

Mineral Industry Surveys

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VANADIUM IN NOVEMBER 2019

Reported domestic consumption of vanadium in November 2019 was slightly less than that of the previous month and slightly less than that of November 2018. Consumer stocks of all forms of vanadium were 198 metric tons (t) at the end of November, an increase from 185 t at yearend 2018 (table 1).

Prices

According to CRU Group (2019), U.S. ferrovandium (FeV) prices ranged from \$10.375 to \$11.188 per pound of contained vanadium in November 2019, compared with \$13.220 to \$14.290 per pound in October 2019. In Europe, FeV prices ranged from \$21.075 to \$21.950 per kilogram of contained vanadium in November 2019, compared with \$24.765 to \$25.430 per kilogram in October 2019. In China, vanadium pentoxide (V₂O₅) prices ranged from \$10.000 to \$10.463 per pound of contained vanadium in November 2019, compared with \$10.000 to \$10.500 per pound in October 2019 (fig. 1).

Reference Cited

CRU Group, 2019, Noble alloys and minor metals prices: CRU Group, December 2. (Accessed January 23, 2019, via <http://www.crugroup.com/>.)

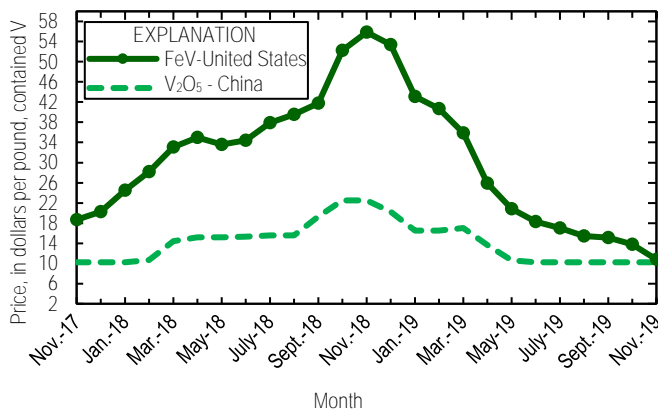


Figure 1. Average monthly prices for FeV and V₂O₅ from November 2017 through November 2019. Source: CRU Group.

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TABLE 1
U.S. CONSUMPTION AND CONSUMER STOCKS OF VANADIUM, BY FORM^{P,1}

(Kilograms, contained vanadium)

	2019					
	October		November		January–November	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium ²	218,000	162,000	215,000	161,000	2,410,000	161,000
Vanadium-aluminum alloy and other forms ³	21,000	37,600	21,000	37,600	231,000	37,600
Total	239,000	200,000	236,000	198,000	2,650,000	198,000

^PPreliminary.

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

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

³Includes vanadium-aluminum alloy, other vanadium alloys, vanadium metal, vanadium pentoxide, vanadates, chlorides, and other specialty chemicals.

TABLE 2
U.S. CONSUMPTION OF VANADIUM, BY END USE¹

(Kilograms, contained vanadium)

	2019		
	October	November	January– November
Steel:			
Carbon	W	W	W
Full alloy	101,000	101,000	1,110,000
High-strength low-alloy	W	W	W
Stainless and heat resisting	4,930	4,930	54,300
Tool	W	W	W
Total steel	106,000	106,000	1,160,000
Superalloys	W	W	W
Miscellaneous and unspecified ²	W	W	W
Total	239,000	236,000	2,650,000

W Withheld to avoid disclosing company proprietary data; included in "Total."

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

²Includes cast irons, alloys excluding steel and superalloys, chemical and ceramic uses, and other miscellaneous and unspecified uses.

TABLE 3
U.S. IMPORTS FOR CONSUMPTION OF VANADIUM PRODUCTS¹

(Kilograms, unless otherwise specified)

Material	HTS ² code	2019								
		October			November			January–November		
		Gross weight	Contained weight	Value (thousands)	Gross weight	Contained weight	Value (thousands)	Gross weight	Contained weight	Value (thousands)
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000	2,190,000	215,000	\$2,580,000	1,610,000	158,000	\$1,460,000	19,800,000	1,960,000	\$57,300,000
Chemical compounds:										
Vanadium pentoxide (anhydride)	2825.30.0010	157,000	135,000	4,240,000	170,000	125,000	4,060,000	3,610,000	3,450,000	105,000,000
Vanadium oxides and hydroxides, other	2825.30.0050	13,100	9,070	748,000	--	--	--	142,000	91,300	6,410,000
Vanadium sulfates	2833.29.3000	36,400	34,600	259,000	23,500	22,200	177,000	66,900	61,100	478,000
Vanadates	2841.90.1000	18,300	12,900	330,000	6,040	4,640	82,600	117,000	72,700	3,240,000
Ferrovandium	7202.92.0000	202,000	116,000	7,930,000	180,000	119,000	5,060,000	3,180,000	2,130,000	157,000,000
Vanadium metal, including waste and scrap	8112.92.7000	--	--	--	586	237	123,000	57,800	44,500	4,100,000
Vanadium and articles thereof ³	8112.99.2000	20,300	13,400	770,000	36,700	23,700	1,330,000	294,000	197,000	15,900,000
Total		2,640,000	536,000	16,900,000	2,020,000	452,000	12,300,000	27,200,000	8,010,000	349,000,000

-- Zero.

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

²Harmonized Tariff Schedule of the United States.

³Aluminum-vanadium master alloy consisting of 35% aluminum and 64.5% vanadium.

Source: U.S. Census Bureau.

TABLE 4
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	HTS ³ code	2019					
		October		November		January–November	
		Gross weight	Contained weight	Gross weight	Contained weight	Gross weight	Contained weight
Imports for consumption:							
Vanadium pentoxide (anhydride) ⁴	2825.30.0010						
Brazil		38,500	28,000	120,000	83,500	1,940,000	1,890,000
Germany		8,000	6,400	10,000	10,000	139,000	131,000
South Africa		110,000	101,000	40,000	31,400	1,310,000	1,270,000
Other [6 countries and (or) localities]		--	--	--	--	210,000	163,000
Total		157,000	135,000	170,000	125,000	3,610,000	3,450,000
Other oxides and hydroxides of vanadium, South Africa	2825.30.0050	13,100	9,070	--	--	142,000	91,300
Other [1 country and (or) locality]		--	--	--	--	1	1
Total		13,100	9,070	--	--	142,000	91,300
Ferrovandium	7202.92.0000						
Austria		33,000	26,300	80,000	63,900	729,000	545,000
Canada		19,100	7,800	30,100	19,800	1,120,000	856,000
Japan		30,000	15,400	50,000	25,700	430,000	223,000
Ukraine		20,000	8,160	20,000	9,880	465,000	229,000
Other [4 countries and (or) localities]		99,900 ^r	58,700 ^r	--	--	442,000	278,000
Total		202,000	116,000	180,000	119,000	3,180,000	2,130,000
Exports:							
Vanadium pentoxide (anhydride) ⁴	2825.30.0010						
Germany		NA	43,700	--	--	NA	49,200
India		NA	12,100	--	--	NA	98,300
Mexico		NA	50	--	--	NA	100
Trinidad and Tobago		NA	10,000	--	--	NA	31,100
Other [4 countries and (or) localities]		NA	--	--	--	NA	243,000
Total		XX	65,800	--	--	XX	422,000
Other oxides and hydroxides of vanadium	2825.30.0050						
Netherlands		NA	98,500	NA	74,500	NA	488,000
Other [6 countries and (or) localities]		NA	48,000 ^r	--	--	NA	177,000
Total		XX	147,000	XX	74,500	XX	665,000
Ferrovandium	7202.92.0000						
Mexico		19,500	14,700	18,000	13,500	304,000	196,000
Other [5 countries and (or) localities]		916 ^r	687 ^r	--	--	102,000	75,700
Total		20,500	15,300	18,000	13,500	406,000	272,000

^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 five leading countries and (or) localities in November.

³Harmonized Tariff Schedule of the United States.

⁴May include catalysts containing vanadium pentoxide.

Source: U.S. Census Bureau.

TABLE 5
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	HTS ³ code	2019					
		October		November		January–November	
		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		20,800,000	NA	137,000	NA	155,000,000	NA
Mexico		16,900	NA	33,600	NA	378,000	NA
Other [4 countries and (or) localities]		--	--	--	--	128,000	NA
Total		20,800,000	XX	171,000	XX	155,000,000	XX
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000						
Canada		2,190,000	215,000	1,610,000	158,000	18,900,000	1,850,000
Other [3 countries and (or) localities]		--	--	--	--	813,000	102,000
Total		2,190,000	215,000	1,610,000	158,000	19,800,000	1,960,000
Sulfates	2833.29.3000						
Finland		36,400	34,600	23,500	22,200	59,900	56,700
Other [1 country and (or) locality]		--	--	--	--	7,030	4,390
Total		36,400	34,600	23,500	22,200	66,900	61,100
Vanadates	2841.90.1000						
Germany		14	7	1	1	14,200	5,620
India		--	--	3	2	17	12
Japan		--	--	33	23	364	209
South Africa		7,000	5,390	6,000	4,620	29,300	20,800
Other [5 countries and (or) localities]		11,300 ^f	7,500 ^f	--	--	72,900	46,100
Total		18,300	12,900	6,040	4,640	117,000	72,700
Vanadium metal, including waste and scrap, and Aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
Germany		2,010	1,700	586	237	50,200	38,100
Mexico		105	105	377	332	2,610	2,140
Russia		18,200	11,600	36,300	23,300	244,000	161,000
Other [7 countries and (or) localities]		--	--	--	--	54,500	40,300
Total		20,300	13,400	37,200	23,900	352,000	241,000
Exports:							
Vanadium bearing ash and residues	2620.50.0030, 2620.99.1000						
France		--	--	83,500	NA	839,000	NA
Italy		--	--	19,700	NA	19,700	NA
Other [2 countries and (or) localities]		36,900 ^f	NA	--	--	1,300,000	NA
Total		36,900	XX	103,000	XX	2,150,000	XX
Vanadium metal, including waste and scrap, and Aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
Australia		--	--	2,140	NA	5,420	NA
Bahamas		--	--	94	NA	94	NA
Germany		--	--	852	NA	3,320	NA
Italy		--	--	176	NA	176	NA
United Kingdom		711	NA	600	NA	3,870	NA
Other [10 countries and (or) localities]		1,240 ^f	NA	--	--	64,500	NA
Total		1,950	XX	3,860	XX	77,400	XX

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

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

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³Harmonized Tariff Schedule of the United States.

Source: U.S. Census Bureau.