

Mineral Industry Surveys

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VANADIUM IN DECEMBER 2019

Reported domestic consumption of vanadium in December 2019 was 4% more than that of the previous month and slightly less than that of December 2018. Consumer stocks of all forms of vanadium were 192 metric tons (t) at the end of December, an increase from 185 t at yearend 2018 (table 1).

Prices

According to CRU Group (2020), U.S. ferrovandium (FeV) prices ranged from \$10.517 to \$11.306 per pound of contained vanadium in December 2019, compared with \$10.375 to \$11.188 per pound in November 2019. In Europe, FeV prices ranged from \$22.472 to \$23.378 per kilogram of contained vanadium in December 2019, compared with \$21.075 to \$21.950 per kilogram in November 2019. In China, vanadium pentoxide (V₂O₅) prices ranged from \$10.000 to \$10.400 per pound of contained vanadium in December 2019, compared with \$10.000 to \$10.463 per pound in November 2019 (fig. 1).

Reference Cited

CRU Group, 2020, Noble alloys and minor metals prices: CRU Group, February 28. (Accessed March 4, 2020, via <http://www.crugroup.com/>.)

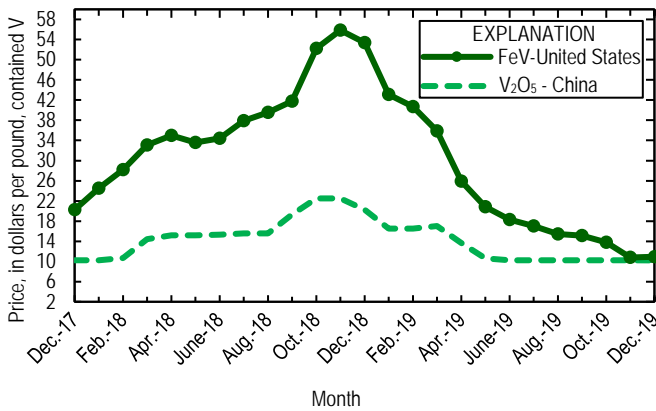


Figure 1. Average monthly prices for FeV and V₂O₅ from December 2017 through December 2019. Source: CRU Group.

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

(Kilograms, contained vanadium)

	2019					
	November		December		January-December	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium ²	214,000 ^r	166,000 ^r	223,000	154,000	2,640,000	154,000
Vanadium-aluminum alloy and other forms ³	21,000	37,600	21,100	37,600	252,000	37,600
Total	236,000 ^r	204,000 ^r	244,000	192,000	2,890,000	192,000

^pPreliminary. ^rRevised.

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		
	November	December	January– December
Steel:			
Carbon	W	W	W
Full alloy	101,000	101,000	1,210,000
High-strength low-alloy	W	W	W
Stainless and heat resisting	4,930	4,930	59,200
Tool	W	W	W
Total steel	106,000	106,000	1,270,000
Superalloys	W	W	W
Miscellaneous and unspecified ²	W	W	W
Total	236,000	244,000	2,890,000

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								
		November			December			January–December		
		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	1,610,000	158,000	\$1,460,000	1,660,000	162,000	\$1,510,000	21,400,000	2,120,000	\$58,800,000
Chemical compounds:										
Vanadium pentoxide (anhydride)	2825.30.0010	170,000	125,000	4,060,000	301,000	201,000	4,820,000	3,910,000	3,650,000	110,000,000
Vanadium oxides and hydroxides, other	2825.30.0050	--	--	--	20,000	13,200	433,000	162,000	105,000	6,840,000
Vanadium sulfates	2833.29.3000	23,500	22,200	177,000	19,700	12,300	145,000	86,600	73,400	623,000
Vanadates	2841.90.1000	6,040	4,640	82,600	509	226	21,900	117,000	72,900	3,260,000
Ferrovandium	7202.92.0000	180,000	119,000	5,060,000	193,000	129,000	6,300,000	3,380,000	2,260,000	163,000,000
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	36,700	23,700	1,330,000	38,300	25,600	1,710,000	332,000	222,000	17,600,000
Total		2,020,000	452,000	12,300,000	2,230,000	544,000	14,900,000	29,500,000	8,550,000	364,000,000

-- 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					
		November		December		January–December	
		Gross weight	Contained weight	Gross weight	Contained weight	Gross weight	Contained weight
Imports for consumption:							
Vanadium pentoxide (anhydride) ⁴	2825.30.0010						
Brazil		120,000	83,500	170,000	99,100	2,110,000	1,980,000
Germany		10,000	10,000	11,000	8,800	150,000	139,000
South Africa		40,000	31,400	120,000	93,200	1,430,000	1,370,000
Other [6 countries and (or) localities]		--	--	--	--	210,000	163,000
Total		170,000	125,000	301,000	201,000	3,910,000	3,650,000
Other oxides and hydroxides of vanadium,	2825.30.0050						
South Africa		--	--	20,000	13,200	162,000	105,000
Germany		--	--	--	--	1	1
Total		--	--	20,000	13,200	162,000	105,000
Ferrovandium	7202.92.0000						
Austria		80,000	63,900	20,000	15,800	749,000	561,000
Canada		30,100	19,800	114,000	85,600	1,230,000	941,000
Japan		50,000	25,700	30,000	15,400	460,000	238,000
Russia		--	--	20,000	8,160	200,000	151,000
Ukraine		20,000	9,880	9,070	4,640	474,000	233,000
Other [5 countries and (or) localities]		--	--	--	--	262,000	135,000
Total		180,000	119,000	193,000	129,000	3,380,000	2,260,000
Exports:							
Vanadium pentoxide (anhydride) ⁴	2825.30.0010						
Germany		--	--	--	409	NA	49,600
Mexico		--	--	--	887	NA	987
Other [6 countries and (or) localities]		--	--	--	--	NA	373,000
Total		--	--	--	1,300	XX	423,000
Other oxides and hydroxides of vanadium	2825.30.0050						
Canada		--	--	NA	8,170	NA	80,100
Netherlands		NA	74,500	NA	74,500	NA	562,000
New Zealand		--	--	NA	1,810	NA	1,810
Other [5 countries and (or) localities]		--	--	--	--	NA	105,000
Total		XX	74,500	XX	84,500	XX	750,000
Ferrovandium	7202.92.0000						
India		--	--	18,000	13,500	45,300	34,000
Korea, Republic of		--	--	959	719	2,860	2,150
Mexico		18,000	13,500	11,000	8,250	315,000	205,000
Other [3 countries and (or) localities]		--	--	--	--	72,500	53,800
Total		18,000	13,500	30,000	22,500	436,000	295,000

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 December.

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					
		November		December		January–December	
		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		137,000	NA	76,800	NA	155,000,000	NA
Finland		--	--	10,200	NA	97,200	NA
Mexico		33,600	NA	16,900	NA	395,000	NA
St Kitts and Nevis		--	--	2,310	NA	2,310	NA
Other [3 countries and (or) localities]		--	--	--	--	40,900	NA
Total		171,000	XX	106,000	XX	156,000,000	XX
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000						
Canada		1,610,000	158,000	1,660,000	162,000	20,600,000	2,020,000
Other [3 countries and (or) localities]		--	--	--	--	813,000	102,000
Total		1,610,000	158,000	1,660,000	162,000	21,400,000	2,120,000
Sulfates	2833.29.3000						
Finland		23,500	22,200	19,700	12,300	79,500	69,000
China		--	--	--	--	7,030	4,390
Total		23,500	22,200	19,700	12,300	86,600	73,400
Vanadates	2841.90.1000						
Germany		1	1	500	220	14,700	5,840
India		3	2	9	6	26	18
Other [6 countries and (or) localities]		6,030 ^f	4,640 ^f	--	--	103,000	67,100
Total		6,040	4,640	509	226	117,000	72,900
Vanadium metal, including waste and scrap, and Aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
Czechia		--	--	5	5	13	12
Russia		36,300	23,300	38,300	25,600	283,000	186,000
Other [8 countries and (or) localities]		900	600	--	--	107,000	80,500
Total		37,200	23,900	38,300	25,600	390,000	267,000
Exports:							
Vanadium bearing ash and residues	2620.50.0030, 2620.99.1000						
Germany		--	--	128,000	NA	1,350,000	NA
Other [3 countries and (or) localities]		103,000 ^f	NA	--	--	935,000	NA
Total		103,000	XX	128,000	XX	2,280,000	XX
Vanadium metal, including waste and scrap, and Aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
China		--	--	115	NA	491	NA
France		--	--	181	NA	10,100	NA
Ireland		--	--	525	NA	525	NA
Other [13 countries and (or) localities]		3,860 ^f	NA	--	--	67,100	NA
Total		3,860	XX	821	XX	78,200	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.

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

³Harmonized Tariff Schedule of the United States.

Source: U.S. Census Bureau.