

Mineral Industry Surveys

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VANADIUM IN DECEMBER 2018

Reported domestic consumption of vanadium in December 2018 was 4% more than that of the previous month and 14% less than that of December 2017. Consumer stocks of all forms of vanadium were 185 metric tons (t) at the end of December, an increase from 155 t at yearend 2017 (table 1).

According to CRU Group (2019), U.S. ferrovanadium (FeV) prices ranged from \$51.500 to \$55.250 per pound of contained vanadium in December 2018, compared with \$55.156 to \$56.556 per pound in November 2018. European FeV prices ranged from \$97.000 to \$100.500 per kilogram of contained vanadium in December 2018, compared with \$120.333 to \$123.444 per kilogram in November 2018. CRU Group discontinued publishing U.S. vanadium pentoxide (V₂O₅) prices from July 2017 onward. The Chinese V₂O₅ prices ranged from \$19.750 to \$20.750 per pound of contained vanadium in December 2018, compared with \$22.000 to \$23.000 in November 2018 (fig. 1).

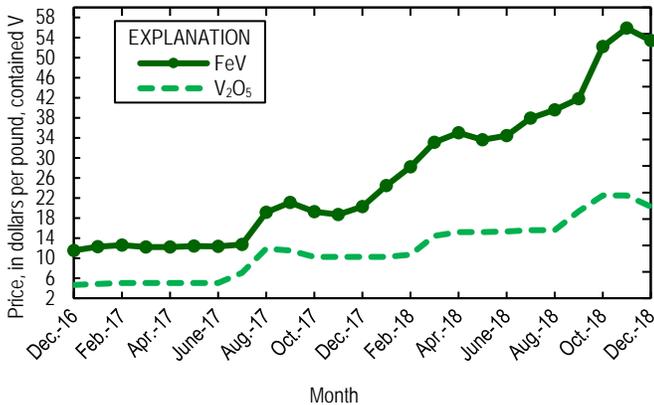


Figure 1. Average monthly prices for FeV and V₂O₅ from December 2016 through December 2018. Prices for FeV are United States prices, and prices for V₂O₅ are United States prices from December 2016 through June 2017 and Chinese prices from July 2017 through December 2018. Source: CRU Group.

Reference Cited

CRU Group, 2019, Noble alloys and minor metals prices: CRU Group, February 1. (Accessed March 14, 2019, via <http://www.crugroup.com/>.)

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

(Kilograms, contained vanadium)

	2018					
	November		December		January–December	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium ²	218,000	164,000	228,000	147,000	2,670,000	147,000
Vanadium-aluminum alloy and other forms ³	21,100	37,800	21,100	37,800	389,000	37,800
Total	239,000	202,000	249,000	185,000	3,060,000	185,000

^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)

	2018		
	November	December	January– December
Steel:			
Carbon	W	W	W
Full alloy	101,000	101,000	1,260,000
High-strength low-alloy	W	W	W
Stainless and heat resisting	4,940	4,930	59,100
Tool	W	W	W
Total steel	106,000	106,000	1,320,000
Superalloys	W	W	W
Miscellaneous and unspecified ²	W	W	W
Total	239,000	249,000	2,810,000

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	2018								
		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	3,070,000	378,000	\$8,470,000	2,900,000	329,000	\$9,690,000	27,000,000	2,810,000	\$63,900,000
Chemical compounds:										
Vanadium pentoxide (anhydride)	2825.30.0010	412,000	410,000	19,900,000	377,000	371,000	21,500,000	4,700,000	4,600,000	171,000,000
Vanadium oxides and hydroxides, other	2825.30.0050	--	--	--	--	--	--	149,000	97,600	5,450,000
Vanadium sulfates	2833.29.3000	--	--	--	--	--	--	12,300	9,370	124,000
Vanadates	2841.90.1000	52,100	38,700	1,860,000	74,000	53,400	3,160,000	608,000	389,000	17,500,000
Ferrovandium	7202.92.0000	385,000	275,000	27,500,000	308,000	218,000	19,600,000	4,230,000	3,140,000	230,000,000
Vanadium metal, including waste and scrap	8112.92.7000	--	--	--	1,980	1,690	397,000	37,400	28,400	2,210,000
Vanadium and articles thereof ³	8112.99.2000	54,400	35,400	2,870,000	--	--	--	431,000	281,000	17,200,000
Total		3,970,000	1,140,000	60,600,000	3,660,000	972,000	54,300,000	37,200,000	11,400,000	507,000,000

-- Zero.

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

²Harmonized Tariff Schedule of the United States (HTS).

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, VANADIUM PENTOXIDE (ANHYDRIDE)
AND OTHER OXIDES AND HYDROXIDES OF VANADIUM^{1,2}

(Kilograms, gross and contained weight)

Country or locality	HTS ³ code	2018					
		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		200,000	199,000	220,000	219,000	2,280,000	2,270,000
China		--	--	41,300	39,600	646,000	591,000
Germany		--	--	16,000	12,800	110,000	90,000
South Africa		192,000	191,000	100,000	99,500	1,470,000	1,460,000
Other [3 countries and (or) localities]		20,000 ^r	19,600 ^r	--	--	197,000	192,000
Total		412,000	410,000	377,000	371,000	4,700,000	4,600,000
Other oxides and hydroxides of vanadium:	2825.30.0050						
Austria		--	--	--	--	9,000	6,230
Other [3 countries and (or) localities]		--	--	--	--	140,000	91,400
Total		--	--	--	--	149,000	97,600
Ferrovanadium	7202.92.0000						
Austria		138,000	105,000	135,000	98,400	2,210,000	1,690,000
Canada		162,000	126,000	115,000	91,100	1,080,000	848,000
Japan		18,800	9,970	38,100	19,400	222,000	122,000
Latvia		20,000	9,400	20,000	8,580	244,000	129,000
Other [6 countries and (or) localities]		46,000 ^r	24,500 ^r	--	--	465,000	347,000
Total		385,000	275,000	308,000	218,000	4,230,000	3,140,000
Exports:							
Vanadium pentoxide (anhydride) ⁴	2825.30.0010						
India		66,100	NA	23,000	NA	476,000	NA
Other [5 countries and (or) localities]		--	--	--	--	87,100	NA
Total		66,100	XX	23,000	XX	563,000	XX
Other oxides and hydroxides of vanadium	2825.30.0050						
China		--	--	816	NA	1,630	NA
Other [4 countries and (or) localities]		234 ^r	NA	--	--	51,600	NA
Total		234	XX	816	XX	53,200	XX
Ferrovanadium	7202.92.0000						
Canada		45,700	34,200	281	211	197,000	148,000
Columbia		--	--	825	619	1,170	880
Mexico		88,300	66,200	70,500	52,900	560,000	382,000
Other [7 countries and (or) localities]		27,000 ^r	20,300 ^r	--	--	62,100	44,600
Total		161,000	121,000	71,600	53,700	820,000	575,000

^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 December.

³Harmonized Tariff Schedule of the United States (HTS).

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	2018					
		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		141,000	NA	22,900	NA	70,900,000	NA
Finland		3,760	NA	2,520	NA	14,600	NA
Mexico		145,000	NA	108,000	NA	704,000	NA
Other [5 countries and (or) localities]		--	--	--	--	70,800,000	NA
Total		290,000	XX	134,000	XX	142,000,000	XX
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000						
Canada		1,730,000	169,000	2,410,000	236,000	23,900,000	2,350,000
Mexico		1,340,000	208,000	489,000	92,300	2,830,000	429,000
Other [4 countries and (or) localities]		--	--	--	--	303,000	34,600
Total		3,070,000	378,000	2,900,000	329,000	27,000,000	2,810,000
Vanadium sulfates	2833.29.3000						
Austria		--	--	--	--	4,200	4,200
Other [2 country and (or) locality]		--	--	--	--	8,060	5,170
Total		--	--	--	--	12,300	9,370
Vanadates	2841.90.1000						
China		26,600	24,000	15,300	15,000	120,000	97,800
Japan		--	--	71	34	271	168
South Africa		--	--	1,900	1,360	2,150	1,550
Taiwan		18,900	12,300	56,700	37,000	340,000	222,000
Other [5 countries and (or) localities]		6,670	2,350	--	--	145,000	67,800
Total		52,100	38,700	74,000	53,400	608,000	389,000
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
Germany		--	--	482	293	34,500	26,100
Latvia		--	--	600	504	1,800	1,550
Russia		36,300	23,600	896	892	295,000	190,000
Other [9 countries and (or) localities]		18,100 ^r	11,800 ^r	--	--	137,000	92,100
Total		54,400	35,400	1,980	1,690	468,000	310,000
Exports:							
Vanadium bearing ash and residues	2620.50.0000, 2620.99.1000						
Belgium		158,000	NA	39,900	NA	338,000	NA
France		--	--	126,000	NA	270,000	NA
Other [7 countries and (or) localities]		144,000 ^r	NA	--	--	1,530,000	NA
Total		302,000	XX	166,000	XX	2,140,000	XX
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
France		--	NA	74	NA	3,930	NA
Germany		--	NA	73	NA	3,220	NA
Japan		5,340	NA	2,140	NA	38,700	NA
United Kingdom		--	NA	828	NA	13,700	NA
Other [11 countries and (or) localities]		--	--	--	--	141,000	NA
Total		5,340	XX	3,120	XX	201,000	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 five leading countries and (or) localities in December.

³Harmonized Tariff Schedule of the United States.

Source: U.S. Census Bureau.