

# Mineral Industry Surveys

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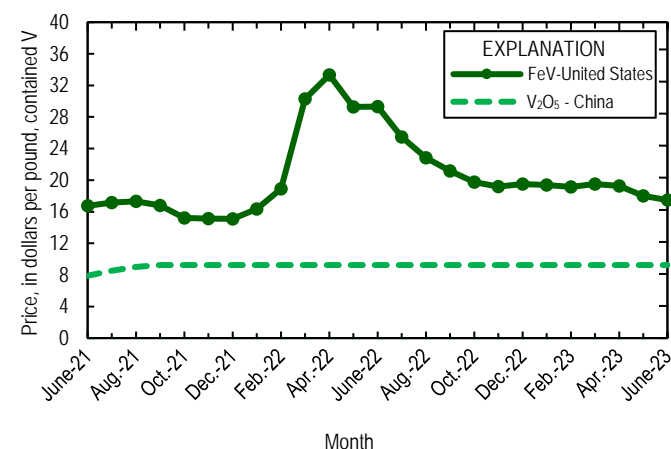
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## VANADIUM IN JUNE 2023

The amount of vanadium in U.S. imports of select vanadium products on a gross weight basis, excluding vanadium bearing ash and residues, in June 2023 was 21% less than those in the previous month and 9% less than those in June 2022 (table 1). In June 2023, the only import sources for vanadium pentoxide ( $V_2O_5$ ), were Brazil, South Africa, and Germany, in descending order of gross and contained weight quantity. In June 2023, the only import sources for ferrovanadium (FeV) were Austria and Canada, in descending order of gross and contained weight quantity (table 2).

## Prices

U.S. FeV prices ranged from \$17.000 to \$17.944 per pound of contained vanadium in June 2023 compared with \$17.500 to \$18.500 per pound in May 2023. In Europe, FeV prices ranged from \$33.000 to \$34.000 per kilogram of contained vanadium in June 2023 compared with \$33.889 to \$34.889 in May 2023. In China,  $V_2O_5$  prices ranged from \$9.000 to \$9.500 per pound of contained vanadium in June 2023, unchanged since September 2021 (fig. 1).



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Figure 1. Average monthly prices for ferrovanadium (FeV) and vanadium pentoxide ( $V_2O_5$ ) from June 2021 through June 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								
		May			June			January–June		
		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	--	--	--	562	338	\$44,700	795,000	467,000 <sup>3</sup>	\$3,310,000
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000	(4)	(4)	\$1,230,000	(4)	(4)	2,600,000	(4)	(4)	14,700,000
Chemical compounds:										
Vanadium pentoxide (anhydride)	2825.30.0010	318,000	249,000	8,130,000	226,000	217,000	5,700,000	1,310,000	964,000 <sup>5</sup>	33,900,000
Vanadium oxides and hydroxides, other	2825.30.0050	20,000	13,200	571,000	--	--	--	100,000	65,500	2,470,000
Vanadium chlorides	2827.39.1000	22,900	21,800	452,000	36,900	35,100	611,000	98,100	92,700	3,570,000
Vanadium chloride oxide and chloride hydroxide	2827.49.1000	157,000	97,700	131,000	89,500	55,800	74,700	425,000	265,000	373,000
Vanadium sulfates	2833.29.3000	--	--	--	2,350	1,470	14,100	2,450	1,570	17,100
Vanadates	2841.90.1000	60	40	2,400	8	5	2,320	288	192	14,400
Hydrides and nitrides of vanadium	2850.00.2000	17,400	13,900	127,000	19,700	15,700	122,000	103,000	82,400	778,000
Ferrovandium	7202.92.0000	210,000	154,000	9,710,000	218,000	174,000	10,200,000	1,680,000	1,270,000	58,100,000
Vanadium metal, including waste and scrap	8112.92.7000	272	122	85,300	137	115	8,240	20,400	19,800	1,100,000
Vanadium and articles thereof <sup>6</sup>	8112.99.2000	54,000	34,800	2,700,000	36,000	23,400	1,780,000	261,000	169,000	12,800,000
Total		799,000	XX	23,100,000	630,000	XX	21,100,000	4,790,000	XX	131,000,000

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)

		2023					
		May		June		January–June	
Country or locality	HTS <sup>3</sup> code	Gross weight	Contained weight	Gross weight	Contained weight	Gross weight	Contained weight
Imports for consumption:							
Vanadium ores and concentrates	2615.90.6090						
Mexico		--	--	562	338 <sup>4</sup>	635,000	381,000 <sup>4</sup>
Other [2 countries and (or) localities]		--	--	--	--	160,000	85,400 <sup>4</sup>
Total		--	--	562	338 <sup>4</sup>	795,000	467,000 <sup>4</sup>
Vanadium pentoxide (anhydride) <sup>5</sup>	2825.30.0010						
Brazil		140,000	139,000	180,000	171,000	459,000	439,000
Germany		13,600	7,760	10,000	10,000	67,800	53,900 <sup>5</sup>
South Africa		158,000	96,100	36,400	36,100	754,000	445,000
Other [3 countries and (or) localities]		6,000 <sup>r</sup>	5,980 <sup>r</sup>	--	--	27,300	26,300 <sup>5</sup>
Total		318,000	249,000	226,000	217,000	1,310,000	964,000 <sup>5</sup>
Other oxides and hydroxides of vanadium:	2825.30.0050						
South Africa		20,000	13,200	--	--	60,000	39,500
Other [1 country and (or) locality]		--	--	--	--	40,000	26,000
Total		20,000	13,200	--	--	100,000	65,500
Ferrovanadium	7202.92.0000						
Austria		79,000	62,500	144,000	115,000	604,000	483,000
Canada		81,500	65,200	74,000	59,100	792,000	639,000
Other [2 countries and (or) localities]		50,000	25,900	--	--	282,000	149,000
Total		210,000	154,000	218,000	174,000	1,680,000	1,270,000
Exports:							
Vanadium ores and concentrates	2615.90.6090						
Canada		1,830	NA	1,830	NA	8,120	NA
Other [1 country and (or) locality]		--	--	--	--	519	NA
Total		1,830	XX	1,830	XX	8,640	XX
Vanadium pentoxide (anhydride) <sup>6</sup>	2825.30.0010						
Australia		--	--	NA	21	NA	21
Other [1 country and (or) locality]		--	--	--	--	NA	1,640
Total		--	--	NA	21	NA	1,660
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 countries and (or) localities]		--	--	--	--	NA	43,700
Total		XX	68,900	--	--	XX	113,000
Ferrovanadium	7202.92.0000						
Colombia		--	--	108	81	193	145
Israel		--	--	762	572	762	572
Mexico		--	--	68	51	11,000	6,760
Netherlands		--	--	32,100	21,300	114,000	82,800
Other [2 countries and (or) localities]		2,000 <sup>r</sup>	1,500 <sup>r</sup>	--	--	23,200	17,400
Total		2,000	1,500	33,100	22,000	149,000	108,000

<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 June.

<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)

		2023					
		May		June		January–June	
Country or locality	HTS <sup>3</sup> code	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		2,340,000	NA	1,340,000	NA	8,120,000	NA
Mexico		49,500	NA	92,000	NA	429,000	NA
Turkey		--	--	146,000	NA	146,000	NA
Other [2 countries and (or) localities]		--	--	--	--	11,300	NA
Total		2,390,000	XX	1,570,000	XX	8,710,000	XX
Vanadium sulfates, China	2833.29.3000	--	--	2,350	1,470	2,450	1,570
Vanadates	2841.90.1000						
India		--	--	8	5	8	5
Other [1 country and (or) locality]		60 <sup>r</sup>	40 <sup>r</sup>	--	--	280	187
Total		60	40	8	5	288	192
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
China		54,000	34,800	36,100	23,500	260,000	169,000
United Kingdom		3	3	1	1	7	7
Other [7 countries and (or) localities]		272 <sup>r</sup>	122 <sup>r</sup>	--	--	21,000	20,500
Total		54,300	35,000	36,100	23,500	281,000	189,000
Exports:							
Vanadium bearing ash and residues	2620.50.0000, 2620.99.1000						
France		226,000	NA	195,000	NA	520,000	NA
Germany		--	--	14,700	NA	28,400	NA
Mexico		14,000	NA	7,060	NA	36,000	NA
Other [5 countries and (or) localities]		58,100 <sup>r</sup>	NA	--	--	265,000	NA
Total		298,000	XX	216,000	XX	849,000	XX
Hydrides and nitrides of vanadium	2850.00.2000						
Germany		7,390	5,850	7,310	5,870	44,800	36,300
South Africa		4,750	3,760	12,400	9,790	39,200	31,000
Other [6 countries and (or) localities]		5,280 <sup>r</sup>	4,320 <sup>r</sup>	--	--	18,700	15,100
Total		17,400	13,900	19,700	15,700	103,000	82,400
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
Australia		--	--	2,500	NA	2,500	NA
France		--	--	1,220	NA	4,770	NA
Other [4 countries and (or) localities]		--	--	--	--	39,900	NA
Total		--	--	3,720	NA	47,200	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 June.

<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.