

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 AUGUST 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 August 2023 was 8% more than those of the previous month and 29% less than those in August 2022 (table 1). In August 2023, the leading import sources for vanadium pentoxide (V_2O_5), were Brazil, South Africa, and Taiwan, in descending order of gross weight quantity. In August 2023, the only import sources for ferrovanadium (FeV) were Austria and Canada, in descending order of gross weight quantity (table 2).

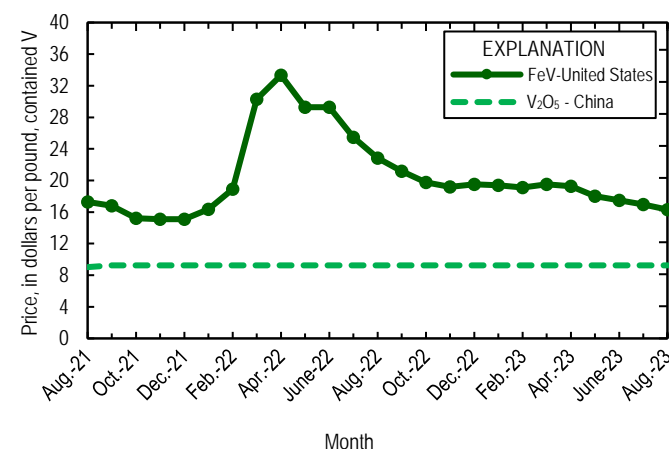


Figure 1. Average monthly prices for ferrovanadium (FeV) in the United States and vanadium pentoxide (V_2O_5) in China from August 2021 through August 2023. Source: CRU Group.

Prices

U.S. FeV prices ranged from \$15.975 to \$16.625 per pound of contained vanadium in August 2023 compared with \$16.469 to \$17.469 per pound in July 2023. In Europe, FeV prices ranged from \$32.500 to \$33.500 per kilogram of contained vanadium in August 2023 compared with \$32.938 to \$33.938 in July 2023. In China, V_2O_5 prices ranged from \$9.000 to \$9.500 per pound of contained vanadium in August 2023, unchanged since September 2021 (fig. 1).

Industry News

Total vanadium production at Bushveld Minerals Ltd.'s (South Africa) Vametco and Vanchem processing facilities was 1,784 metric tons (t) of vanadium content in the first half of 2023 compared with 1,644 t in the first half of 2022. The 9% increase in production in 2023 was attributed to the increased production at Vanchem, which produced 617 t vanadium content in the first half of 2023. Vametco's production in the first half of 2023 was affected by unplanned plant stoppages, including unexpected high rainfall levels. However, despite the overall increase in production from a year earlier, Bushveld reduced its production guidance for 2023 to between 3,700 t and 3,900 t of vanadium content (Argus Media Group, 2023; Bushveld Minerals Ltd., 2023).

References Cited

Argus Media Group, 2023, Bushveld vanadium output falls on unplanned maintenance: Argus Media Group, August 2, 1 p. (Accessed October 16, 2023, via www.argusmedia.com/.)
Bushveld Minerals Ltd., 2023, Interim results for six months ended 30 June 2023: Johannesburg, South Africa, Bushveld Minerals Ltd., September 26, [unpaginated]. (Accessed October 17, 2023, via <https://www.bushveldminerals.com/investors/financial-reports/>.)

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-center/minerals-information-publication-list-services>.

TABLE 1
U.S. IMPORTS FOR CONSUMPTION OF VANADIUM PRODUCTS¹

(Kilograms, unless otherwise specified)

Material	HTS ² codes	2023								
		July			August			January–August		
		Gross weight	Vanadium content	Value (thousands)	Gross weight	Vanadium content	Value (thousands)	Gross weight	Vanadium content	Value (thousands)
Vanadium ores and concentrates	2615.90.6090	41,200	24,700 ³	\$201,000	231,000	133,000 ³	\$1,460,000	1,070,000	624,000 ³	\$4,970,000
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000	(4)	(4)	1,580,000	(4)	(4)	2,600,000	(4)	(4)	18,900,000
Chemical compounds:										
Vanadium pentoxide (anhydride)	2825.30.0010	282,000	259,000	6,510,000	180,000	128,000	3,620,000	1,770,000	1,350,000 ⁵	44,100,000
Vanadium oxides and hydroxides, other	2825.30.0050	--	--	--	--	--	--	100,000	65,500	2,470,000
Vanadium chlorides	2827.39.1000	--	--	--	--	--	--	98,100	92,700	3,570,000
Vanadium chloride oxide and chloride hydroxide	2827.49.1000	89,500	55,800	74,700	67,100	41,900	56,000	582,000	363,000	504,000
Vanadium sulfates	2833.29.3000	--	--	--	--	--	--	2,450	1,570	17,100
Vanadates	2841.90.1000	908	605	20,300	600	260	14,600	1,800	1,060	49,300
Hydrides and nitrides of vanadium	2850.00.2000	43,600	34,900	272,000	22,500	18,100	105,000	169,000	135,000	1,160,000
Ferrovandium	7202.92.0000	155,000	119,000	4,410,000	164,000	128,000	4,430,000	2,000,000	1,520,000	66,900,000
Vanadium metal, including waste and scrap	8112.92.7000	27	23	10,200	--	--	--	20,400	19,800	1,110,000
Vanadium and articles thereof ⁶	8112.99.2000	18,200	11,700	779,000	19,300	12,600	852,000	298,000	194,000	14,400,000
Total		630,000	XX	13,900,000	684,000	XX	13,100,000	6,110,000	XX	158,000,000

XX Not applicable. -- Zero.

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

²Harmonized Tariff Schedule of the United States.

³Data are in kilograms of vanadium pentoxide.

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

⁵Includes U.S. Geological Survey estimates.

⁶Aluminum-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)^{1, 2}

(Kilograms, unless otherwise specified)

Country or locality		2023					
		July		August		January–August	
		Gross weight	Vanadium content	Gross weight	Vanadium content	Gross weight	Vanadium content
Imports for consumption:	HTS ³ codes						
Vanadium ores and concentrates	2615.90.6090						
Canada		40,700	24,400 ⁴	228,000	131,000 ⁴	428,000	240,000 ⁴
Mexico		511	306 ⁴	3,240	1,950 ⁴	639,000	384,000 ⁴
Other [1 country and (or) locality]		--	--	--	--	9	3 ⁴
Total		41,200	24,700 ⁴	231,000	133,000 ⁴	1,070,000	624,000 ⁴
Vanadium pentoxide (anhydride) ⁵	2825.30.0010						
Brazil		200,000	191,000	140,000	97,000	799,000	727,000
South Africa		71,000	61,700	20,000	11,200	845,000	518,000
Taiwan		--	--	19,800	NA	38,700	NA
Other [3 countries and (or) localities]		10,900 ^r	6,210 ^r	--	--	87,100	67,500 ⁵
Total		282,000	259,000	180,000	128,000	1,770,000	1,310,000 ⁵
Other oxides and hydroxides of vanadium:	2825.30.0050						
Brazil		--	--	--	--	40,000	26,000
South Africa		--	--	--	--	60,000	39,500
Total		--	--	--	--	100,000	65,900
Ferrovanadium	7202.92.0000						
Austria		24,000	19,200	120,000	96,700	748,000	599,000
Canada		111,000	89,100	43,500	31,500	947,000	760,000
Other [2 countries and (or) localities]		20,000 ^r	10,200 ^r	--	--	302,000	159,000
Total		155,000	119,000	163,500	128,000	2,000,000	1,520,000
Exports:	Schedule B ³ codes						
Vanadium ores and concentrates	2615.90.6090						
Canada		--	--	2,190	NA	10,300	NA
Other [1 country and (or) locality]		--	--	--	--	519	NA
Total		--	--	2,190	XX	10,800	XX
Vanadium pentoxide (anhydride) ⁶	2825.30.0010						
Australia		--	--	NA	75	NA	96
Other [1 country and (or) locality]		--	--	--	--	NA	1,640
Total		--	--	XX	75	XX	1,730
Other oxides and hydroxides of vanadium:	2825.30.0050						
Germany		NA	433	--	--	NA	433
Other [4 countries and (or) localities]		--	--	--	--	NA	113,000
Total		XX	433	--	--	XX	113,000
Ferrovanadium	7202.92.0000						
Canada		12,300	9,200	1,310	980	34,800	26,100
Netherlands		--	--	40,200	21,600	154,000	104,000
Other [4 countries and (or) localities]		408 ^r	200 ^r	--	--	14,400	9,180
Total		12,700	9,400	41,500	22,600	204,000	140,000

^rRevised. NA Not available. XX Not applicable. -- Zero.

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

²Presentation of monthly data is based on the quantities (gross weight or contained weight) of the leading countries and (or) localities in August.

³Harmonized Tariff Schedule of the United States are imports and Schedule B of the United States are exports.

⁴Data are kilograms of vanadium pentoxide.

⁵Includes U.S. Geological Survey estimates.

⁶May 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^{1,2}

(Kilograms, unless otherwise specified)

Country or locality		2023					
		July		August		January–August	
		Gross weight	Contained weight	Gross weight	Contained weight	Gross weight	Contained weight
Imports for consumption:	HTS ³ codes						
Slag, from the manufacture of iron and steel	2619.00.9000						
Canada		1,050,000	NA	830,000	NA	10,000,000	NA
Mexico		65,200	NA	44,800	NA	539,000	NA
Turkey		730,000	NA	292,000	NA	1,170,000	NA
Other [2 countries and (or) localities]		--	--	--	--	11,300	NA
Total		1,850,000	XX	1,170,000	XX	11,700,000	XX
Vanadates	2841.90.1000						
Germany		--	--	600	260	600	260
Other [3 countries and (or) localities]		908 ^r	605 ^r	--	--	1,200	797
Total		908	605	600	260	1,800	1,060
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
China		18,100	11,700	18,000	11,600	296,000	192,000
Germany		--	--	4	4	18,900	18,500
Japan		--	--	1,160	926	1,760	1,410
Mexico		53	53	120	120	379	379
United Kingdom		--	--	1	1	8	8
Other [5 countries and (or) localities]		27 ^r	23 ^r	--	--	1,320	1,310
Total		18,200	11,800	19,300	12,600	319,000	214,000
Exports:	Schedule B ³ codes						
Vanadium bearing ash and residues	2620.50.0000, 2620.99.1000						
Belgium		--	--	8,910	NA	29,500	NA
Germany		--	--	14,600	NA	42,900	NA
Mexico		11,700	NA	4,730	NA	52,500	NA
Other [5 countries and (or) localities]		191,000 ^r	NA	--	--	955,000	NA
Total		203,000	XX	28,200	XX	1,080,000	XX
Hydrides and nitrides of vanadium	2850.00.2000						
Germany		29,600	23,800	1,350	1,340	75,800	61,400
South Africa		8,220	6,500	21,200	16,700	68,600	54,200
Other [7 countries and (or) localities]		5,730 ^r	4,620 ^r	--	--	24,500	19,700
Total		43,600	34,900	22,500	18,100	169,000	135,000
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
Belgium		--	--	161	NA	161	NA
Other [6 countries and (or) localities]		32,700 ^r	NA	--	--	79,900	NA
Total		32,700	XX	161	XX	80,100	XX

^rRevised. NA Not available. XX Not applicable. -- Zero.

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

²Presentation of monthly data is based on the quantities (gross weight or contained weight) of the leading countries and (or) localities in August.

³Harmonized Tariff Schedule of the United States are imports and Schedule B of the United States are exports.

Source: U.S. Census Bureau.