

Mineral Industry Surveys

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VANADIUM IN APRIL 2021

Reported domestic vanadium consumption in April 2021 was essentially unchanged compared with consumption in March 2021 and 60% more than consumption in April 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 a domestic vanadium consumer that reports on an annual basis. That data previously had not been included with monthly data.

Consumer stocks of all forms of vanadium were 180 metric tons (t) of contained vanadium at the end of April 2021, slightly less compared with consumer stocks at the end of March 2021 (table 1).

Prices

According to CRU Group (2021), U.S. ferrovandium (FeV) prices ranged from \$15.889 to \$16.489 per pound of contained vanadium in April 2021 compared with \$15.978 to \$16.389 per pound in March 2021. In Europe, FeV prices ranged from \$33.800 to \$34.500 per kilogram of contained vanadium in March and April 2021. In China, vanadium pentoxide (V₂O₅) prices ranged from \$7.400 to \$7.500 per pound of contained vanadium in March and April 2021 (fig. 1).

Reference Cited

CRU Group, 2021, Noble alloys and minor metals prices: CRU Group, May 3. (Accessed June 16, 2021, via <http://www.crugroup.com/>.)

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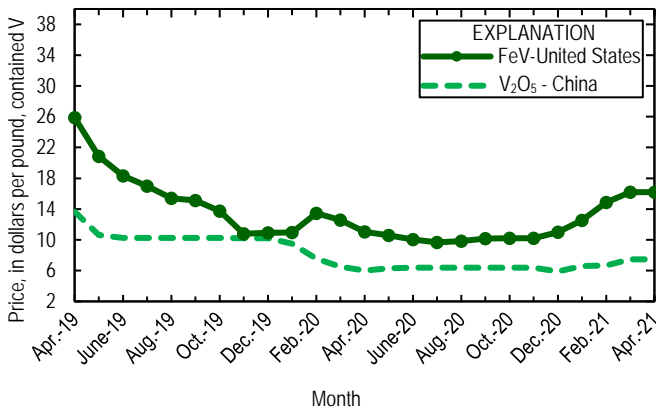


Figure 1. Average monthly prices for FeV and V₂O₅ from April 2019 through April 2021. Source: CRU Group.

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

(Kilograms, contained vanadium)

	2021					
	March		April		January–April	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium ²	354,000	138,000	356,000	135,000	1,410,000	135,000
Vanadium-aluminum alloy and other forms ³	21,000	46,000	22,000	45,000	83,500	45,000
Total	375,000	184,000	378,000	180,000	1,490,000	180,000

^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		
	March	April	January– April
Steel:			
Carbon	W	W	W
Full alloy	99,000	100,000	395,000
High-strength low-alloy	W	W	W
Stainless and heat resisting	4,800	4,900	18,000
Tool	W	W	W
Total steel	104,000	105,000	413,000
Superalloys	W	W	W
Miscellaneous and unspecified ²	W	W	W
Total	375,000	378,000	1,490,000

^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								
		March			April			January–April		
		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	774	262	\$61,500	3,560	1,580	\$283,000
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000	(3)	(3)	510,000	71,800	11,600	507,000	236,000	33,100	2,200,000
Chemical compounds:										
Vanadium pentoxide (anhydride)	2825.30.0010	150,000	83,900	3,630,000	123,000	95,600	2,210,000	854,000	734,000	14,300,000
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	17,800	11,300	135,000	104	100	7,200	19,900	12,600	154,000
Vanadates	2841.90.1000	90	49	4,510	450	77	10,600	6,720	4,120	107,000
Hydrides and Nitrides of Vanadium	2850.00.2000	12,700	10,500	140,000	20,300	16,300	161,000	52,300	42,400	578,000
Ferrovandium	7202.92.0000	233,000	176,000	6,820,000	295,000	228,000	17,100,000	878,000	677,000	31,600,000
Vanadium metal, including waste and scrap	8112.92.7000	--	--	--	25	25	11,100	344	225	84,400
Vanadium and articles thereof ⁴	8112.99.2000	3,270	2,540	292,000	18,800	12,000	774,000	23,200	15,600	1,310,000
Total		424,000 ^r	289,000 ^r	11,800,000 ^r	530,000	364,000	20,800,000	2,080,000	1,520,000	50,700,000

^rRevised. -- 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					
		March		April		January–April	
		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	774	262	3,560	1,580
Vanadium pentoxide (anhydride): ⁴	2825.30.0010						
Brazil		--	--	20,000	19,900	280,000	279,000
South Africa		140,000	78,200	71,700	53,900	222,000	138,000
Taiwan		--	--	30,800	21,800	30,800	21,800
Other [3 countries and (or) localities]		10,000 ^r	5,710 ^r	--	--	322,000	296,000
Total		150,000	83,900	123,000	95,600	854,000	734,000
Ferrovanadium:	7202.92.0000						
Austria		104,000	72,900	20,000	16,200	287,000	215,000
Canada		127,000	101,000	55,500	44,100	293,000	231,000
India		--	--	961	769	961	769
Latvia		--	--	18,600	7,590	35,600	21,200
Russia		--	--	200,000	159,000	260,000	207,000
Other, South Africa		2,000 ^r	1,620 ^r	--	--	2,000	1,620
Total		233,000	176,000	295,000	228,000	878,000	677,000
Exports:							
Vanadium ores and concentrates:	2615.90.6090						
Cambodia		29,100	NA	24,200	NA	54,800	NA
Canada		--	--	155	NA	155	NA
Ukraine		--	--	11,800	NA	11,800	NA
Other, Taiwan		4,740	NA	--	--	34,800	NA
Total		33,800	XX	36,200	XX	102,000	XX
Vanadium pentoxide (anhydride): ⁴	2825.30.0010						
Australia		NA	54	NA	363	NA	417
Netherlands		--	--	NA	3,600	NA	3,600
Other, India		--	--	--	--	NA	3,160
Total		XX	54	XX	3,970	XX	7,180
Other oxides and hydroxides of vanadium:	2825.30.0050						
Austria		NA	14,200	NA	7,680	NA	21,900
Canada		NA	13,200	NA	234	NA	13,500
Other [3 countries and (or) localities]		NA	12,400	--	--	NA	60,900
Total		XX	39,800	XX	7,910	XX	96,300
Ferrovanadium:	7202.92.0000						
Canada		14,900	11,200	7,300	5,480	25,800	19,400
Columbia		--	--	1,410	937	3,240	2,310
Peru		200	150	750	563	1,220	912
United Kingdom		--	--	471	353	471	353
Other, Mexico		35,000	26,300	--	--	35,000	26,300
Total		50,100	37,600	9,930	7,330	65,800	49,200

^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 April.

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					
		March		April		January–April	
		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		732,000	NA	1,100,000	NA	4,760,000	NA
Mexico		68,900	NA	75,900	NA	161,000	NA
Turkey		--	--	16,500,000	NA	16,500,000	NA
Other, Japan		8,520	NA	--	--	8,520	NA
Total		810,000	XX	17,700,000	XX	21,400,000	XX
Vanadium bearing ash and residues:	2620.40.0030, 2620.99.1000						
Netherlands		--	--	71,800	20,700	71,800	20,700
Other [2 countries and (or) localities]		--	--	--	--	164,000	38,300
Total		--	--	71,800	20,700	236,000	59,100
Vanadium sulfates:	2833.29.3000						
China		--	--	104	100	2,100	1,350
Other, Finland		17,800	11,300	--	--	17,800	11,300
Total		17,800	11,300	104	100	19,900	12,600
Vanadates:	2841.90.1000						
Germany		--	--	450	77	6,450	3,980
Other [3 countries and (or) localities]		90 ^r	49 ^r	--	--	267	146
Total		90	49	450	77	6,720	4,120
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy:	8112.92.7000, 8112.99.2000						
Germany		1,570	1,270	152	152	2,080	1,670
Russia		365	364	18,600	11,900	20,000	13,300
Other [3 countries and (or) localities]		1,330	904	--	--	1,390	945
Total		3,270	2,540	18,800	12,000	23,500	15,900
Exports:							
Vanadium bearing ash and residues:	2620.50.0000, 2620.99.1000						
Mexico		--	--	8,040	NA	8,040	NA
Other [3 countries and (or) localities]		73,900	NA	--	--	278,000	NA
Total		73,900	XX	8,040	XX	286,000	XX
Hydrides and Nitrides, of vanadium	2850.00.2000						
Germany		2,160	2,150	20,000	16,000	36,900	30,200
Korea, Republic of		--	--	2	1	7	5
South Africa		10,200	8,070	34	27	10,300	8,150
Sweden		360	284	320	253	1,040	821
Other [3 countries and (or) localities]		--	--	--	--	4,120	3,260
Total		12,700	10,500	20,300	16,300	52,300	42,400
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy:	8112.92.7000, 8112.99.2000						
United Kingdom		397	NA	18,300	NA	18,700	NA
Other [3 countries and (or) localities]		109 ^r	NA	--	--	1,790	NA
Total		506	XX	18,300	XX	20,500	XX

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

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

³Harmonized Tariff Schedule of the United States.

Source: U.S. Census Bureau.