

Mineral Industry Surveys

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VANADIUM IN SEPTEMBER 2019

Reported domestic consumption of vanadium in September 2019 was slightly more than that of the previous month and slightly less than that of September 2018. Consumer stocks of all forms of vanadium were 190 metric tons (t) at the end of September, an increase from 185 t at yearend 2018 (table 1).

Prices

According to CRU Group (2019), U.S. ferrovandium (FeV) prices ranged from \$14.550 to \$15.700 per pound of contained vanadium in September 2019, compared with \$14.750 to \$16.061 per pound in August 2019. In Europe, FeV prices ranged from \$30.275 to \$31.375 per kilogram of contained vanadium in September 2019, compared with \$31.033 to \$32.422 per kilogram in August 2019. In China, vanadium pentoxide (V₂O₅) prices have ranged from \$10.000 to \$10.500 per pound of contained vanadium since June 2019 (fig. 1).

Reference Cited

CRU Group, 2019, Noble alloys and minor metals prices: CRU Group, September 30. (Accessed December 3, 2019, via <http://www.crugroup.com/>.)

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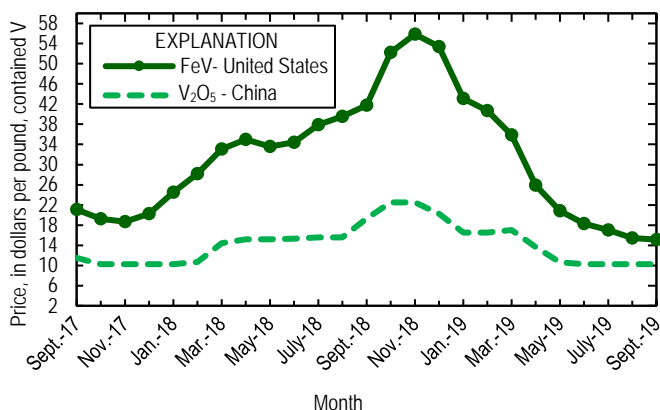


Figure 1. Average monthly prices for FeV and V₂O₅ from September 2017 through September 2019. Source: CRU Group.

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

(Kilograms, contained vanadium)

	2019					
	August		September		January–September	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium ²	218,000	166,000 ^r	220,000	152,000	1,980,000	152,000
Vanadium-aluminum alloy and other forms ³	21,000	37,600	21,000	37,600	189,000	37,600
Total	239,000	203,000 ^r	241,000	190,000	2,170,000	190,000

^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		
	August	September	January– September
Steel:			
Carbon	W	W	W
Full alloy	101,000	101,000	906,000
High-strength low-alloy	W	W	W
Stainless and heat resisting	4,930	4,930	44,400
Tool	W	W	W
Total steel	106,000	106,000	951,000
Superalloys	W	W	W
Miscellaneous and unspecified ²	W	W	W
Total	239,000	241,000	2,170,000

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								
		August			September			January–September		
		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	1,760,000	172,000	\$2,680,000	2,040,000	201,000	\$3,110,000	16,000,000	1,580,000	\$53,200,000
Chemical compounds:										
Vanadium pentoxide (anhydride)	2825.30.0010	441,000	432,000	8,460,000	441,000	432,000	8,210,000	3,280,000	3,190,000	96,800,000
Vanadium oxides and hydroxides, other	2825.30.0050	--	--	--	1	1	3,650	129,000	82,200	5,660,000
Vanadium sulfates	2833.29.3000	2,130	1,330	12,800	--	--	--	7,030	4,390	42,200
Vanadates	2841.90.1000	--	--	--	1,980	1,120	153,000	92,500	55,200	2,830,000
Ferrovandium	7202.92.0000	367,000	257,000	12,800,000	244,000	170,000	8,320,000	2,800,000	1,900,000	144,000,000
Vanadium metal, including waste and scrap	8112.92.7000	11,000	10,800	521,000	8	7	3,900	57,200	44,300	3,970,000
Vanadium and articles thereof ³	8112.99.2000	5,910	3,870	177,000	27,000	18,400	1,230,000	237,000	160,000	13,800,000
Total		2,580,000	878,000	24,600,000	2,750,000	822,000	21,000,000	22,600,000	7,020,000	320,000,000

-- 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					
		August		September		January–September	
		Gross weight	Contained weight	Gross weight	Contained weight	Gross weight	Contained weight
Imports for consumption:							
Vanadium pentoxide (anhydride) ⁴	2825.30.0010						
Brazil		180,000	179,000	280,000	279,000	1,780,000	1,770,000
South Africa		217,000	216,000	98,700	93,200	1,160,000	1,140,000
Taiwan		--	--	62,300	60,500	65,300	63,400
Other [6 countries and (or) localities]		44,000 ^r	37,000 ^r	--	--	266,000	214,000
Total		441,000	432,000	441,000	432,000	3,280,000	3,190,000
Other oxides and hydroxides of vanadium,	2825.30.0050						
Germany		--	--	1	1	1	1
Other [1 country and (or) locality]		--	--	--	--	129,000	82,200
Total		--	--	1	1	129,000	82,200
Ferrovandium	7202.92.0000						
Canada		96,400	75,800	42,200	33,300	1,070,000	828,000
Japan		40,000	20,600	30,200	18,300	350,000	182,000
Latvia		--	--	20,000	10,700	160,000	76,500
Russia		20,000	15,900	100,000	79,500	140,000	111,000
Ukraine		40,000	19,700	40,000	18,100	425,000	211,000
Other [5 countries and (or) localities]		170,000 ^r	125,000 ^r	12,000	9,570	659,000	486,000
Total		367,000	257,000	244,000	170,000	2,800,000	1,900,000
Exports:							
Vanadium pentoxide (anhydride) ⁴	2825.30.0010						
China		NA	153,000	NA	80,100	NA	241,000
Mexico		NA	--	NA	50	NA	50
Other [6 countries and (or) localities]		NA	407 ^r	NA	--	NA	115,000
Total		XX	154,000	XX	80,200	XX	356,000
Other oxides and hydroxides of vanadium	2825.30.0050						
Netherlands		NA	54,600	NA	112,000	NA	315,000
Other [5 countries and (or) localities]		--	--	--	--	NA	129,000
Total		XX	54,600	XX	112,000	XX	444,000
Ferrovandium	7202.92.0000						
Canada		2,680	2,010	552	414	55,400	41,500
Chile		1,000	750	--	--	3,040	1,750
Mexico		2,000	1,500	19,100	14,300	266,000	168,000
Other [3 countries and (or) localities]		--	--	916	687	42,300	31,700
Total		5,680	4,260	20,600	15,400	367,000	243,000

^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 September.

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					
		August		September		January–September	
		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		396,000	NA	56,600,000	NA	134,000,000	NA
Mexico		52,700	NA	16,900	NA	327,000	NA
Other [4 countries and (or) localities]		9,040 ^r	NA	--	--	128,000	NA
Total		457,000	XX	56,600,000	XX	134,000,000	XX
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000						
Canada		1,760,000	172,000	2,010,000	197,000	15,100,000	1,480,000
Curacao		--	--	22,100	3,090	582,000	66,000
Other [2 countries and (or) localities]		--	--	--	--	231,000	36,000
Total		1,760,000	172,000	2,040,000	201,000	16,000,000	1,580,000
Sulfates, China	2833.29.3000	2,130	1,330	--	--	7,030	4,390
Vanadates	2841.90.1000						
China		--	--	1,980	1,120	1,980	1,120
Other [7 countries and (or) localities]		--	--	--	--	90,600	54,000
Total		--	--	1,980	1,120	92,500	55,200
Vanadium metal, including waste and scrap, and Aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
China		5,910	3,870	4,810	3,210	36,500	25,200
Czech Republic		--	--	8	7	8	7
Germany		11,000	10,800	2,220	1,780	47,600	36,200
Russia		--	--	20,000	13,400	190,000	126,000
Other [6 countries and (or) localities]		--	--	--	--	20,100	16,800
Total		16,900	14,700	27,000	18,400	294,000	204,000
Exports:							
Vanadium bearing ash and residues	2620.50.0030, 2620.99.1000						
Germany		257,000	NA	291,000	NA	1,180,000	NA
Other [2 countries and (or) localities]		72,800 ^r	NA	--	--	832,000	NA
Total		330,000	XX	291,000	XX	2,010,000	XX
Vanadium metal, including waste and scrap, and Aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
France		896	NA	292	NA	8,660	NA
Japan		--	--	13,300	NA	28,200	NA
Peru		--	--	200	NA	200	NA
United Kingdom		433	NA	669	NA	2,560	NA
Other [9 countries and (or) localities]		24,900 ^r	NA	--	--	32,000	NA
Total		26,200	XX	14,500	XX	71,600	XX

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

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³Harmonized Tariff Schedule of the United States.

Source: U.S. Census Bureau.