

Mineral Industry Surveys

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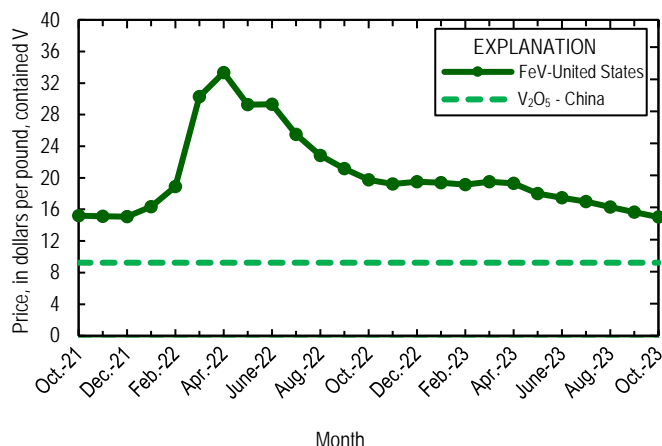
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VANADIUM IN OCTOBER 2023

The amount of vanadium in U.S. imports of select vanadium products on a gross weight basis, excluding vanadium bearing ash and residues, in October 2023 was 64% more than those in the previous month and essentially unchanged from those in October 2022 (table 1). In October 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 October 2023, the leading import sources for ferrovanadium (FeV) were Austria, Canada, and South Africa in descending order of gross weight quantity (table 2).

Prices

U.S. FeV prices ranged from \$14.856 to \$15.200 per pound of contained vanadium in October 2023 compared with \$15.406 to \$15.906 per pound in September 2023. In Europe, FeV prices ranged from \$27.056 to \$27.622 per kilogram of contained vanadium in October 2023 compared with \$30.400 to \$31.113 in September 2023. In China, V_2O_5 prices ranged from \$9.000 to \$9.500 per pound of contained vanadium in October 2023, unchanged since September 2021 (fig. 1).



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

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

(Kilograms, unless otherwise specified)

Material	HTS ² codes	2023								
		September			October			January–October		
		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	125,000	74,700 ³	\$390,000	73,600	25,900 ³	\$355,000	1,270,000	725,000 ³	\$5,720,000
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000	(4)	(4)	2,250,000	(4)	(4)	2,710,000	(4)	(4)	23,800,000
Chemical compounds:										
Vanadium pentoxide (anhydride)	2825.30.0010	114,000	94,600	2,370,000	533,000	410,000	10,600,000	2,420,000	1,860,000 ⁵	57,100,000
Vanadium oxides and hydroxides, other	2825.30.0050	80,000	52,300	1,720,000	30,000	19,800	697,000	210,000	138,000	4,890,000
Vanadium chlorides	2827.39.1000	4,380	4,180	148,000	18,500	17,600	298,000	121,000	114,000	4,010,000
Vanadium chloride oxide and chloride hydroxide	2827.49.1000	--	--	--	--	--	--	582,000	363,000	504,000
Vanadium sulfates	2833.29.3000	--	--	--	--	--	--	2,450	1,570	17,100
Vanadates	2841.90.1000	18,000	12,000	383,000	20,000	15,900	351,000	39,800	28,900	783,000
Hydrides and nitrides of vanadium	2850.00.2000	34,200	27,900	335,000	49,500	39,200	232,000	253,000	202,000	1,720,000
Ferrovandium	7202.92.0000	235,000	176,000	6,430,000	288,000	232,000	7,730,000	2,520,000	1,930,000	81,100,000
Vanadium metal, including waste and scrap	8112.92.7000	--	--	--	--	--	--	20,400	19,800	1,110,000
Vanadium and articles thereof ⁶	8112.99.2000	18,100	11,700	784,000	20,000	15,600	511,000	336,000	221,000	15,700,000
Total		629,000	XX	14,800,000	1,030,000	XX	23,500,000	7,770,000	XX	196,000,000

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, gross and contained weight)

Country or locality		2023					
		September		October		January–October	
		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		--	--	72,700	25,400 ⁴	501,000	266,000 ⁴
Mexico		125,000	74,700 ⁴	856	513 ⁴	765,000	459,000 ⁴
Other [1 country and (or) locality]		--	--	--	--	9	3 ⁴
Total		125,000	74,700 ⁴	73,600	25,900 ⁴	1,270,000	725,000 ⁴
Vanadium pentoxide (anhydride)	2825.30.0010						
Brazil		40,000	39,800	320,000	251,000	1,160,000	1,020,000
South Africa		51,000	33,300	193,000	139,000	1,090,000	690,000
Taiwan		19,800	19,800	19,800	19,800	78,300	78,300
Other [4 countries and (or) localities]		3,430 ^r	1,660 ^r	--	--	90,500	69,200 ⁵
Total		114,000	94,600	533,000	410,000	2,420,000	1,860,000 ⁵
Other oxides and hydroxides of vanadium:	2825.30.0050						
Brazil		60,000	39,000	10,000	6,490	110,000	71,400
South Africa		20,000	13,300	20,000	13,300	100,000	66,100
Total		80,000	52,300	30,000	19,800	210,000	138,000
Ferrovanadium	7202.92.0000						
Austria		49,000	39,200	170,000	136,000	967,000	774,000
Canada		150,000	118,000	117,000	94,600	1,210,000	973,000
South Africa		--	--	1,000	814	1,000	814
Other [2 countries and (or) localities]		35,900	18,400	--	--	338,000	177,000
Total		235,000	176,000	288,000	232,000	2,520,000	1,930,000
Exports:	Schedule B ³ codes						
Vanadium ores and concentrates	2615.90.6090						
Canada		1,830	NA	3,810	NA	15,900	NA
Lithuania		--	--	127,000	NA	127,000	NA
Other [1 country and (or) locality]		--	--	--	--	519	NA
Total		1,830	XX	130,000	XX	143,000	XX
Vanadium pentoxide (anhydride) ⁶	2825.30.0010						
Australia		--	--	NA	8,000	NA	8,100
Other [1 country and (or) locality]		NA	1,930 ^r	--	--	NA	3,570
Total		XX	1,930	XX	8,000	XX	11,700
Other oxides and hydroxides of vanadium:	2825.30.0050						
Canada		--	--	NA	19,800	NA	19,900
Guyana		--	--	NA	284	NA	284
Other [4 countries and (or) localities]		--	--	--	--	NA	113,000
Total		--	--	XX	20,100	XX	133,000
Ferrovanadium	7202.92.0000						
Argentina		--	--	198	149	198	149
Colombia		--	--	108	81	301	226
Other [5 countries and (or) localities]		20,300 ^r	11,000 ^r	--	--	224,000	151,000
Total		20,300	11,000	306	230	224,000	151,000

^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 October.

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, gross and contained weight)

Country or locality		2023					
		September		October		January–October	
		Gross weight	Vanadium content	Gross weight	Vanadium content	Gross weight	Vanadium content
Imports for consumption:	HTS ³ codes						
Slag, from the manufacture of iron and steel	2619.00.9000						
Canada		1,580,000	NA	4,180,000	NA	15,800,000	NA
Mexico		49,900	NA	32,800	NA	622,000	NA
Taiwan		--	--	11,400	NA	11,400	NA
Turkey		243,000	NA	292,000	NA	1,700,000	NA
Other [2 countries and (or) localities]		--	--	--	--	11,300	NA
Total		1,870,000	XX	4,510,000	XX	18,100,000	XX
Vanadates	2841.90.1000						
China		15,000	10,000	15,000	12,000	30,000	22,000
South Africa		--	--	5,000	3,850	5,000	3,850
Other [4 countries and (or) localities]		3,000 ^r	2,000 ^r	--	--	4,800	3,060
Total		18,000	12,000	20,000	15,900	39,800	28,900
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
China		18,000	11,600	20,000	15,600	334,000	219,000
Other [9 countries and (or) localities]		60 ^r	60 ^r	--	--	22,400	21,700
Total		18,100	11,700	20,000	15,600	357,000	241,000
Exports:	Schedule B ³ codes						
Vanadium bearing ash and residues	2620.50.0000, 2620.99.1000						
Austria		36,300	NA	35,000	NA	152,000	NA
Other [7 countries and (or) localities]		18,800 ^r	NA	--	--	1,020,000	NA
Total		55,100	XX	35,000	XX	1,170,000	XX
Hydrides and nitrides of vanadium	2850.00.2000						
Germany		23,500	19,400	46,200	36,600	145,000	117,000
South Africa		10,800	8,500	3,030	2,390	82,400	65,100
Sweden		--	--	225	178	2,430	2,320
Other [6 countries and (or) localities]		--	--	--	--	22,300	17,600
Total		34,200	27,900	49,500	39,200	253,000	202,000
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
France		104	NA	245	NA	5,740	NA
Germany		--	--	170	NA	240	NA
Spain		--	--	84	NA	84	NA
United kingdom		--	--	699	NA	22,900	NA
Other [5 countries and (or) localities]		21,800 ^r	NA	--	--	74,200	NA
Total		21,900	XX	1,200	XX	103,000	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 October.

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

Source: U.S. Census Bureau.