

# Mineral Industry Surveys

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## VANADIUM IN MAY 2020

Reported domestic vanadium consumption in May 2020 was essentially unchanged from both May 2019 and April 2020. Consumer stocks of all forms of vanadium were 166 t at the end of May, a decrease from 192 metric tons (t) of contained vanadium at yearend 2019, and essentially unchanged when compared with 167 t in April 2020 (table 1).

prices ranged from \$10.288 to \$10.863 per pound of contained vanadium in May 2020, compared with \$10.611 to \$11.500 per pound in April 2020. In Europe, FeV prices ranged from \$25.500 to \$25.975 per kilogram of contained vanadium in May 2020, compared with \$25.589 to \$26.272 per kilogram in April 2020. In China, vanadium pentoxide (V<sub>2</sub>O<sub>5</sub>) prices ranged from \$6.125 to \$6.450 per pound of contained vanadium in May 2020, compared with \$5.689 to \$6.300 per pound in April 2020 (fig. 1).

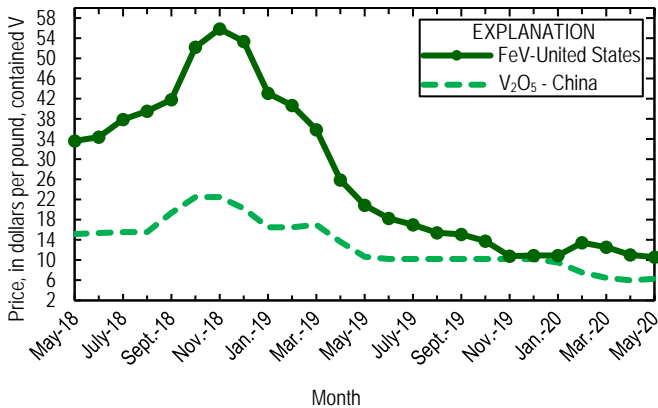


Figure 1. Average monthly prices for FeV and V<sub>2</sub>O<sub>5</sub> from May 2018 through May 2020. Source: CRU Group.

**Prices**

According to CRU Group (2020), U.S. ferrovanadium (FeV)

**Reference Cited**

CRU Group, 2020, Noble alloys and minor metals prices: CRU Group, July 1. (Accessed July 28, 2020, via <http://www.crugroup.com/>.)

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TABLE 1  
U.S. CONSUMPTION AND CONSUMER STOCKS OF VANADIUM, BY FORM<sup>p, 1</sup>

(Kilograms, contained vanadium)

	2020					
	April		May		January-May	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium <sup>2</sup>	215,000	129,000	214,000	128,000	1,090,000	128,000
Vanadium-aluminum alloy and other forms <sup>3</sup>	21,000	38,000	21,000	38,000	105,000	38,000
<b>Total</b>	<b>236,000</b>	<b>167,000</b>	<b>235,000</b>	<b>166,000</b>	<b>1,190,000</b>	<b>166,000</b>

<sup>p</sup>Preliminary.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown. Includes estimates.

<sup>2</sup>Includes other vanadium-iron-carbon alloys as well as vanadium oxides added directly to steel.

<sup>3</sup>Includes 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<sup>1</sup>

(Kilograms, contained vanadium)

	2020		
	April	May	January– May
Steel:			
Carbon	W	W	W
Full alloy	101,000	101,000	503,000
High-strength low-alloy	W	W	W
Stainless and heat resisting	4,930	4,930	24,600
Tool	W	W	W
Total steel	106,000	106,000	528,000
Superalloys	W	W	W
Miscellaneous and unspecified <sup>2</sup>	W	W	W
Total	236,000	235,000	1,190,000

W Withheld to avoid disclosing company proprietary data; included in "Total."

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown. Includes estimates.

<sup>2</sup>Includes 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 PRODUCTS<sup>1</sup>

(Kilograms, unless otherwise specified)

Material	HTS <sup>2</sup> code	2020								
		April			May			January–May		
		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	2,180	1,320	\$173,000	1,750	977	\$139,000	5,490	3,180	\$459,000
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000	(3)	(3)	509,000	(3)	(3)	627,000	(3)	(3)	4,790,000
Chemical compounds:										
Vanadium pentoxide (anhydride)	2825.30.0010	362,000	234,000	5,790,000	255,000	171,000	4,130,000	1,780,000	1,130,000	28,300,000
Vanadium oxides and hydroxides, other	2825.30.0050	20,000	13,200	759,000	20,000	13,300	765,000	81,000	53,300	2,370,000
Vanadium sulfates	2833.29.3000	2,000	1,250	12,000	--	--	--	4,190	2,620	25,200
Vanadates	2841.90.1000	114,000	57,800	1,140,000	5,730	2,200	84,300	164,000	87,600	1,720,000
Ferrovandium	7202.92.0000	200,000	132,000	7,630,000	245,000	135,000	4,580,000	873,000	545,000	31,600,000
Vanadium metal, including waste and scrap	8112.92.7000	--	--	--	--	--	--	--	--	--
Vanadium and articles thereof <sup>4</sup>	8112.99.2000	8,030	5,390	227,000	4,030	2,690	123,000	51,300	34,100	1,970,000
Total		708,000	445,000	16,200,000	531,000	326,000	10,500,000	2,960,000	1,860,000	71,200,000

-- Zero.

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

<sup>2</sup>Harmonized Tariff Schedule of the United States.

<sup>3</sup>Data suppressed according to U.S. Census Bureau; not included in "Total."

<sup>4</sup>Aluminum-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)<sup>1,2</sup>

(Kilograms, gross and contained weight)

Country or locality	HTS <sup>3</sup> code	2020					
		April		May		January–May	
		Gross weight	Contained weight	Gross weight	Contained weight	Gross weight	Contained weight
<b>Imports for consumption:</b>							
Vanadium ores and concentrates	2615.90.6090						
Mexico		2,180	1,320	1,750	977	5,220	3,010
Other, Canada		--	--	--	--	278	167
Total		2,180	1,320	1,750	977	5,490	3,180
Vanadium pentoxide (anhydride) <sup>3</sup>	2825.30.0010						
Brazil		200,000	111,000	140,000	78,000	1,080,000	602,000
Germany		52,900	42,800	11,100	9,060	88,900	70,400
South Africa		78,000	51,200	58,000	40,100	459,000	307,000
Taiwan		20,800	20,800	20,800	20,800	114,000	114,000
United Kingdom		--	--	20,800	20,800	20,800	20,800
Other, China		10,000	8,000	4,200	2,340	19,300	15,400
Total		362,000	234,000	255,000	171,000	1,780,000	1,130,000
Other oxides and hydroxides of vanadium	2825.30.0050						
South Africa		20,000	13,200	20,000	13,300	80,000	52,700
Other, Morocco		--	--	--	--	983	627
Total		20,000	13,200	20,000	13,300	81,000	53,300
Ferrovandium	7202.92.0000						
Austria		76,500	58,600	70,200	56,300	328,000	225,000
Canada		103,000	64,300	20,000	15,900	326,000	223,000
Germany		--	--	140,000	57,100	140,000	57,100
Ukraine		21,300	8,680	14,600	5,970	48,000	19,600
Other [2 countries and (or) localities]		--	--	--	--	32,200	19,800
Total		200,000	132,000	245,000	135,000	873,000	545,000
<b>Exports:</b>							
Vanadium ores and concentrates	2615.90.6090						
Taiwan		--	--	8,860	NA	12,900	NA
Other [3 countries and (or) localities]		6,860 <sup>r</sup>	--	--	--	21,400	NA
Total		6,860	--	8,860	XX	34,400	XX
Vanadium pentoxide (anhydride) <sup>3</sup>	2825.30.0010						
Mexico		--	--	NA	400	NA	400
Other, Australia		--	--	--	--	--	30
Total		--	--	XX	400	XX	430
Other oxides and hydroxides of vanadium	2825.30.0050						
China		NA	2,180	--	--	NA	2,180
Other [3 countries and (or) localities]		--	--	--	--	NA	23,400
Total		XX	2,180	--	--	XX	25,600
Ferrovandium	7202.92.0000						
India		--	--	20,400	16,000	20,400	16,000
Mexico		--	--	970	728	24,800	18,600
Other [5 countries and (or) localities]		1,370 <sup>r</sup>	1,030 <sup>r</sup>	--	--	25,300	19,000
Total		1,370	1,030	21,400	16,700	70,500	53,600

<sup>r</sup>Revised. NA Not available. XX Not applicable. -- Zero.

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

<sup>2</sup>Presentation of monthly data is based on the quantities (gross weight or contained weight) of the five leading countries or localities in May.

<sup>3</sup>Harmonized Tariff Schedule of the United States.

<sup>4</sup>May include catalysts containing vanadium pentoxide.

Source: U.S. Census Bureau.

TABLE 5  
U.S. IMPORTS AND EXPORTS OF ALUMINUM VANADIUM MASTER ALLOY,  
VANADIUM SULFATES, VANADATES, VANADIUM METAL AND U.S. IMPORTS OF SLAG<sup>1,2</sup>

(Kilograms, gross and contained weight)

Country or locality	HTS <sup>3</sup> code	2020					
		April		May		January–May	
		Gross weight	Contained weight	Gross weight	Contained weight	Gross weight	Contained weight
<b>Imports for consumption:</b>							
Slag, from the manufacture of iron and steel	2619.00.9000						
Canada		83,500 <sup>r</sup>	NA	2,980,000	NA	3,230,000	NA
Finland		3,480 <sup>r</sup>	NA	11,800	NA	19,400	NA
Other, Mexico		16,900	NA	--	NA	101,000	NA
Total		104,000 <sup>r</sup>	XX	2,990,000	XX	3,350,000	XX
Vanadium sulfates, China	2833.29.3000	2,000	1,250	--	--	4,190	2,620
Vanadates	2841.90.1000						
United Kingdom		--	--	5,730	2,200	7,380	3,560
Other [6 countries and (or) localities]		114,000 <sup>r</sup>	57,800 <sup>r</sup>	--	--	157,000	84,100
Total		114,000	57,800	5,730	2,200	164,000	87,600
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
China		8,000	5,360	4,000	2,670	12,000	8,030
Germany		4	2	24	20	266	244
Other [5 countries and (or) localities]		22 <sup>r</sup>	22 <sup>r</sup>	--	--	39,100	25,800
Total		8,030	5,390	4,030	2,690	51,300	34,100
<b>Exports:</b>							
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
Italy		--	--	261	NA	268	NA
United Kingdom		--	--	137	NA	1,060	NA
Other [9 countries and (or) localities]		1,040 <sup>r</sup>	NA	--	--	15,100	NA
Total		1,040	XX	398	XX	16,500	XX

<sup>r</sup>Revised. NA Not available. XX Not applicable. -- Zero.

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

<sup>2</sup>Presentation of monthly data is based on the quantities (gross weight or contained weight) of the five leading countries in May.

<sup>3</sup>Harmonized Tariff Schedule of the United States.

Source: U.S. Census Bureau.