

Mineral Industry Surveys

For information, contact:

Désirée E. Polyak, Vanadium Commodity Specialist
National Minerals Information Center
U.S. Geological Survey
989 National Center
Reston, VA 20192
Telephone: (703) 648-4909, Fax: (703) 648-7757
Email: dpolyak@usgs.gov

Darlene V. Thompson (Data)
Telephone: (703) 648-7797
Fax: (703) 648-7975
Email: dvthompson@usgs.gov

Internet: <https://www.usgs.gov/centers/nmic>

VANADIUM IN DECEMBER 2020

Reported domestic vanadium consumption in December 2020 was essentially unchanged compared with consumption in November 2020, and 52% more than consumption in December 2019 (tables 1 and 2). However, it is important to note that monthly reported domestic vanadium consumption in 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 2019.

Consumer stocks of all forms of vanadium were 178 metric tons (t) of contained vanadium at the end of December 2020, essentially unchanged compared with consumer stocks in November 2020 and a 7% decrease from 192 t at yearend 2019 (table 1).

Prices

According to CRU Group (2021), U.S. ferrovanadium (FeV) prices ranged from \$10.740 to \$11.240 per pound of contained vanadium in December 2020, compared with \$9.763 to \$10.700 per pound in November 2020. In Europe, FeV prices ranged from \$23.750 to \$24.500 per kilogram of contained vanadium in December 2020, compared with \$23.694 to \$24.238 per kilogram in November 2020. In China, vanadium pentoxide (V_2O_5) prices ranged from \$5.740 to \$6.045 per pound of contained vanadium in December 2020, compared with \$6.300 to \$6.500 per pound of contained vanadium in November 2020 (fig. 1).

Reference Cited

CRU Group, 2021, Noble alloys and minor metals prices: CRU Group, January 4. (Accessed February 19, 2021, via <http://www.crugroup.com/>.)

List services and web feed subscribers are the first to receive notification of USGS minerals information publications and data releases. For information on how to subscribe, go to <https://www.usgs.gov/centers/nmic/minerals-information-publication-list-services>.

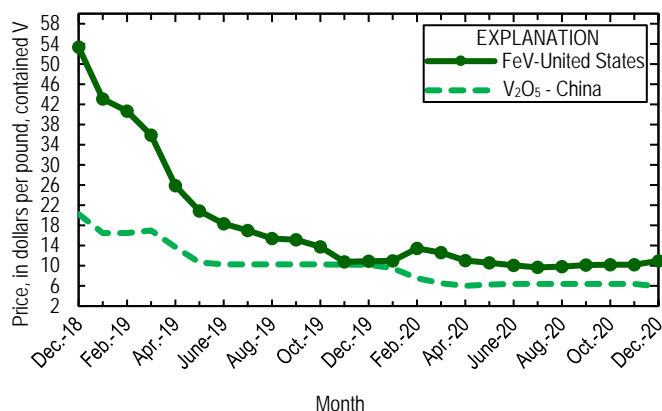


Figure 1. Average monthly prices for FeV and V_2O_5 from December 2018 through December 2020. Source: CRU Group.

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

(Kilograms, contained vanadium)

	2020					
	November		December		January–December	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium ²	351,000	137,000	351,000	136,000	4,160,000	136,000
Vanadium-aluminum alloy and other forms ³	19,800	42,100	20,000	41,800	255,000	41,800
Total	371,000	179,000	371,000	178,000	4,420,000	178,000

^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^{6, 1}

(Kilograms, contained vanadium)

	2020		
	November	December	January– December
Steel:			
Carbon	W	W	W
Full alloy	97,800	98,200	1,190,000
High-strength low-alloy	W	W	W
Stainless and heat resisting	4,490	4,380	57,300
Tool	W	W	W
Total steel	102,000	103,000	1,250,000
Superalloys	W	W	W
Miscellaneous and unspecified ²	W	W	W
Total	371,000	371,000	4,420,000

⁶Estimated. 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	2020								
		November			December			January–December		
		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	91	46	\$7,220	399	162	\$31,700	6,770	3,760	\$561,000
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000	(3)	(3)	58,900	(3)	(3)	664,000	387,000	60,000	7,640,000
Chemical compounds:										
Vanadium pentoxide (anhydride)	2825.30.0010	30,000	25,700	479,000	127,000	110,000	1,330,000	2,390,000	1,670,000	36,600,000
Vanadium oxides and hydroxides, other	2825.30.0050	--	--	--	--	--	--	101,000	66,500	2,830,000
Vanadium sulfates	2833.29.3000	--	--	--	26,200	16,300	189,000	55,000	38,600	397,000
Vanadates	2841.90.1000	2,000	1,600	33,100	32	23	2,360	187,000	104,000	2,030,000
Ferrovandium	7202.92.0000	168,000	126,000	3,510,000	250,000	183,000	4,640,000	1,990,000	1,370,000	55,500,000
Vanadium metal, including waste and scrap	8112.92.7000	38	38	5,250	4	4	4,550	315	165	74,800
Vanadium and articles thereof ⁴	8112.99.2000	2,300	1,970	264,000	20,000	13,200	606,000	152,000	101,000	6,100,000
Total		203,000	155,000	4,360,000	424,000	322,000	7,470,000	5,260,000	3,420,000	112,000,000

-- Zero.

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

²Harmonized Tariff Schedule of the United States.

³Data suppressed according to 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	2020					
		November		December		January–December	
		Gross weight	Contained weight	Gross weight	Contained weight	Gross weight	Contained weight
Imports for consumption:							
Vanadium ores and concentrates	2615.90.6090						
Mexico		91	46	399	162	6,500	3,600
Other, Canada		--	--	--	--	278	167
Total		91	46	399	162	6,770	3,760
Vanadium pentoxide (anhydride) ⁴	2825.30.0010						
Austria		--	--	24,000	16,100	24,000	16,100
China		--	--	8,840	5,050	32,200	22,700
Russia		--	--	94,100	88,500	94,100	88,500
Other [5 countries and (or) localities]		30,000 ^r	25,700 ^r	--	--	2,240,000	1,540,000
Total		30,000	25,700	127,000	110,000	2,390,000	1,670,000
Ferrovandium	7202.92.0000						
Austria		36,400	21,300	121,000	86,200	652,000	450,000
Canada		132,000	105,000	113,000	83,400	1,070,000	799,000
Russia		--	--	16,200	13,000	16,200	13,000
Other [5 countries and (or) localities]		--	--	--	--	247,000	108,000
Total		168,000	126,000	250,000	183,000	1,990,000	1,370,000
Exports:							
Vanadium ores and concentrates	2615.90.6090						
China		2,980	NA	1,940	NA	4,920	NA
Taiwan		--	--	98,600	NA	127,000	NA
Other [6 countries and (or) localities]		--	--	--	--	32,300	NA
Total		2,980	XX	101,000	XX	164,000	XX
Vanadium pentoxide (anhydride) ⁴	2825.30.0010						
Australia		--	--	NA	30	NA	117
Other [5 countries and (or) localities]		NA	2,190 ^r	--	--	NA	49,500
Total		XX	2,190	XX	30	XX	49,700
Other oxides and hydroxides of vanadium	2825.30.0050						
Australia		--	--	NA	510	NA	510
Canada		--	--	NA	234	NA	702
Jamaica		NA	318	NA	317	NA	635
Trinidad and Tobago		--	--	NA	26,500	NA	33,900
Other [5 countries and (or) localities]		NA	300 ^r	--	--	NA	37,500
Total		XX	618	XX	27,500	XX	73,300
Ferrovandium	7202.92.0000						
Canada		11,400	8,510	15,000	11,300	34,000	25,500
Mexico		--	--	9,000	6,750	61,500	46,600
Other [10 countries and (or) localities]		--	--	--	--	124,000	93,400
Total		11,400	8,510	24,000	18,000	219,000	165,000

^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 or localities in December.

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	2020					
		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		1,330,000	NA	1,910,000	NA	9,800,000	NA
Finland		2,580	NA	12,600	NA	36,300	NA
Mexico		51,900	NA	18,100	NA	320,000	NA
Other, Japan		--	--	--	--	318	NA
Total		1,380,000	XX	1,940,000	XX	10,200,000	XX
Vanadium sulfates	2833.29.3000						
Finland		--	--	18,200	11,400	42,700	30,900
Germany		--	--	8,000	4,990	8,000	4,990
Other [2 countries and (or) localities]		--	--	--	--	4,290	2,680
Total		--	--	26,200	16,300	55,000	38,600
Vanadates	2841.90.1000						
Japan		--	--	32	23	107	73
Other [9 countries and (or) localities]		2,000 ^r	1,600 ^r	--	--	187,000	104,000
Total		2,000	1,600	32	23	187,000	104,000
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
Czechia		--	--	4	4	4	4
Germany		1,510	1,190	1,440	1,150	4,990	3,920
Russia		784	782	18,500	12,000	131,000	86,500
Other [6 countries and (or) localities]		40 ^r	40 ^r	--	--	15,900	10,700
Total		2,340	2,010	20,000	13,200	152,000	101,000
Exports:							
Vanadium bearing ash and residues	2620.50.0000, 2620.99.1000						
Belgium		58,200	NA	133,000	NA	238,000	NA
Mexico		--	--	1,190	NA	22,300	NA
Other [5 countries and (or) localities]		--	--	--	--	638,000	NA
Total		58,200	XX	135,000	XX	898,000	XX
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
Mexico		--	--	16	NA	16	NA
United Kingdom		372	NA	694	NA	6,580	NA
Other [11 countries and (or) localities]		--	--	--	--	18,600	NA
Total		372	XX	710	XX	25,200	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 December.

³Harmonized Tariff Schedule of the United States.

Source: U.S. Census Bureau.