# Mineral Industry Surveys

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## CHROMIUM IN NOVEMBER 2001

On the basis of gross weight, consumption of chromium ferroalloys and metal in November 2001 increased 4% compared with consumption in October 2001, according to the U.S. Geological Survey.

Included in this Mineral Industry Surveys are U.S. salient chromium statistics, U.S. consumption by end use and consumer stocks of chromium ferroalloys and metal at the end of November 2001, U.S. foreign trade data for selected chromium-containing materials in October 2001, and chromite ore prices.

### Update

The International Chromium Development Association (ICDA) prepared a brief report entitled *Health effects of occupational exposures in chrome plating* that is oriented to the general public. Copies are available upon request while they last. Contact the author of this Mineral Industry Surveys report. The article describes the carcinogenic risk of chromic acid mist in electroplating, an area where information has recently been improved. The study found that despite the fact that there is insufficient information to quantify the risk, what information is available indicates that there is significant increase of lung cancer risk resulting from the inhalation of chromic acid mist. A range of chromium plating processing modifications are recommended to mitigate the effect (Aitio, 2001).

The Defense Logistics Agency published amendment number 007 to DLA-Ferrochromium Silicon-001 solicitation of offers. The amendment renames the solicitation to DLA-Low Carbon Ferrochromium-001 and sets the next offering at 10,619 metric tons, low-carbon ferrochromium, gross weight, on January 24, 2002. Low-carbon ferrochromium being offered is stored at Warren, OH. For further information, contact Robert F. Clark at 703-767-7614 (voice) or 703-767-7608 (facsimile).

The Defense National Stockpile Center announced the award of about 90,700 tons, gross weight, of refractory grade chromite ore at a value of about $400,000. Chemical grade chromite ore continues to be offered on the second Tuesday of each month. For further information, contact Angela Mattox at 703-767-5515 or visit the Defense National Stockpile Center web site at https://www.dnsc.dla.mil.

### Reference Cited

Aitio, Antero, 2001, Health effects of occupational exposures in chrome plating: The Chromium File, no. 7, Paris, International Chromium Development Association, 6 p.

TABLE 1
U.S. SALIENT CHROMIUM STATISTICS 1/

(Metric tons, gross weight)

| | 2000 | 2001 | | | | | |
|---|---|---|---|---|---|---|---|
| | January-December 2/ | Second quarter 2/ | September | Third quarter 2/ | October | November | January-November 2/ |
| Production: | | | | | | | |
| Stainless steel production 3/ | 2,190,000 | 453,000 | 167,000 | 495,000 | 161,000 | 151,000 | 1,690,000 |
| Components of U.S. supply: | | | | | | | |
| Stainless steel scrap receipts | 817,000 | 178,000 | 77,700 | 222,000 | 70,300 | 53,800 | 667,000 |
| Stainless steel scrap consumption | 1,220,000 | 272,000 | 115,000 | 316,000 | 94,500 | 80,400 | 1,010,000 |
| Imports for consumption: | | | | | | | |
| Chromite ore | 268,000 | 35,400 | 17,100 | 80,500 | 1,760 | NA | 178,000 4/ |
| Ferrochromium: | | | | | | | |
| More than 4% carbon | 517,000 | 59,400 | 12,600 | 34,000 | 28,700 | NA | 213,000 4/ |
| More than 3%, but not more than 4% carbon | -- | -- | -- | -- | -- | NA | 20 4/ |
| More than 0.5%, but not more than 3% carbon | 9,150 | 800 | 19 | 794 | -- | NA | 2,090 4/ |
| Not more than 0.5% carbon | 50,300 | 4,990 | 417 | 2,700 | 2,050 | NA | 15,700 4/ |
| Ferrochromium silicon | 20,700 | -- | -- | 2,780 | 3,500 | NA | 7,850 4/ |
| Total ferroalloy imports | 597,000 | 65,200 | 13,000 | 40,200 | 34,300 | NA | 239,000 4/ |
| Chromium metal 5/ | 9,940 | 2,280 | 736 | 2,150 | 672 | NA | 7,180 4/ |
| Stainless steel | 989,000 | 193,000 | 41,400 | 176,000 | 77,600 | NA | 641,000 4/ |
| Stainless steel scrap | 56,200 | 43,600 | 3,870 | 12,200 | 3,530 | NA | 93,100 4/ |
| Distribution of U.S. supply: | | | | | | | |
| Consumption: | | | | | | | |
| Chromium ferroalloys & metal | 359,000 | 77,900 | 30,100 | 89,200 | 26,900 | 27,800 | 301,000 |
| Exports: | | | | | | | |
| Chromite ore | 138,000 | 3,050 | 205 | 27,200 | 13,000 | NA | 60,300 4/ |
| Chromium ferroalloys: | | | | | | | |
| High-carbon ferrochromium | 33,500 | 742 | 296 | 873 | 268 | NA | 8,000 4/ |
| Low-carbon ferrochromium | 1,570 | 5,820 | 98 | 683 | 408 | NA | 7,190 4/ |
| Ferrochromium silicon | 2,700 | 19 | 14 | 43 | 12 | NA | 79 4/ |
| Total ferroalloy exports | 37,700 | 6,580 | 408 | 1,600 | 689 | NA | 15,300 4/ |
| Chromium metal | 1,260 | 402 | 74 | 172 | 38 | NA | 951 4/ |
| Stainless steel | 264,000 | 64,000 | 17,800 | 58,400 | 19,500 | NA | 216,000 4/ |
| Stainless steel scrap | 468,000 | 114,000 | 26,200 | 94,500 | 35,800 | NA | 390,000 4/ |
| Stocks at end of period: | | | | | | | |
| Industry: | | | | | | | |
| Chromium ferroalloys and metal, consumer | 26,600 | XX | 20,900 | XX | 25,100 | 27,100 | XX |
| Government stockpile: | | | | | | | |
| Chromite ore | 636,000 | XX | 561,000 | XX | NA | NA | XX |
| Chromium ferroalloys | 919,000 | XX | 861,000 | XX | NA | NA | XX |
| Chromium metal | 7,550 | XX | 7,300 | XX | NA | NA | XX |

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

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

2/ May include revised data.

3/ Data on stainless steel production reported by American Iron and Steel Institute; monthly, quarterly, and year-to-date production of stainless and heat-resisting raw steel.

4/ Includes data for January through October; November data not available.

5/ Includes waste and scrap and other.

TABLE 2
U.S. CONSUMPTION, BY END USE, AND CONSUMER STOCKS OF
CHROMIUM FERROALLOYS AND METAL IN NOVEMBER 2001 1/

(Metric tons, gross weight unless otherwise noted)

| End use | Ferrochromium | | | | | |
|---|---|---|---|---|---|---|
| | Low-carbon | High- and medium-carbon | Ferro-chromium silicon | Other | Total | January-November 2/ |
| Steel: | | | | | | |
| Carbon | 286 | 110 | W | -- | 396 | 5,170 |
| Stainless and heat resisting | 550 | 19,600 | W | W | 20,100 | 242,000 |
| Full alloy | 318 | 971 | 105 | W | 1,390 | 19,100 |
| High-strength low-alloy and electric | 254 | W | W | W | 254 | 2,770 |
| Tool | W | 447 | W | -- | 447 | 3,670 |
| Cast irons | W | 172 | W | -- | 172 | 1,430 |
| Superalloys | 203 | 193 | 20 | 298 | 715 | 8,510 |
| Alloys: | | | | | | |
| Welding materials 3/ | -- | W | -- | W | W | W |
| Other alloys 4/ | W | W | -- | 41 | 41 | 459 |
| Miscellaneous and unspecified | 171 | 292 | 3,750 | 52 | 4,270 | 18,200 |
| Total 5/ | 1,780 | 21,800 | 3,880 | 391 6/ | 27,800 | 301,000 |
| Chromium content | 1,210 | 12,600 | 1,440 | 360 | 15,600 | 175,000 |
| Stocks, November 30, 2001 | 1,970 | 24,000 | 917 | 243 7/ | 27,100 | XX |
| January through November 2/ | | | | | | |
| Total | 20,600 | 243,000 | 33,700 | 4,340 8/ | 301,000 | XX |
| Chromium content | 13,900 | 145,000 | 12,300 | 3,980 | 175,000 | XX |

W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous and unspecified." XX Not applicable. -- Zero.
1/ Data are rounded to no more than three significant digits; may not add to totals shown.
2/ May include revised data.
3/ Includes structural and hard-facing materials.
4/ Includes magnetic, aluminum, copper, nickel, and other alloys.
5/ Includes estimates.
6/ Includes 319 tons of chromium metal.
7/ Includes 179 tons of chromium metal.
8/ Includes 3,550 tons of chromium metal.

TABLE 3
U.S. GOVERNMENT STOCKPILE INVENTORY 1/ OF CHROMIUM MATERIALS 2/

(Metric tons)

| Period | Chromite ore | | | Chromium ferroalloys | | | Chromium metal | |
|---|---|---|---|---|---|---|---|---|
| | Chemical | Metal-lurgical | Refractory | High-carbon ferro-chromium | Low-carbon ferro-chromium | Ferro-chromium silicon | Alumino-thermic | Electrolytic |
| 2000: | | | | | | | | |
| November | 203,000 | 193,000 | 241,000 | 615,000 | 270,000 | 34,200 | 2,500 | 5,050 |
| December | 203,000 | 193,000 | 241,000 | 615,000 | 270,000 | 34,200 | 2,500 | 5,050 |
| 2001: | | | | | | | | |
| January | 203,000 | 193,000 | 241,000 | 615,000 | 270,000 | 34,200 | 2,500 | 5,050 |
| February | 202,000 | 164,000 | 238,000 | 615,000 | 270,000 | 34,200 | 2,500 | 5,050 |
| March | 202,000 | 164,000 | 238,000 | 615,000 | 270,000 | 31,600 | 2,500 | 5,050 |
| April | 200,000 | 164,000 | 237,000 | 603,000 | 266,000 | 25,700 | 2,290 | 5,050 |
| May | 200,000 | 175,000 | 237,000 | 603,000 | 261,000 | 22,100 | 2,290 | 5,050 |
| June | 200,000 | 175,000 | 237,000 | 603,000 | 261,000 | 18,800 | 2,290 | 5,050 |
| July | 198,000 | 169,000 | 235,000 | 603,000 | 261,000 | 16,500 | 2,290 | 5,050 |
| August | 198,000 | 144,000 | 219,000 | 603,000 | 257,000 | 14,000 | 2,270 | 5,050 |
| September | 198,000 | 144,000 | 219,000 | 601,000 | 248,000 | 12,900 | 2,250 | 5,050 |
| October | NA | NA | NA | NA | NA | NA | NA | NA |
| November | NA | NA | NA | NA | NA | NA | NA | NA |

NA Not available.
1/ Includes specification and non-specification grade materials and materials set aside for disposal but not yet shipped.
2/ Data are rounded to no more than three significant digits.

Source: Defense National Stockpile Center.

TABLE 4
U.S. EXPORTS OF CHROMITE ORE, CHROMIUM FERROALLOYS, AND METAL 1/

| Period | Chromite ore | | Chromium ferroalloys 2/ | | | Chromium metal 3/ | |
|---|---|---|---|---|---|---|---|
| | Gross weight (metric tons) | Value (thousands) | Gross weight (metric tons) | Chromium content (metric tons) | Value (thousands) | Gross weight (metric tons) | Value (thousands) |
| 2000: | | | | | | | |
| October | 622 | $149 | 10,400 | 6,960 | $5,280 | 144 | $1,450 |
| November | 12,900 | 751 | 330 | 193 | 403 | 121 | 1,300 |
| December | 11,800 | 747 | 230 | 130 | 230 | 58 | 541 |
| January-December | 138,000 | 10,200 | 37,700 | 24,100 | 21,200 | 1,260 | 13,100 |
| 2001: | | | | | | | |
| January | 16,000 | 1,360 | 5,830 | 1,820 | 4,450 | 143 | 1,580 |
| February | 548 | 398 | 299 | 179 | 399 | 89 | 823 |
| March | 540 | 239 | 278 | 166 | 307 | 108 | 1,010 |
| April | 1,190 | 512 | 4,490 | 3,090 | 2,660 | 170 | 1,390 |
| May | 686 | 320 | 1,480 | 1,010 | 1,070 | 147 | 1,570 |
| June | 1,170 | 428 | 613 | 393 | 611 | 85 | 869 |
| July | 471 | 253 | 893 | 573 | 717 | 72 | 999 |
| August | 26,500 | 1,760 | 300 | 178 | 326 | 26 | 442 |
| September | 205 | 302 | 408 | 246 | 424 | 74 | 571 |
| October | 13,000 | 810 | 689 | 437 | 611 | 38 | 570 |
| January-September | 60,300 | 6,380 | 15,300 | 8,090 | 11,600 | 951 | 9,810 |

1/ Data are rounded to no more than three significant digits; may not add to totals shown.
2/ Includes low-, medium-, and high-carbon ferrochromium, and ferrochromium silicon.
3/ Includes wrought and unwrought and waste and scrap.

Source: U.S. Census Bureau.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF CHROMITE ORE, FERROCHROMIUM, AND CHROMIUM METAL 1/

(Metric tons)

| | 2000 | 2001 | | | |
|---|---|---|---|---|---|
| | January-December 2/ | August | September | October | January-October 2/ |
| Chromite ore: | | | | | |
| Not more than 40% chromic oxide: | | | | | |
| Gross weight | 4,520 | 153 | 100 | 158 | 1,500 |
| Chromic oxide content | 1,650 | 55 | 41 | 59 | 540 |
| More than 40% but less than 46% chromic oxide: | | | | | |
| Gross weight | 33,100 | -- | -- | -- | 3,080 |
| Chromic oxide content | 15,100 | -- | -- | -- | 1,410 |
| 46% or more chromic oxide: | | | | | |
| Gross weight | 230,000 | 22,500 | 17,000 | 1,600 | 174,000 |
| Chromic oxide content | 109,000 | 11,200 | 7,850 | 752 | 82,900 |
| Total, all grades: | | | | | |
| Gross weight | 268,000 | 22,600 | 17,100 | 1,760 | 178,000 |
| Chromic oxide content | 126,000 | 11,300 | 7,890 | 811 | 84,800 |
| Ferrochromium: | | | | | |
| Low-carbon: 3/ | | | | | |
| Not more than 0.5%: | | | | | |
| Gross weight | 50,300 | 250 | 417 | 2,050 | 15,700 |
| Chromium content | 32,700 | 160 | 280 | 1,430 | 10,700 |
| More than 0.5%, but not more than 3%: | | | | | |
| Gross weight | 9,150 | 559 | 19 | -- | 2,090 |
| Chromium content | 5,930 | 385 | 14 | -- | 1,310 |
| Total, low-carbon: | | | | | |
| Gross weight | 59,500 | 809 | 436 | 2,050 | 17,800 |
| Chromium content | 38,700 | 545 | 294 | 1,430 | 12,000 |
| Medium-carbon: 4/ | | | | | |
| Gross weight | -- | -- | -- | -- | 20 |
| Chromium content | -- | -- | -- | -- | 13 |
| High-carbon: 5/ | | | | | |
| Gross weight | 517,000 | 8,030 | 12,600 | 28,700 | 213,000 |
| Chromium content | 298,000 | 4,550 | 7,000 | 17,000 | 123,000 |
| Total, all grades: | | | | | |
| Gross weight | 577,000 | 8,840 | 13,000 | 30,800 | 231,000 |
| Chromium content | 337,000 | 5,100 | 7,300 | 18,400 | 135,000 |
| Chromium metal: | | | | | |
| Other than waste and scrap | 9,900 | 596 | 736 | 671 | 7,140 |
| Waste and scrap | 41 | 21 | -- | 1 | 41 |
| Total, all grades | 9,940 | 617 | 736 | 672 | 7,180 |

-- Zero.
1/ Data are rounded to no more than three significant digits; may not add to totals shown.
2/ May include revised data.
3/ Ferrochromium containing not more than 3% carbon.
4/ Ferrochromium containing more than 3%, but not more than 4% carbon.
5/ Ferrochromium containing more than 4% carbon.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF CHROMITE ORE IN 2001, BY GRADE AND BY COUNTRY 1/

| Grade and country | October | | | January-October 2/ | | |
|---|---|---|---|---|---|---|
| | Gross weight (metric tons) | $Cr_2O_3$ (metric tons) | Value 3/ (thousands) | Gross weight (metric tons) | $Cr_2O_3$ (metric tons) | Value 3/ (thousands) |
| Not more than 40% chromic oxide, Canada | 158 | 59 | $75 | 1,500 | 540 | $712 |
| More than 40% but less than 46% chromic oxide, South Africa | -- | -- | -- | 3,080 | 1,410 | 200 |
| 46% or more chromic oxide: | | | | | | |
| Canada | -- | -- | -- | 87 | 45 | 52 |
| South Africa | 1,600 | 752 | 111 | 173,000 | 82,600 | 9,220 |
| Turkey | -- | -- | -- | 306 | 168 | 70 |
| Total | 1,600 | 752 | 111 | 174,000 | 82,900 | 9,350 |
| All grades: | | | | | | |
| Canada | 158 | 59 | 75 | 1,580 | 585 | 763 |
| South Africa | 1,600 | 752 | 111 | 176,000 | 84,100 | 9,420 |
| Turkey | -- | -- | -- | 306 | 168 | 70 |
| Total | 1,760 | 811 | 186 | 178,000 | 84,800 | 10,300 |

-- Zero.

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

2/ May include revised data.

3/ Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise to the United States.

Source: U.S. Census Bureau.

TABLE 7
U.S. IMPORTS FOR CONSUMPTION OF FERROCHROMIUM IN 2001, BY GRADE AND BY COUNTRY 1/

| Grade and country | October Gross weight (metric tons) | October Chromium content (metric tons) | October Value 3/ (thousands) | January-October 2/ Gross weight (metric tons) | January-October 2/ Chromium content (metric tons) | January-October 2/ Value 3/ (thousands) |
|---|---|---|---|---|---|---|
| High-carbon ferrochromium: 4/ | | | | | | |
| China | 34 | 22 | $26 | 103 | 68 | $78 |
| Japan | -- | -- | -- | 20 | 14 | 42 |
| Kazakhstan | 9,550 | 6,530 | 2,800 | 54,700 | 37,500 | 19,100 |
| Russia | -- | -- | -- | 20 | 14 | 12 |
| South Africa | 12,200 | 6,230 | 3,060 | 125,000 | 65,900 | 40,200 |
| Sweden | -- | -- | -- | 38 | 28 | 78 |
| Zimbabwe | 6,940 | 4,180 | 2,550 | 32,600 | 19,700 | 13,100 |
| Total | 28,700 | 17,000 | 8,440 | 213,000 | 123,000 | 72,600 |
| Medium-carbon ferrochromium, 5/ Russia | -- | -- | -- | 20 | 13 | 20 |
| Low-carbon ferrochromium: 6/ | | | | | | |
| More than 0.5%, but not more than 3% carbon: | | | | | | |
| Kazakhstan | -- | -- | -- | 500 | 345 | 275 |
| South Africa | -- | -- | -- | 1,520 | 913 | 939 |
| Sweden | -- | -- | -- | 76 | 55 | 152 |
| Total | -- | -- | -- | 2,090 | 1,310 | 1,370 |
| Not more than 0.5% carbon: | | | | | | |
| Brazil | -- | -- | -- | 20 | 12 | 45 |
| Canada | -- | -- | -- | 4 | 3 | 13 |
| China | -- | -- | -- | 20 | 14 | 25 |
| France | -- | -- | -- | 3 | 2 | 4 |
| Germany | 1,020 | 714 | 2,090 | 6,260 | 4,400 | 12,300 |
| Japan | 258 | 170 | 548 | 2,100 | 1,320 | 4,460 |
| Mexico | -- | -- | -- | 19 | 12 | 40 |
| Russia | 779 | 542 | 637 | 6,320 | 4,360 | 4,910 |
| South Africa | -- | -- | -- | 906 | 563 | 865 |
| Sweden | -- | -- | -- | 38 | 28 | 72 |
| Total | 2,050 | 1,430 | 3,280 | 15,700 | 10,700 | 22,800 |
| All grades: | | | | | | |
| Brazil | -- | -- | -- | 20 | 12 | 45 |
| Canada | -- | -- | -- | 4 | 3 | 13 |
| China | 34 | 22 | 26 | 123 | 81 | 103 |
| France | -- | -- | -- | 3 | 2 | 4 |
| Germany | 1,020 | 714 | 2,090 | 6,260 | 4,400 | 12,300 |
| Japan | 258 | 170 | 548 | 2,120 | 1,330 | 4,500 |
| Kazakhstan | 9,550 | 6,530 | 2,800 | 55,200 | 37,900 | 19,400 |
| Mexico | -- | -- | -- | 19 | 12 | 40 |
| Russia | 779 | 542 | 637 | 6,360 | 4,390 | 4,940 |
| South Africa | 12,200 | 6,230 | 3,060 | 128,000 | 67,300 | 42,000 |
| Sweden | -- | -- | -- | 152 | 110 | 302 |
| Zimbabwe | 6,940 | 4,180 | 2,550 | 32,600 | 19,700 | 13,100 |
| Total | 30,800 | 18,400 | 11,700 | 231,000 | 135,000 | 96,800 |

-- Zero.

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

2/ May include revised data.

3/ Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other changes incurred in bringing the merchandise to the United States.

4/ Ferrochromium containing more than 4% carbon.

5/ Ferrochromium containing more than 3%, but not more than 4% carbon.

6/ Ferrochromium containing not more than 3% carbon.

Source: U.S. Census Bureau.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF CHROMIUM METAL IN 2001,
BY GRADE AND BY COUNTRY 1/

| Grade and country | October Gross weight (metric tons) | October Value 3/ (thousands) | January-October 2/ Gross weight (metric tons) | January-October 2/ Value 3/ (thousands) |
|---|---|---|---|---|
| Waste and scrap: | | | | |
| Canada | -- | -- | 1 | $3 |
| China | -- | -- | 34 | 114 |
| Germany | -- | -- | 1 | 5 |
| Japan | -- | -- | 3 | 18 |
| Korea, Republic of | 1 | $4 | 3 | 18 |
| Total | 1 | 4 | 41 | 158 |
| Other than waste and scrap: | | | | |
| Austria | (4/) | $2 | (4/) | 54 |
| Brazil | -- | -- | 1 | 35 |
| Canada | -- | -- | 3 | 14 |
| China | 120 | 467 | 732 | 3,040 |
| France | 236 | 1,830 | 2,060 | 16,000 |
| Germany | 7 | 119 | 73 | 806 |
| Italy | (4/) | 7 | (4/) | 7 |
| Japan | 2 | 73 | 10 | 432 |
| Kazakhstan | -- | -- | 782 | 3,280 |
| Netherlands | 10 | 52 | 19 | 96 |
| Pakistan | -- | -- | 95 | 390 |
| Russia | 105 | 429 | 1,510 | 6,740 |
| Switzerland | -- | -- | 1 | 178 |
| Taiwan | -- | -- | 1 | 22 |
| United Kingdom | 191 | 1,470 | 1,860 | 12,800 |
| Total | 671 | 4,450 | 7,140 | 43,900 |
| All grades: | | | | |
| Austria | (4/) | 2 | (4/) | 54 |
| Brazil | -- | -- | 1 | 35 |
| Canada | -- | -- | 4 | 18 |
| China | 120 | 467 | 766 | 3,150 |
| France | 236 | 1,830 | 2,060 | 16,000 |
| Germany | 7 | 119 | 74 | 811 |
| Italy | (4/) | 7 | (4/) | 7 |
| Japan | 2 | 73 | 13 | 450 |
| Kazakhstan | -- | -- | 782 | 3,280 |
| Korea, Republic of | 1 | 4 | 3 | 18 |
| Netherlands | 10 | 52 | 19 | 96 |
| Pakistan | -- | -- | 95 | 390 |
| Russia | 105 | 429 | 1,510 | 6,740 |
| Switzerland | -- | -- | 1 | 178 |
| Taiwan | -- | -- | 1 | 22 |
| United Kingdom | 191 | 1,470 | 1,860 | 12,800 |
| Total | 672 | 4,450 | 7,180 | 44,000 |

-- Zero.

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

2/ May include revised data.

3/ Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise into the United States.

4/ Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 9
U.S. TRADE OF STAINLESS STEEL, BY PRODUCT, IN 2001 1/

| Stainless steel product | October Gross weight (metric tons) | October Value 2/ (thousands) | January-October Gross weight (metric tons) | January-October Value 2/ (thousands) |
|---|---|---|---|---|
| Exports: | | | | |
| Ingot | 444 | $1,870 | 6,350 | $28,700 |
| Flat-rolled (width > 600 mm) | 5,740 | 13,200 | 74,000 | 174,000 |
| Flat-rolled (width < 600 mm) | 8,100 | 15,500 | 78,500 | 174,000 |
| Bars and rods in irregular coils | 81 | 429 | 1,010 | 6,100 |
| Other bars and rods | 1,210 | 7,380 | 16,000 | 79,200 |
| Wire | 799 | 5,860 | 9,490 | 60,200 |
| Tubes, pipes, hollow profiles | 3,160 | 13,600 | 30,400 | 122,000 |
| Total | 19,500 | 57,800 | 216,000 | 645,000 |
| Stainless steel scrap | 35,800 | 20,600 | 390,000 | 237,000 |
| Grand total | 55,300 | 78,400 | 605,000 | 882,000 |
| Imports: | | | | |
| Ingot | 37,200 | 35,100 | 239,000 | 261,000 |
| Flat-rolled (width > 600 mm) | 18,700 | 27,800 | 177,000 | 284,000 |
| Flat-rolled (width < 600 mm) | 3,350 | 9,770 | 24,900 | 83,900 |
| Bars and rods in irregular coils | 4,810 | 8,270 | 46,600 | 88,100 |
| Other bars and rods | 5,820 | 14,600 | 76,200 | 193,000 |
| Wire | 2,220 | 7,370 | 23,900 | 84,100 |
| Tubes, pipes, hollow profiles | 5,540 | 23,000 | 54,100 | 227,000 |
| Total | 77,600 | 126,000 | 641,000 | 1,220,000 |
| Stainless steel scrap | 3,530 | 2,120 | 93,100 | 26,700 |
| Grand total | 81,100 | 128,000 | 735,000 | 1,250,000 |

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

2/ Export value is free alongside ship (f.a.s.). Import value is Customs import value, which generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise to the United States.

Source: U.S. Census Bureau.

TABLE 10
CHROMITE ORE PRICES

(Dollars per metric ton, gross weight unless otherwise noted)

| Week | South Africa 1/ | | | | Kazakhstan 2/ | | Turkey 3/ | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ending | 1 | 2 | 3 | 4 | 1 | 2 | 1 | 2 | 3 | 4 | Albania 4/ | Philippines 5/ | Sand 6/ |
| 2000: | | | | | | | | | | | | | |
| 12/01 | 45 - 70 | 45 - 70 | 60 - 80 | 100 - 120 | 110 - 120 | 135 - 140 | 65 - 70 | 70 | 80 | 65 - 70 | 65 - 70 | 125 - 145 | 135 - 155 |
| 12/08 | 45 - 70 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 70 | 80 | 65 - 70 | 65 - 70 | | |
| 12/15 | 45 - 70 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | | |
| 12/22 | 45 - 70 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | | |
| 12/29 | 45 - 70 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | | |
| 2001: | | | | | | | | | | | | | |
| 01/05 | 45 - 70 | 45 - 70 | 60 - 80 | 100 - 120 | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | 125 - 145 | 135 - 155 |
| 01/12 | 45 - 70 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | | |
| 01/19 | 45 - 70 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | | |
| 01/26 | 45 - 70 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | | |
| 02/02 | 45 - 70 | 45 - 60 | 60 - 80 | 100 - 120 | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | 125 - 145 | 135 - 155 |
| 02/09 | 45 - 60 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | | |
| 02/16 | 45 - 60 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | | |
| 02/23 | 45 - 60 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | | |
| 03/02 | 45 - 60 | 45 - 60 | 60 - 80 | 100 - 120 | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | 125 - 145 | 135 - 155 |
| 03/09 | 45 - 60 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | | |
| 03/16 | 45 - 60 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | | |
| 03/23 | 45 - 60 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | | |
| 03/30 | 45 - 60 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | | |
| 04/06 | 40 - 60 | 45 - 60 | 50 - 80 | 100 - 120 | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | 125 - 145 | 135 - 155 |
| 04/13 | 40 - 60 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 65 | 70 | 65 - 70 | 65 - 70 | | |
| 04/20 | 40 - 60 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 63 | 68 | 65 - 70 | 65 - 70 | | |
| 04/27 | 40 - 55 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 63 | 68 | 65 - 70 | 65 - 70 | | |
| 05/04 | 40 - 55 | 40 - 55 | 50 - 70 | 100 - 120 | 110 - 120 | 135 - 140 | 65 - 70 | 63 | 68 | 65 - 70 | 65 - 70 | 125 - 145 | 135 - 155 |
| 05/11 | 40 - 55 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 63 | 68 | 65 - 70 | 65 - 70 | | |
| 05/18 | 40 - 55 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 63 | 68 | 65 - 70 | 65 - 70 | | |
| 05/25 | 40 - 55 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 63 | 68 | 65 - 70 | 65 - 70 | | |
| 06/01 | 40 - 55 | 40 - 55 | 50 - 70 | 100 - 120 | 110 - 120 | 135 - 140 | 65 - 70 | 63 | 68 | 65 - 70 | 65 - 70 | 125 - 145 | 135 - 155 |
| 06/08 | 40 - 55 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 63 | 68 | 65 - 70 | 65 - 70 | | |
| 06/15 | 40 - 55 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 63 | 68 | 65 - 70 | 65 - 70 | | |
| 06/22 | 40 - 55 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 63 | 68 | 65 - 70 | 65 - 70 | | |
| 06/29 | 40 - 55 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 60 | 65 | 65 - 70 | 65 - 70 | | |
| 07/06 | 40 - 55 | 40 - 55 | 50 - 70 | 100 - 120 | 110 - 120 | 135 - 140 | 65 - 70 | 60 | 65 | 65 - 70 | 65 - 70 | 125 - 145 | 135 - 155 |
| 07/13 | 40 - 55 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 60 | 65 | 65 - 70 | 65 - 70 | | |
| 07/20 | 40 - 55 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 60 | 65 | 65 - 70 | 65 - 70 | | |
| 07/27 | 40 - 55 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 60 | 65 | 65 - 70 | 65 - 70 | | |
| 08/03 | 40 - 55 | 40 - 55 | 50 - 70 | 100 - 120 | 110 - 120 | 135 - 140 | 65 - 70 | 60 | 65 | 65 - 70 | 65 - 70 | 125 - 145 | 135 - 155 |
| 08/10 | 40 - 55 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 60 | 65 | 65 - 70 | 65 - 70 | | |
| 08/17 | 40 - 55 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 60 | 65 | 65 - 70 | 65 - 70 | | |
| 08/24 | NA | | | | 110 - 120 | 135 - 140 | 65 - 70 | 60 | 65 | 65 - 70 | 65 - 70 | | |
| 08/31 | 40 - 50 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 60 | 65 | 65 - 70 | 65 - 70 | | |

See footnotes at end of table.

TABLE 10--Continued
CHROMITE ORE PRICES

(Dollars per metric ton, gross weight unless otherwise noted)

| Week | South Africa 1/ | | | | Kazakhstan 2/ | | Turkey 3/ | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ending | 1 | 2 | 3 | 4 | 1 | 2 | 1 | 2 | 3 | 4 | Albania 4/ | Philippines 5/ | Sand 6/ |
| 2001: | | | | | | | | | | | | | |
| 09/07 | 40 - 50 | 40 - 55 | 50 - 70 | 100 - 120 | 110 - 120 | 135 - 140 | 65 - 70 | 60 | 65 | 65 - 70 | 65 - 70 | 125 - 145 | 135 - 155 |
| 09/14 | 40 - 50 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 60 | 65 | 65 - 70 | 65 - 70 | | |
| 09/21 | 40 - 50 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 60 | 65 | 65 - 70 | 65 - 70 | | |
| 09/28 | 40 - 50 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 60 | 65 | 65 - 70 | 65 - 70 | | |
| 10/05 | 40 - 50 | 40 - 55 | 50 - 75 | 100 - 120 | 110 - 120 | 135 - 140 | 65 - 70 | 60 | 65 | 65 - 70 | 65 - 70 | 125 - 145 | 135 - 155 |
| 10/12 | 40 - 50 | | | | 110 - 120 | 135 - 140 | 65 - 70 | 60 | 65 | 65 - 70 | 65 - 70 | | |
| 10/19 | NA | | | | NA | NA | NA | 60 | 65 | NA | NA | | |
| 10/26 | NA | | | | NA | NA | NA | 60 | 65 | NA | NA | | |
| 11/02 | NA | 40 - 55 | 50 - 75 | 100 - 120 | NA | NA | NA | 60 | 65 | NA | NA | 125 - 145 | 135 - 155 |
| 11/09 | NA | | | | NA | NA | NA | 60 | 65 | NA | NA | | |
| 11/16 | NA | | | | NA | NA | NA | 60 | 65 | NA | NA | | |
| 11/23 | NA | | | | NA | NA | NA | 60 | 65 | NA | NA | | |
| 11/30 | NA | | | | NA | NA | NA | 50 | 55 | NA | NA | | |
| 12/07 | NA | NA | NA | NA | NA | NA | NA | 50 | 55 | NA | NA | NA | NA |
| 12/14 | NA | | | | NA | NA | NA | 50 | 55 | NA | NA | | |
| 12/21 | NA | | | | NA | NA | NA | 50 | 55 | NA | NA | | |
| 12/28 | NA | | | | NA | NA | NA | 50 | 55 | NA | NA | | |

NA Not available.

1/ South Africa 1 (SA1) refers to 40% $Cr_2O_3$, friably lumpy, free on board (f.o.b.) as reported by Metal Bulletin (MB); SA2 refers to chemical grade, 46% $Cr_2O_3$ , wet bulk, f.o.b. as reported by Industrial Minerals (IM); SA3 refers to foundry grade, 45% $Cr_2O_3$, wet bulk, f.o.b. as reported by IM; SA4 refers to refractory grade, 46% $Cr_2O_3$, wet bulk, f.o.b. as reported by IM.

2/ Kazakhstan 1 (K1) refers to 40% - 41% $Cr_2O_3$ minimum (min.) f.o.b. as reported by MB; K2 refers to 48% $Cr_2O_3$ min. f.o.b. as reported by MB.

3/ Turkey 1 (T1) refers to 48% $Cr_2O_3$, 3:1 chromium-to-iron ratio, lumpy as reported by MB; T2 refers to 38% - 40% $Cr_2O_3$ as reported by RN; T3 refers to 44% $Cr_2O_3$ as reported by RN; T4 refers to 40% - 42% $Cr_2O_3$, 2.5-to-1 chromium-to-iron ratio as reported by MB.

4/ Albania refers to 42% - 47% $Cr_2O_3$ lumpy, min. f.o.b. as reported by MB.

5/ Philippines refers to refractory grade, concentrates, f.o.b. as reported by IM.

6/ Sand refers to molding grade, 98% under 30 mesh, delivered, valued in British pounds as reported by IM.