

# Mineral Industry Surveys

## For information, contact:

Désirée E. Polyak, Vanadium Commodity Specialist  
National Minerals Information Center  
Telephone: (703) 648-4909  
Email: dpolyak@usgs.gov

Darlene V. Thompson (Data)  
Telephone: (703) 648-7797  
Email: dvthompson@usgs.gov

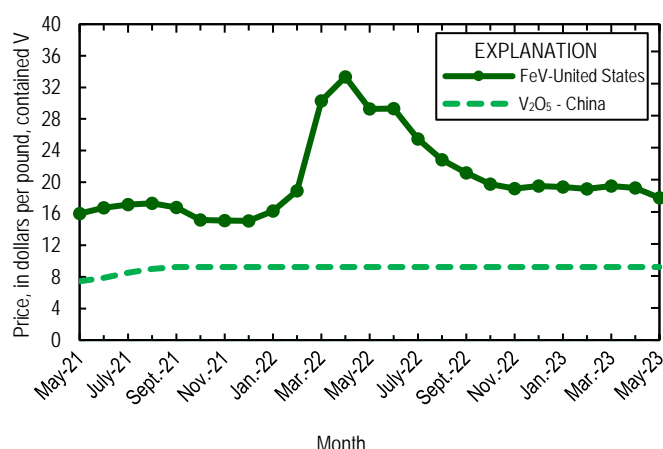
**Internet:** <https://www.usgs.gov/centers/national-minerals-information-center/mineral-industry-surveys>

## VANADIUM IN MAY 2023

The amount of vanadium in U.S. imports of select vanadium products on a gross weight basis, excluding vanadium bearing ash and residues, in May 2023 was 9% less than those in the previous month and 40% more than those in May 2022 (table 1). In May 2023, the leading import sources for vanadium pentoxide ( $V_2O_5$ ), were Brazil, South Africa, and Germany, in descending order of contained weight quantity. In May 2023, the leading import sources for ferrovanadium (FeV) were Canada, Austria, and Japan, in descending order of contained weight quantity (table 2).

## Prices

U.S. FeV prices ranged from \$17.500 to \$18.500 per pound of contained vanadium in May 2023 compared with \$18.781 to \$19.781 per pound in April 2023. In Europe, FeV prices ranged from \$33.889 to \$34.889 per kilogram of contained vanadium in May 2023 compared with \$38.100 to \$39.000 in April 2023. In China,  $V_2O_5$  prices ranged from \$9.000 to \$9.500 per pound of contained vanadium in May 2023, unchanged since September 2021 (fig. 1).



List services and web feed subscribers are the first to receive notification of USGS minerals information publications and data releases. For information on how to subscribe, go to [https://www.usgs.gov/centers/national-minerals-information-](https://www.usgs.gov/centers/national-minerals-information-center/minerals-information-)

Figure 1. Average monthly prices for ferrovanadium (FeV) and vanadium pentoxide ( $V_2O_5$ ) from May 2021 through May 2023. Source: CRU Group.

TABLE 1  
U.S. IMPORTS FOR CONSUMPTION OF VANADIUM PRODUCTS<sup>1</sup>

(Kilograms, unless otherwise specified)

| Material                                       | HTS <sup>2</sup> code         | 2023         |                         |                   |              |                  |                   |              |                      |                   |
|--|-------------------------------|--------------|-------------------------|-------------------|--------------|------------------|-------------------|--------------|----------------------|-------------------|
|  |                               | April        |                         |                   | May          |                  |                   | January–May  |                      |                   |
|  |                               | Gross weight | Contained weight        | Value (thousands) | Gross weight | Contained weight | Value (thousands) | Gross weight | Contained weight     | Value (thousands) |
| Vanadium ores and concentrates                 | 2615.90.6090                  | 63,200       | 37,900 <sup>3</sup>     | \$527,000         | --           | --               | --                | 795,000      | 466,000 <sup>3</sup> | \$3,270,000       |
| Vanadium bearing ash and residues              | 2620.40.0030,<br>2620.99.1000 | (4)          | (4)                     | 3,610,000         | (4)          | (4)              | \$1,230,000       | (4)          | (4)                  | 12,100,000        |
| Chemical compounds:                            |                               |              |                         |                   |              |                  |                   |              |                      |                   |
| Vanadium pentoxide (anhydride)                 | 2825.30.0010                  | 384,000      | 214,000 <sup>r, 5</sup> | 10,400,000        | 318,000      | 249,000          | 8,130,000         | 1,080,000    | 733,000 <sup>5</sup> | 28,200,000        |
| Vanadium oxides and hydroxides, other          | 2825.30.0050                  | 20,000       | 13,100                  | 582,000           | 20,000       | 13,200           | 571,000           | 100,000      | 65,500               | 2,470,000         |
| Vanadium chlorides                             | 2827.39.1000                  | 13,900       | 12,500                  | 1,700,000         | 22,900       | 21,800           | 452,000           | 61,200       | 57,600               | 2,960,000         |
| Vanadium chloride oxide and chloride hydroxide | 2827.49.1000                  | 22,400       | 14,000                  | 18,700            | 157,000      | 97,700           | 131,000           | 336,000      | 209,000              | 299,000           |
| Vanadium sulfates                              | 2833.29.3000                  | 100          | 100                     | 3,000             | --           | --               | --                | 100          | 100                  | 3,000             |
| Vanadates                                      | 2841.90.1000                  | --           | --                      | --                | 60           | 40               | 2,400             | 280          | 187                  | 12,100            |
| Hydrides and nitrides of vanadium              | 2850.00.2000                  | 5,320        | 4,190                   | 77,800            | 17,400       | 13,900           | 127,000           | 83,100       | 66,800               | 656,000           |
| Ferrovandium                                   | 7202.92.0000                  | 312,000      | 232,000                 | 9,160,000         | 210,000      | 154,000          | 9,710,000         | 1,460,000    | 1,100,000            | 47,900,000        |
| Vanadium metal, including waste and scrap      | 8112.92.7000                  | 1,350        | 1,140                   | 90,200            | 272          | 122              | 85,300            | 20,300       | 19,700               | 1,090,000         |
| Vanadium and articles thereof <sup>6</sup>     | 8112.99.2000                  | 54,500       | 35,600                  | 2,830,000         | 54,000       | 34,800           | 2,700,000         | 225,000      | 146,000              | 11,000,000        |
| Total  |                               | 877,000      | XX                      | 29,000,000        | 799,000      | XX               | 23,100,000        | 4,160,000    | XX                   | 110,000,000       |

<sup>r</sup>Revised. 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>Harmonized Tariff Schedule of the United States.

<sup>3</sup>Data are in kilograms of vanadium pentoxide.

<sup>4</sup>U.S. Census Bureau has suppressed quantity data for some months; not included in "Total."

<sup>5</sup>Includes U.S. Geological Survey estimates.

<sup>6</sup>Aluminum-vanadium master alloy consisting of 35% aluminum and 64.5% vanadium.

Source: U.S. Census Bureau.

TABLE 2  
U.S. IMPORTS AND EXPORTS OF FERROVANADIUM, OTHER OXIDES AND HYDROXIDES OF VANADIUM  
AND VANADIUM PENTOXIDE (ANHYDRIDE)<sup>1,2</sup>

(Kilograms, gross and contained weight)

| Country or locality                                 | HTS <sup>3</sup> code | 2023                |                         |              |                  |              |                      |
|---|-----------------------|---------------------|-------------------------|--------------|------------------|--------------|----------------------|
|   |                       | April               |                         | May          |                  | January–May  |                      |
|   |                       | Gross weight        | Contained weight        | Gross weight | Contained weight | Gross weight | Contained weight     |
| Imports for consumption:                            |                       |                     |                         |              |                  |              |                      |
| Vanadium ores and concentrates                      | 2615.90.6090          |                     |                         |              |                  |              |                      |
| China   |                       | 9                   | 3 <sup>4</sup>          | --           | --               | 9            | 3 <sup>4</sup>       |
| Mexico  |                       | 63,200              | 37,900 <sup>4</sup>     | --           | --               | 635,000      | 381,000              |
| Other [1 country and (or) locality]                 |                       | --                  | --                      | --           | --               | 160,000      | 85,400 <sup>4</sup>  |
| Total   |                       | 63,200              | 37,900 <sup>4</sup>     | --           | --               | 795,000      | 466,000 <sup>4</sup> |
| Vanadium pentoxide (anhydride) <sup>5</sup>         | 2825.30.0010          |                     |                         |              |                  |              |                      |
| Brazil  |                       | 10,000              | 4,860                   | 140,000      | 139,000          | 279,000      | 268,000              |
| Germany   |                       | 15,000              | 8,570 <sup>5</sup>      | 13,600       | 7,760            | 57,800       | 37,500 <sup>5</sup>  |
| South Africa  |                       | 340,000             | 190,000                 | 158,000      | 96,100           | 718,000      | 409,000              |
| United Kingdom                                      |                       | --                  | --                      | 6,000        | 5,980            | 6,000        | 5,980                |
| Other [2 country and (or) locality]                 |                       | 18,900 <sup>r</sup> | 10,800 <sup>r, 5</sup>  | --           | --               | 21,300       | 12,200 <sup>5</sup>  |
| Total   |                       | 384,000             | 214,000 <sup>r, 5</sup> | 318,000      | 249,000          | 1,080,000    | 733,000 <sup>5</sup> |
| Other oxides and hydroxides of vanadium:            | 2825.30.0050          |                     |                         |              |                  |              |                      |
| South Africa  |                       | 20,000              | 13,100                  | 20,000       | 13,200           | 60,000       | 39,500               |
| Other [1 country and (or) locality]                 |                       | --                  | --                      | --           | --               | 40,000       | 26,000               |
| Total   |                       | 20,000              | 13,100                  | 20,000       | 13,200           | 100,000      | 65,500               |
| Ferrovanadium                                       | 7202.92.0000          |                     |                         |              |                  |              |                      |
| Austria   |                       | 120,000             | 96,400                  | 79,000       | 62,500           | 460,000      | 368,000              |
| Canada  |                       | 132,000             | 105,000                 | 81,500       | 65,200           | 718,000      | 580,000              |
| Japan   |                       | 60,000              | 30,700                  | 30,000       | 15,300           | 210,000      | 107,000              |
| Latvia  |                       | --                  | --                      | 20,000       | 10,500           | 72,000       | 41,700               |
| Total   |                       | 312,000             | 232,000                 | 210,000      | 154,000          | 1,460,000    | 1,100,000            |
| Exports:  |                       |                     |                         |              |                  |              |                      |
| Vanadium ores and concentrates                      | 2615.90.6090          |                     |                         |              |                  |              |                      |
| Canada  |                       | 1,830               | NA                      | 1,830        | NA               | 6,290        | NA                   |
| Other [1 country and (or) locality]                 |                       | --                  | --                      | --           | --               | 519          | NA                   |
| Total   |                       | 1,830               | XX                      | 1,830        | XX               | 6,810        | XX                   |
| Vanadium pentoxide (anhydride) <sup>6</sup> , Japan | 2825.30.0010          | --                  | --                      | --           | --               | NA           | 1,640                |
| Other oxides and hydroxides of vanadium:            | 2825.30.0050          |                     |                         |              |                  |              |                      |
| Belgium   |                       | --                  | --                      | NA           | 23,700           | NA           | 23,700               |
| Korea, Republic of                                  |                       | --                  | --                      | NA           | 45,200           | NA           | 45,200               |
| Other [2 country and (or) locality]                 |                       | NA                  | 43,700 <sup>r</sup>     | --           | --               | NA           | 43,700               |
| Total   |                       | XX                  | 43,700                  | XX           | 68,900           | XX           | 113,000              |
| Ferrovanadium                                       | 7202.92.0000          |                     |                         |              |                  |              |                      |
| China   |                       | --                  | --                      | 2,000        | 1,500            | 2,000        | 1,500                |
| Other [4 country and (or) locality]                 |                       | 20,100 <sup>r</sup> | 15,100 <sup>r</sup>     | --           | --               | 114,000      | 84,200               |
| Total   |                       | 20,100              | 15,100                  | 2,000        | 1,500            | 116,000      | 85,700               |

<sup>r</sup>Revised. NA Not available. 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>Presentation of monthly data is based on the quantities (gross weight or contained weight) of the leading countries and (or) localities in May.

<sup>3</sup>Harmonized Tariff Schedule of the United States are imports and Schedule B of the United States are exports.

<sup>4</sup>Data are kilograms of vanadium pentoxide.

<sup>5</sup>Includes U.S. Geological Survey estimates.

<sup>6</sup>May include catalysts containing vanadium pentoxide.

Source: U.S. Census Bureau.

TABLE 3  
U.S. IMPORTS AND EXPORTS OF ALUMINUM VANADIUM MASTER ALLOY, VANADIUM BEARING ASH AND RESIDUES,  
VANADIUM SULFATES, VANADATES, VANADIUM METAL AND U.S. IMPORTS OF SLAG<sup>1,2</sup>

(Kilograms, gross and contained weight)

| Country or locality  | HTS <sup>3</sup> code      | 2023                 |                  |              |                  |              |                  |
|--|----------------------------|----------------------|------------------|--------------|------------------|--------------|------------------|
|  |                            | April                |                  | May          |                  | January–May  |                  |
|  |                            | Gross weight         | Contained weight | Gross weight | Contained weight | Gross weight | Contained weight |
| Imports for consumption:   |                            |                      |                  |              |                  |              |                  |
| Slag, from the manufacture of iron and steel                                 | 2619.00.9000               |                      |                  |              |                  |              |                  |
| Canada   |                            | 1,150,000            | NA               | 2,340,000    | NA               | 6,790,000    | NA               |
| Mexico   |                            | 42,600               | NA               | 49,500       | NA               | 337,000      | NA               |
| Other [2 country and (or) locality]  |                            | 9,260 <sup>r</sup>   | NA               | --           | --               | 11,300       | NA               |
| Total  |                            | 1,200,000            | XX               | 2,390,000    | XX               | 7,140,000    | XX               |
| Vanadium sulfates, China   | 2833.29.3000               | 100                  | 100              | --           | --               | 100          | 100              |
| Vanadates, Japan   | 2841.90.1000               | --                   | --               | 60           | 40               | 280          | 187              |
| Vanadium metal, including waste and scrap and aluminum-vanadium master alloy | 8112.92.7000, 8112.99.2000 |                      |                  |              |                  |              |                  |
| China  |                            | 55,300               | 36,200           | 54,000       | 34,800           | 224,000      | 145,000          |
| Germany  |                            | 10                   | 10               | 272          | 122              | 18,900       | 18,500           |
| United Kingdom   |                            | 1                    | 1                | 3            | 3                | 6            | 6                |
| Other [6 countries and (or) localities]                                      |                            | 537 <sup>r</sup>     | 536 <sup>r</sup> | --           | --               | 2,100        | 1,970            |
| Total  |                            | 55,900               | 36,800           | 54,300       | 35,000           | 245,000      | 166,000          |
| Exports:   |                            |                      |                  |              |                  |              |                  |
| Vanadium bearing ash and residues  | 2620.50.0000, 2620.99.1000 |                      |                  |              |                  |              |                  |
| France   |                            | 99,100               | NA               | 226,000      | NA               | 326,000      | NA               |
| Italy  |                            | --                   | --               | 19,400       | NA               | 19,400       | NA               |
| Korea, Republic of   |                            | --                   | --               | 38,700       | NA               | 38,700       | NA               |
| Mexico   |                            | --                   | --               | 14,000       | NA               | 28,900       | NA               |
| Other [4 countries and (or) localities]                                      |                            | 167,000 <sup>r</sup> | NA               | --           | --               | 220,000      | NA               |
| Total  |                            | 266,000              | XX               | 298,000      | XX               | 633,000      | XX               |
| Hydrides and nitrides of vanadium  | 2850.00.2000               |                      |                  |              |                  |              |                  |
| Germany  |                            | 4,890                | 3,870            | 7,390        | 5,850            | 37,500       | 30,500           |
| Ireland  |                            | --                   | --               | 4,590        | 3,620            | 4,590        | 3,620            |
| South Africa   |                            | 22                   | 19               | 4,750        | 3,760            | 26,800       | 21,200           |
| Sweden   |                            | --                   | --               | 698          | NA               | 1,750        | 1,690            |
| Other [3 countries and (or) localities]                                      |                            | 408 <sup>r</sup>     | 307 <sup>r</sup> | --           | --               | 12,400       | 9,790            |
| Total  |                            | 5,320                | 4,190            | 17,400       | 13,200           | 83,100       | 66,800           |
| Vanadium metal, including waste and scrap and aluminum-vanadium master alloy | 8112.92.7000, 8112.99.2000 |                      |                  |              |                  |              |                  |
| France   |                            | 1,660                | NA               | --           | --               | 3,560        | NA               |
| Other [4 countries and (or) localities]                                      |                            | --                   | --               | --           | --               | 39,900       | NA               |
| Total  |                            | 1,660                | XX               | --           | --               | 43,400       | XX               |

<sup>r</sup>Revised. NA Not available. 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>Presentation of monthly data is based on the quantities (gross weight or contained weight) of the leading countries and (or) localities in May.

<sup>3</sup>Harmonized Tariff Schedule of the United States are imports and Schedule B of the United States are exports.

Source: U.S. Census Bureau.