

Mineral Industry Surveys

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VANADIUM IN MARCH 2021

Reported domestic vanadium consumption in March 2021 was essentially unchanged compared with consumption in February 2021 and 57% more than consumption in March 2020 (tables 1 and 2). However, it is important to note that monthly reported domestic vanadium consumption was revised in the second half of 2020 in order to include consumption data from an annually reported domestic vanadium consumer that was not included on a monthly basis prior.

Consumer stocks of all forms of vanadium were 184 metric tons (t) of contained vanadium at the end of March 2021, slightly more compared with consumer stocks at the end of February 2021 (table 1).

Prices

According to CRU Group (2021), U.S. ferrovanadium (FeV) prices ranged from \$15.978 to \$16.389 per pound of contained vanadium in March 2021 compared with \$14.613 to \$15.131 per pound in February 2021. In Europe, FeV prices ranged from \$33.800 to \$34.500 per kilogram of contained vanadium in March 2021 compared with \$28.200 to \$28.900 per kilogram in February 2021. In China, vanadium pentoxide (V_2O_5) prices ranged from \$7.400 to \$7.500 per pound of contained vanadium in March 2021 compared with \$6.638 to \$6.738 per pound of contained vanadium in February 2021 (fig. 1).

Reference Cited

CRU Group, 2021, Noble alloys and minor metals prices: CRU Group, May 3. (Accessed May 12, 2021, via <http://www.crugroup.com/>.)

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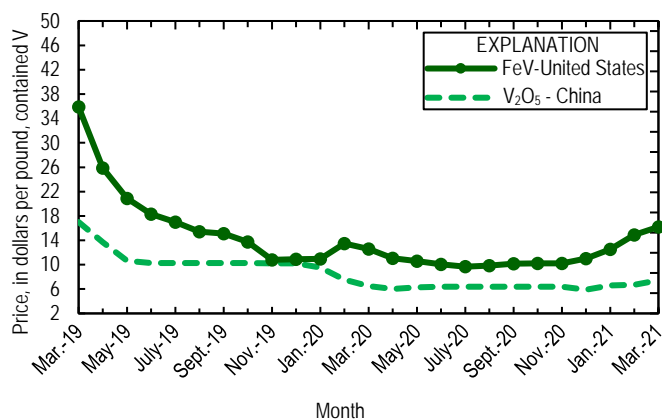


Figure 1. Average monthly prices for FeV and V_2O_5 from March 2019 through March 2021. Source: CRU Group.

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

(Kilograms, contained vanadium)

	2021					
	February		March		January–March	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium ²	353,000	137,000	354,000	138,000	1,060,000	138,000
Vanadium-aluminum alloy and other forms ³	20,500	45,000	21,000	46,000	61,500	46,000
Total	373,000	182,000	375,000	184,000	1,120,000	184,000

^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)

	2021		
	February	March	January– March
Steel:			
Carbon	W	W	W
Full alloy	98,200	99,000	295,000
High-strength low-alloy	W	W	W
Stainless and heat resisting	4,300	4,800	13,100
Tool	W	W	W
Total steel	103,000	104,000	308,000
Superalloys	W	W	W
Miscellaneous and unspecified ²	W	W	W
Total	373,000	375,000	1,120,000

^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	2021								
		February			March			January–March		
		Gross weight	Contained weight	Value (thousands)	Gross weight	Contained weight	Value (thousands)	Gross weight	Contained weight	Value (thousands)
Vanadium ores and concentrates	2615.90.6090	--	--	--	1,860	947	\$148,000	2,790	1,310	\$221,000
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000	164,000	21,500	\$696,000	(3)	(3)	510,000	164,000	21,500	1,690,000
Chemical compounds:										
Vanadium pentoxide (anhydride)	2825.30.0010	120,000	119,000	2,600,000	150,000	83,900	3,630,000	732,000	638,000	12,100,000
Vanadium oxides and hydroxides, other	2825.30.0050	--	--	--	--	--	--	--	--	--
Vanadium chlorides	2827.39.1000	--	--	--	4,600	4,380	137,000	4,600	4,380	137,000
Vanadium sulfates	2833.29.3000	2,000	1,250	12,000	17,800	11,300	135,000	19,800	12,500	147,000
Vanadates	2841.90.1000	362	152	12,600	90	49	4,510	6,270	4,050	96,300
Ferrovandium	7202.92.0000	131,000	100,000	2,960,000	233,000	176,000	6,820,000	583,000	449,000	14,500,000
Vanadium metal, including waste and scrap	8112.92.7000	319	200	73,200	--	--	--	319	200	73,200
Vanadium and articles thereof ⁴	8112.99.2000	401	400	111,000	3,270	2,540	292,000	4,410	3,670	540,000
Total		418,000	243,000	6,470,000	411,000	279,000	11,700,000	1,520,000	1,130,000	29,500,000

-- 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 the 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	2021					
		February		March		January–March	
		Gross weight	Contained weight	Gross weight	Contained weight	Gross weight	Contained weight
Imports for consumption:							
Vanadium ores and concentrates, Mexico	2615.90.6090	--	--	1,860	947	2,790	1,310
Vanadium pentoxide (anhydride): ⁴	2825.30.0010						
Germany		--	--	10,000	5,710	21,900	13,600
South Africa		--	--	140,000	78,200	150,000	83,700
Other [3 countries and (or) localities]		120,000 ^r	119,000 ^r	--	--	560,000	541,000
Total		120,000	119,000	150,000	83,900	732,000	638,000
Ferrovandium:	7202.92.0000						
Austria		46,900	33,300	104,000	72,900	267,000	199,000
Canada		24,300	19,500	127,000	101,000	237,000	187,000
South Africa		--	--	2,000	1,620	2,000	1,620
Other [2 countries and (or) localities]		60,000 ^r	47,700 ^r	--	--	77,000	61,300
Total		131,000	100,000	233,000	176,000	583,000	449,000
Exports:							
Vanadium ores and concentrates:	2615.90.6090						
Cambodia		--	--	29,100	NA	30,600	NA
Taiwan		14,200	NA	4,740	NA	34,800	NA
Total		14,200	XX	33,800	XX	65,300	XX
Vanadium pentoxide (anhydride): ⁴	2825.30.0010						
Australia		--	--	NA	54	NA	54
India		--	--	--	--	NA	3,160
Total		--	--	XX	54	XX	3,210
Other oxides and hydroxides of vanadium:	2825.30.0050						
Austria		--	--	NA	14,200	NA	14,200
India		--	--	NA	13,200	NA	13,200
Netherlands		--	--	NA	12,400	NA	12,400
Other [2 countries and (or) localities]		--	--	--	--	NA	48,600
Total		--	--	XX	39,800	XX	88,400
Ferrovandium:	7202.92.0000						
Canada		3,620	2,710	14,900	11,200	18,500	13,900
Columbia		916 ^r	687 ^r	--	--	1,830	1,370
Mexico		--	--	35,000	26,300	35,000	26,300
Peru		--	--	200	150	465	349
Total		4,530	3,400	50,100	37,600	55,800	41,900

^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 or localities in March.

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	2021					
		February		March		January–March	
		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		1,510,000	NA	732,000	NA	3,660,000	NA
Japan		--	--	8,520	NA	8,520	NA
Mexico		16,300	NA	68,900	NA	85,200	NA
Total		1,530,000	XX	810,000	XX	3,750,000	XX
Vanadium bearing ash and residues:	2620.40.0030, 2620.99.1000						
Oman		120,000	18,600	--	--	120,000	33,200
Switzerland		43,400	2,900	--	--	43,400	5,170
Total		164,000	21,500	--	--	164,000	38,300
Vanadium sulfates:	2833.29.3000						
China		2,000	1,250	--	--	2,000	1,250
Finland		--	--	17,800	11,300	17,800	11,300
Total		2,000	1,250	17,800	11,300	19,800	12,500
Vanadates:	2841.90.1000						
Austria		--	--	50	22	50	22
Japan		57	50	40	27	212	122
Other [2 countries and (or) localities]		305	102	--	--	6,010	3,900
Total		362	152	90	49	6,270	4,050
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy:	8112.92.7000, 8112.99.2000						
Belgium		--	--	1,230	800	1,230	800
Germany		355	236	1,570	1,270	1,930	1,520
Mexico		--	--	104	104	154	144
Russia		365	364	365	364	1,410	1,410
United Kingdom		--	--	--	--	1	1
Total		720	600	3,270	2,540	4,730	3,870
Exports:							
Vanadium bearing ash and residues:	2620.50.0000, 2620.99.1000						
Belgium		135,000	NA	43,500	NA	228,000	NA
Italy		19,900	NA	--	--	19,900	NA
Netherlands		--	--	30,400	NA	30,400	NA
Total		155,000	XX	73,900	XX	278,000	XX
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy:	8112.92.7000, 8112.99.2000						
Japan		--	--	109	NA	109	NA
United Kingdom		--	--	397	NA	397	NA
Other [2 countries and (or) localities]		56 ^r	NA	--	--	1,680	NA
Total		56	XX	506	XX	2,180	XX

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 March.

³Harmonized Tariff Schedule of the United States.

Source: U.S. Census Bureau.