000 |
| November | 42,600 | 1,960,000 | 2,400 | 58,700 |
| December | 82,300 | 2,710,000 | 2,330 | 72,000 |
| January-December | 741,000 | 25,500,000 | 408,000 | 3,000,000 |
| 2002: | | | | |
| January | 46,000 | 1,720,000 | 237,000 3/ | 776,000 3/ |
| February | 136,000 | 3,070,000 | 2,900 3/ | 85,000 3/ |
| March | 55,300 | 1,710,000 | 575 3/ | 16,500 3/ |
| April | 106,000 | 2,450,000 | -- | -- |
| May | 74,500 | 2,100,000 | 2,910 3/ | 49,200 3/ |
| June | 68,100 | 2,340,000 | 2,610 3/ | 25,700 3/ |
| July | 87,100 | 2,630,000 | 27,700 3/ | 110,000 3/ |

-- Zero.

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

2/ Free alongside ship (f.a.s.) value.

3/ 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.