

Mineral Industry Surveys

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VANADIUM IN JANUARY 2021

Reported domestic vanadium consumption in January 2021 was essentially unchanged compared with consumption in December 2020, and 53% more than consumption in January 2020 (tables 1 and 2). However, it is important to note that monthly reported domestic vanadium consumption in the second half of 2020 was revised in order to include consumption data from an annually reported domestic vanadium consumer that was not included on a monthly basis in the first half of 2020.

Consumer stocks of all forms of vanadium were 179 metric tons (t) of contained vanadium at the end of January 2021, essentially unchanged compared with consumer stocks in December 2020 (table 1).

Prices

According to CRU Group (2021), U.S. ferrovanadium (FeV) prices ranged from \$12.263 to \$12.800 per pound of contained vanadium in January 2021, compared with \$10.740 to \$11.240 per pound in December 2020. In Europe, FeV prices ranged from \$26.413 to \$27.050 per kilogram of contained vanadium in January 2021, compared with \$23.750 to \$24.500 per kilogram in December 2020. In China, vanadium pentoxide (V_2O_5) prices ranged from \$6.475 to \$6.681 per pound of contained vanadium in January 2021, compared with \$5.740 to \$6.045 per pound of contained vanadium in December 2020 (fig. 1).

Reference Cited

CRU Group, 2021, Noble alloys and minor metals prices: CRU Group, March 1. (Accessed March 19, 2021, via <http://www.crugroup.com/>.)

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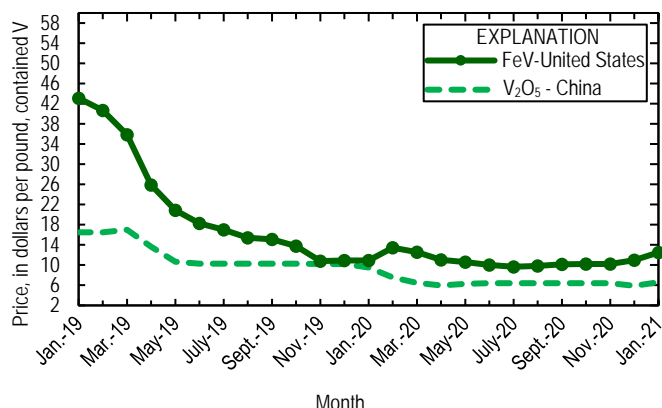


Figure 1. Average monthly prices for FeV and V_2O_5 from January 2019 through January 2021. Source: CRU Group.

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

(Kilograms, contained vanadium)

	2020				2021	
	December		January–December		January	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium ²	351,000	136,000	4,160,000	136,000	351,000	136,000
Vanadium-aluminum alloy and other forms ³	20,000	41,800	255,000	41,800	20,000	43,000
Total	371,000	178,000	4,420,000	178,000	371,000	179,000

^eEstimated.

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 USE^{e, 1}

(Kilograms, contained vanadium)

	2020		
	December	January– December	2021 January
Steel:			
Carbon	W	W	W
Full alloy	98,200	1,190,000	98,000
High-strength low-alloy	W	W	W
Stainless and heat resisting	4,380	57,300	4,000
Tool	W	W	W
Total steel	103,000	1,250,000	102,000
Superalloys	W	W	W
Miscellaneous and unspecified ²	W	W	W
Total	371,000	4,420,000	371,000

^eEstimated. 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	January–December 2020			January 2021		
		Gross weight	Contained weight	Value (thousands)	Gross weight	Contained weight	Value (thousands)
Vanadium ores and concentrates	2615.90.6090	6,770	3,760	\$561,000	927	367	\$73,700
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000	387,000	60,000	7,640,000	(3)	(3)	482,000
Chemical compounds:							
Vanadium pentoxide (anhydride)	2825.30.0010	2,390,000	1,670,000	36,600,000	462,000	435,000	5,830,000
Vanadium oxides and hydroxides, other	2825.30.0050	101,000	66,500	2,830,000	--	--	--
Vanadium chlorides	2827.39.1000	387,000	60,000	7,640,000	--	--	--
Vanadium sulfates	2833.29.3000	55,000	38,600	397,000	--	--	--
Vanadates	2841.90.1000	187,000	104,000	2,030,000	5,820	3,850	79,200
Ferrovandium	7202.92.0000	1,990,000	1,370,000	55,500,000	219,000	172,000	4,750,000
Vanadium metal, including waste and scrap	8112.92.7000	315	165	74,800	--	--	--
Vanadium and articles thereof ⁴	8112.99.2000	152,000	101,000	6,100,000	741	728	137,000
Total		5,650,000	3,480,000	119,000,000	688,000	612,000	11,400,000

-- Zero.

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

²Harmonized Tariff Schedule of the United States.

³Data suppressed by U.S. Census Bureau; not included in "Total."

⁴Aluminum-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	January–December 2020		December 2020		January 2021	
		Gross weight	Contained weight	Gross weight	Contained weight	Gross weight	Contained weight
Imports for consumption:							
Vanadium ores and concentrates	2615.90.6090						
Mexico		6,500	3,600	399	162	927	367
Other, Canada		278	167	--	--	--	--
Total		6,770	3,760	399	162	927	367
Vanadium pentoxide (anhydride) ⁴	2825.30.0010						
Brazil		1,340,000	863,000	--	--	140,000	139,000
Germany		155,000	118,000	--	--	11,900	7,930
Russia		94,100	88,500	94,100	88,500	300,000	282,000
South Africa		561,000	388,000	--	--	10,000	5,590
Other [4 countries and (or) localities]		232,000	215,000	32,800 ^r	21,200 ^r	--	--
Total		2,390,000	1,670,000	127,000	110,000	462,000	435,000
Ferrovanadium	7202.92.0000						
Austria		652,000	450,000	121,000	86,200	116,000	92,700
Canada		1,070,000	799,000	113,000	83,400	85,200	66,100
Latvia		50,100	24,400	--	--	17,000	13,600
Other [5 countries and (or) localities]		213,000	96,800	16,200 ^r	13,000 ^r	--	--
Total		1,990,000	1,370,000	250,000	183,000	219,000	172,000
Exports:							
Vanadium ores and concentrates	2615.90.6090						
Cambodia		23,000	NA	--	--	1,490	NA
Taiwan		127,000	NA	98,600	NA	15,800	NA
Other [6 countries and (or) localities]		14,200	NA	1,940 ^r	NA	--	--
Total		164,000	XX	101,000	XX	17,300	XX
Vanadium pentoxide (anhydride) ⁴	2825.30.0010						
India		NA	8,950	--	--	NA	3,160
Other [5 countries and (or) localities]		NA	40,700	NA	30 ^r	--	--
Total		XX	49,700	XX	30	XX	3,160
Other oxides and hydroxides of vanadium	2825.30.0050						
India		NA	11,000	--	--	NA	3,370
Netherlands		NA	22,700	--	--	NA	45,200
Other [7 countries and (or) localities]		NA	39,600	NA	27,500 ^r	--	--
Total		XX	73,300	XX	27,500	XX	48,600
Ferrovanadium	7202.92.0000						
Colombia		1,120	837	--	--	916	687
Peru		411	252	--	--	265	199
Other [10 countries and (or) localities]		218,000	164,000	24,000 ^r	18,000 ^r	--	--
Total		219,000	165,000	24,000	18,000	1,180	886

¹Revised. 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 or localities in January.

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	January–December 2020		December 2020		January 2021	
		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		9,800,000	NA	1,910,000	NA	1,410,000	NA
Other [3 countries and (or) localities]		357,000	NA	30,700 ^r	NA	--	--
Total		10,200,000	XX	1,940,000	XX	1,410,000	XX
Vanadium sulfates	2833.29.3000						
Finland		42,700	30,900	18,200	11,400	--	--
Germany		8,000	4,990	8,000	4,990	--	--
Other [2 countries and (or) localities]		4,290	2,680	--	--	--	--
Total		55,000	38,600	26,200	16,300	--	--
Vanadates	2841.90.1000						
Germany		11,800	6,220	--	--	5,700	3,800
Japan		107	73	32	23	115	45
Other [8 countries and (or) localities]		175,000	98,200	--	--	--	--
Total		187,000	104,000	32	23	5,820	3,850
Vanadium metal, including waste and scrap and Aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
Germany		4,990	3,920	1,440	1,150	10	8
Mexico		840	840	--	--	50	40
Russia		131,000	86,500	18,500	12,000	680	679
United Kingdom		42	42	--	--	1	1
Other [5 countries and (or) localities]		15,000	9,860	4 ^r	4 ^r	--	--
Total		152,000	101,000	20,000	13,200	741	728
Exports:							
Vanadium bearing ash and residues	2620.50.0000, 2620.99.1000						
Belgium		238,000	NA	133,000	NA	48,500	NA
Other [6 countries and (or) localities]		660,000 ^r	NA	1,190 ^r	NA	--	--
Total		898,000	XX	135,000	XX	48,500	XX
Vanadium metal, including waste and scrap and Aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
Germany		282	NA	--	--	1620	NA
Other [12 countries and (or) localities]		25,000	NA	710 ^r	NA	--	--
Total		25,200	XX	710	XX	1,620	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 in January.

³Harmonized Tariff Schedule of the United States.

Source: U.S. Census Bureau.