# Mineral Industry Surveys

**For information, contact:**
Michael J. Magyar, Vanadium Commodity Specialist
U.S. Geological Survey
989 National Center
Reston, VA 20192
Telephone: (703) 648-4964, Fax: (703) 648-7757
E-mail: mmagyar@usgs.gov

Subina W. Pandey (Data)
Telephone: (703) 648-7966
Fax: (703) 648-7975
E-mail: spandey@usgs.gov

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

## VANADIUM IN AUGUST 2004

Reported domestic consumption of vanadium in August 2004 was about 6% more than that of the previous month and was about 20% more than that of August 2003, according to the U.S. Geological Survey. Year-to-date consumption of vanadium from January through August was about 20% more than during the same period in 2003. Consumer stocks of vanadium, in all forms, were 238 metric tons (t) at the beginning of 2004 and 224 t at the end of August.

According to Ryan's Notes (2004c), U.S. ferrovanadium (FeV) prices ranged from $10.356 to $11.022 per pound of vanadium content in August, as compared with $10.733 to $11.600 in July. European FeV prices ranged from $18.944 to $19.944 per kilogram in August, as compared with $19.911 to $20.889 in July. Vanadium pentoxide ($V_2O_5$) prices ranged from $4.589 to $5.056 per pound in August as compared with $5.300 to $5.500 in July.

Metallurg Inc. sold all of its Senior Discount Notes due to Metallurg Holdings, Inc., Metallurg Inc.'s parent company, back to the parent company. Metallurg Holdings also entered into a financing agreement with MHR Institutional Partners II. The agreement replaced the existing credit facility, that otherwise would have expired on October 29, 2004, with Fleet National Bank. The proceeds of this financing would allow Metallurg Holdings to make its interest payments due on July 15, 2004, and January 15, 2005 (Ryan's Notes, 2004b).

Ferrovanadium producers were encouraged by news that auto manufacturers planned to increase use of high-strength, low-alloy (HSLA) steel, possibly by as much as 5%. Strategic Minerals Corp. featured an article in its July employee newsletter about Ford using HSLA steel to reduce weight and increase fuel economy. The article quoted a manager at Algoma Steel Inc. who said the company's automotive customers predicted about 80% of automobile structural components would be made from HSLA steel within 5 years (Ryan's Notes, 2004a).

Precious Metals Australia (PMA) sued Xstrata, plc, its former partner in the Windimurra project, over the closure of the Western Australian vanadium mine in May, 2004. PMA sought damages and an injunction against Windimurra Pty. Limited and Xstrata (Schweiz) AG, a subsidiary of Xstrata, plc, in the Supreme Court of New South Wales. PMA, which held a 15% interest in Windimurra, sought a declaration that Xstrata breached its Royalty Agreement with PMA in closing the mine. In June, the Western Australian government initiated an investigation into Xstrata's decision to permanently close the mine. Members of the Western Australian government, local industry, and unions argued that Xstrata decided to close the plant to bolster global vanadium prices (Metal Bulletin, 2004).

### References Cited

Metal Bulletin, 2004, PMA sues Xstrata over Windimurra shutdown: Metal Bulletin, no. 8856, August 23, p. 15.
Ryan's Notes, 2004a, Ferroalloy notes: Ryan's Notes, v. 10, no. 32, August 9, p. 4.
Ryan's Notes, 2004b, Metallurg gets new financing: Ryan's Notes, v. 10, no. 34, August 23, p. 3.
Ryan's Notes, 2004c, [untitled]: Ryan's Notes, v. 10, no. 36, September 6, p. 4.

TABLE 1

U.S. CONSUMPTION AND CONSUMER STOCKS OF VANADIUM, BY FORM[1]

(Kilograms, contained vanadium)

| | 2003[p] | | 2004 | | | |
|---|---|---|---|---|---|---|
| | | | July | | August | |
| | Consumption | Stocks | Consumption | Stocks | Consumption | Stocks |
| Ferrovanadium[2] | 2,860,000 | 201,000 | 282,000 r | 209,000 | 301,000 | 216,000 |
| Vanadium-aluminum alloy | W | W | W | W | W | W |
| Other[3] | 195,000 | 37,400 | 17,200 | 9,780 | 17,600 | 8,510 |
| Total | 3,060,000 | 238,000 | 300,000 r | 219,000 | 318,000 | 224,000 |

[p]Preliminary. [r]Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

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

[2]Includes other vanadium-iron-carbon alloys as well as vanadium oxides added directly to steel.

[3]Includes other vanadium alloys, vanadium metal, vanadium pentoxide, vanadates, chlorides, other specialty chemicals, and items indicated by symbol W.

TABLE 2

U.S. CONSUMPTION OF VANADIUM, BY END USE[1]

(Kilograms, contained vanadium)

| | | 2004 | | |
|---|---|---|---|---|
| | 2003[p] | July | August | Year to date[2] |
| Steel: | | | | |
| Carbon | 782,000 | 78,200 | 85,500 | 644,000 |
| High-strength low-alloy | 928,000 | 94,200 | 99,000 | 773,000 |
| Stainless and heat-resisting | 26,800 | 5,360 | 5,360 | 42,900 |
| Full alloy | 802,000 | 89,500 | 91,500 | 697,000 |
| Tool | 261,000 | 14,900 r | 18,800 | 127,000 |
| Total steel | 2,800,000 | 282,000 r | 300,000 | 2,280,000 |
| Superalloys | 13,800 | 519 | 553 | 5,020 |
| Miscellaneous and unspecified[3] | 242,000 | 17,000 | 17,300 | 132,000 |
| Total consumption | 3,060,000 | 300,000 r | 318,000 | 2,420,000 |

[p]Preliminary. [r]Revised.

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

[2]Includes revisions to prior month's data.

[3]Includes cast irons, alloys excluding steel and superalloys, chemical and ceramic uses, and other miscellaneous and unspecified uses.

TABLE 3
U.S. IMPORTS AND EXPORTS OF ALUMINUM-VANADIUM MASTER ALLOY AND VANADIUM METAL, INCLUDING WASTE AND SCRAP[1]

(Kilograms, gross weight)

| | Aluminum-vanadium master alloy | | Vanadium metal, including waste and scrap | |
|---|---|---|---|---|
| | Quantity | Value | Quantity | Value |
| Imports for consumption: | | | | |
| 2003 | 232,000 | $425,000 | 186,000 | $2,850,000 |
| 2004: | | | | |
| May | -- | -- | 9,750 | 233,000 |
| June | -- | -- | 1,510 | 104,000 |
| July: | | | | |
| United Kingdom | 9 | 5,710 | -- | -- |
| Germany | -- | -- | 83 | 45,300 |
| Total | 9 | 5,710 | 83 | 45,300 |
| Year to date | 19,000 | 59,800 | 18,700 | 1,120,000 |
| Exports: | | | | |
| 2003 | 6,710,000 | 16,700,000 | 201,000 | 3,910,000 |
| 2004: | | | | |
| May | 477,000 | 1,130,000 | 34,100 | 528,000 |
| June | 1,080,000 | 2,300,000 | 25,900 | 429,000 |
| July: | | | | |
| Canada | 90,400 | 211,000 | -- | -- |
| Germany | -- | -- | 200 | 26,400 |
| Israel | 3,820 | 28,500 | -- | -- |
| Italy | -- | -- | 10 | 8,990 |
| Japan | 4,160 | 66,000 | 10,300 | 237,000 |
| Korea, Republic of | 1,370 | 8,380 | -- | -- |
| Mexico | 221,000 | 406,000 | -- | -- |
| New Zealand | 1,810 | 5,250 | -- | -- |
| Taiwan | 32,400 | 145,000 | -- | -- |
| United Kingdom | 24,600 | 119,000 | 18,400 | 244,000 |
| Total | 380,000 | 990,000 | 28,800 | 516,000 |
| Year to date | 4,750,000 | 10,300,000 | 162,000 | 2,680,000 |

-- Zero.

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

Source: U.S. Census Bureau.

TABLE 4
U.S. IMPORTS AND EXPORTS OF FERROVANADIUM, VANADIUM PENTOXIDE (ANHYDRIDE) AND OTHER OXIDES AND HYDROXIDES OF VANADIUM[1]

(Kilograms, contained vanadium)

| | Ferrovanadium | | Vanadium pentoxide (anhydride)[2] | | Other oxides and hydroxides of vanadium | |
|---|---|---|---|---|---|---|
| | Quantity | Value | Quantity | Value | Quantity | Value |
| Imports for consumption: | | | | | | |
| 2003 | 1,360,000 | $14,300,000 | 474,000 | $3,610,000 | 38,700 | $769,000 |
| 2004: | | | | | | |
| May | 176,000 | 4,020,000 | 110,000 | 1,300,000 | -- | -- |
| June | 301,000 | 6,790,000 | 89,800 | 805,000 | -- | -- |
| July: | | | | | | |
| Austria | 16,100 | 404,000 | -- | -- | -- | -- |
| Canada | 15,900 | 401,000 | -- | -- | -- | -- |
| Czech Republic | 99,100 | 2,560,000 | -- | -- | -- | -- |
| Korea, Republic of | 4,050 | 97,000 | -- | -- | -- | -- |
| Japan | -- | -- | 385 | 17,500 | -- | -- |
| South Africa | -- | -- | 12,800 | 152,000 | -- | -- |
| Swaziland | 111,000 | 1,760,000 | -- | -- | -- | -- |
| United Kingdom | -- | -- | -- | -- | 4,450 | 75,400 |
| Total | 246,000 | 5,220,000 | 13,200 | 169,000 | 4,450 | 75,400 |
| Year to date | 1,900,000 | 36,600,000 | 717,000 | 5,290,000 | 113,000 | 1,440,000 |
| Exports: | | | | | | |
| 2003 | 397,000 | 5,420,000 | 185,000 | 1,540,000 | 284,000 | 2,450,000 |
| 2004: | | | | | | |
| May | 21,700 | 476,000 | 1,240 | 13,300 | 32,400 | 208,000 |
| June | 5,950 | 258,000 | -- | -- | 57,300 | 391,000 |
| July: | | | | | | |
| Canada | 278 | 5,130 | -- | -- | 40,500 | 381,000 |
| China | 15,400 | 230,000 | -- | -- | -- | -- |
| Mexico | -- | -- | 1,000 | 12,500 | -- | -- |
| South Africa | -- | -- | -- | -- | 16,000 | 74,100 |
| Total | 15,600 | 235,000 | 1,000 | 12,500 | 56,500 | 455,000 |
| Year to date | 125,000 | 2,860,000 | 220,000 | 1,710,000 | 413,000 | 3,100,000 |

-- Zero.

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

[2]May include catalysts containing vanadium pentoxide.

Source: U.S. Census Bureau.

TABLE 5

U.S. IMPORTS FOR CONSUMPTION OF VANADIUM-BEARING ASH, SLAG[1]

(Kilograms, contained vanadium pentoxide)

| | Ash and residues | | Ash and residues (not from the manufacture of iron and steel) | | Slag, from the manufacture of iron and steel | |
|---|---|---|---|---|---|---|
| | Quantity | Value | Quantity | Value | Quantity | Value |
| 2003 | 4,940,000 | $3,030,000 | 14,300,000 | $3,140,000 | 369,000,000 | $6,190,000 |
| 2004: | | | | | | |
| May | 780,000 | 1,900,000 | 1,610,000 | 244,000 | 24,200,000 | 920,000 |
| June | 120,000 | 295,000 | 679,000 | 117,000 | 58,900,000 | 1,540,000 |
| July: | | | | | | |
| Canada | -- | -- | 921,000 | 144,000 | 28,700,000 | 879,000 |
| Germany | -- | -- | -- | -- | 67,500 | 124,000 |
| Guatemala | 95,300 | 33,600 | -- | -- | -- | -- |
| Mexico | 300,000 | 879,000 | -- | -- | -- | -- |
| South Africa | 1,060 | 4,950 | -- | -- | -- | -- |
| United Kingdom | -- | -- | 45,100 | 80,800 | 20,000 | 26,500 |
| Total | 396,000 | 918,000 | 966,000 | 225,000 | 28,800,000 | 1,030,000 |
| Year to date | 2,760,000 | 4,990,000 | 8,690,000 | 1,580,000 | 128,000,000 | 5,320,000 |

-- Zero.

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

Source: U.S. Census Bureau.

TABLE 6

U.S. IMPORTS FOR CONSUMPTION OF MISCELLANEOUS VANADIUM CHEMICALS[1]

(Kilograms, contained vanadium)

| | Sulfates | | Vanadates | |
|---|---|---|---|---|
| | Quantity | Value | Quantity | Value |
| 2003 | -- | -- | 72,900 | $902,000 |
| 2004: | | | | |
| May | -- | -- | 6,470 | 71,100 |
| June | -- | -- | 6,300 | 67,400 |
| July: | | | | |
| China | 500 | $19,100 | -- | -- |
| Germany | -- | -- | 707 | 34,300 |
| Total | 500 | 19,100 | 707 | 34,300 |
| Year to date | 500 | 19,100 | 45,000 | 707,000 |

-- Zero.

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

Source: U.S. Census Bureau.