

# Mineral Industry Surveys

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## VANADIUM IN JULY 2020

Reported domestic vanadium consumption in July 2020 was essentially the same compared with the revised consumption in June 2020. Monthly reported domestic vanadium consumption was revised from January 2020 to June 2020 in order to include consumption data from an annually reported domestic vanadium consumer (tables 1 and 2).

Consumer stocks of all forms of vanadium were 177 metric tons (t) of contained vanadium at the end of July, a decrease from 192 t at yearend 2019, and 10% more when compared with 161 t in June 2020 (table 1).

**Prices**

According to CRU Group (2020), U.S. ferrovandium (FeV) prices ranged from \$9.428 to \$9.917 per pound of contained vanadium in July 2020, compared with \$9.750 to \$10.350 per pound in June 2020. In Europe, FeV prices ranged from \$22.722 to \$23.222 per kilogram of contained vanadium in July 2020, compared with from \$24.111 to \$24.600 per kilogram in June 2020. In China, vanadium pentoxide (V<sub>2</sub>O<sub>5</sub>) prices ranged from \$6.300 to \$6.500 per pound of contained vanadium in both June and July 2020 (fig. 1).

**Reference Cited**

CRU Group, 2020, Noble alloys and minor metals prices: CRU Group, September 1. (Accessed September 22, 2020, via <http://www.crugroup.com/>.)

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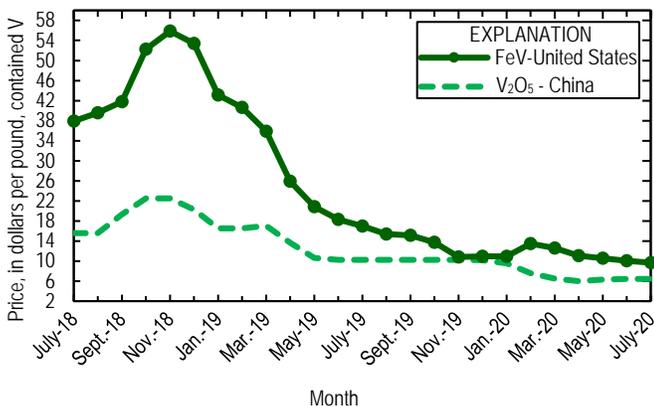


Figure 1. Average monthly prices for FeV and V<sub>2</sub>O<sub>5</sub> from July 2018 through July 2020. Source: CRU Group.

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

(Kilograms, contained vanadium)

	2020					
	June		July		January–July	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium <sup>2</sup>	350,000 <sup>r</sup>	123,000	351,000	139,000	2,410,000	139,000
Vanadium-aluminum alloy and other forms <sup>3</sup>	21,000	38,000	21,000	38,000	147,000	38,000
<b>Total</b>	<b>371,000 <sup>r</sup></b>	<b>161,000</b>	<b>372,000</b>	<b>177,000</b>	<b>2,550,000</b>	<b>177,000</b>

<sup>p</sup>Preliminary. <sup>r</sup>Revised.

<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		
	June	July	January– July
Steel:			
Carbon	W	W	W
Full alloy	101,000	101,000	705,000
High-strength low-alloy	W	W	W
Stainless and heat resisting	4,930	4,930	34,500
Tool	W	W	W
Total steel	106,000	106,000	739,000
Superalloys	W	W	W
Miscellaneous and unspecified <sup>2</sup>	W	W	W
Total	371,000 <sup>r</sup>	372,000	2,550,000

<sup>r</sup>Revised. 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								
		June			July			January–July		
		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	278	111	\$22,100	511	268	\$40,600	6,280	3,560	\$522,000
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000	(3)	(3)	625,000	261,000	24,900	847,000	261,000	24,900	6,270,000
Chemical compounds:										
Vanadium pentoxide (anhydride)	2825.30.0010	121,000	114,000	1,660,000	95,900	73,300	1,640,000	2,000,000	1,320,000	31,600,000
Vanadium oxides and hydroxides, other	2825.30.0050	20,000	13,200	458,000	1	1	3,820	101,000	66,500	2,830,000
Vanadium sulfates	2833.29.3000	100	62	3,180	--	--	--	4,290	2,680	28,300
Vanadates	2841.90.1000	57	48	4,580	--	--	--	164,000	87,700	1,720,000
Ferrovandium	7202.92.0000	93,300	58,900	3,270,000	187,000	146,000	3,640,000	1,150,000	750,000	38,500,000
Vanadium metal, including waste and scrap	8112.92.7000	272	122	62,700	--	--	--	272	122	62,700
Vanadium and articles thereof <sup>4</sup>	8112.99.2000	38,700	25,700	1,480,000	36,200	23,500	1,230,000	126,000	83,400	4,680,000
Total		274,000	212,000	7,580,000	580,000	268,000	7,400,000	3,810,000	2,340,000	86,200,000

-- 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					
		June		July		January–July	
		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		278	111	511	268	6,010	3,390
Other, Canada		--	--	--	--	278	167
Total		278	111	511	268	6,280	3,560
Vanadium pentoxide (anhydride) <sup>4</sup>	2825.30.0010						
Brazil		80,000	79,700	23,000	21,600	1,180,000	704,000
Germany		16,700	11,400	21,900	18,400	127,000	100,000
South Africa		--	--	51,000	33,300	510,000	341,000
Other [3 countries and (or) localities]		24,700 <sup>r</sup>	22,900 <sup>r</sup>	--	--	179,000	173,000
Total		121,000	114,000	95,900	73,300	2,000,000	1,320,000
Other oxides and hydroxides of vanadium	2825.30.0050						
Germany		--	--	1	1	1	1
Other [2 countries and (or) localities]		20,000 <sup>r</sup>	13,200 <sup>r</sup>	--	--	101,000	66,500
Total		20,000	13,200	1	1	101,000	66,500
Ferrovandium	7202.92.0000						
Austria		20,000	15,700	60,000	47,800	408,000	289,000
Canada		60,400	37,900	127,000	98,100	513,000	359,000
Other [4 countries and (or) localities]		12,900 <sup>r</sup>	5,250 <sup>r</sup>	--	--	233,000	102,000
Total		93,300	58,900	187,000	146,000	1,150,000	750,000
<b>Exports:</b>							
Vanadium ores and concentrates	2615.90.6090						
Canada		--	--	186	NA	186	NA
Taiwan		1,870	NA	4,330	NA	19,100	NA
Other [3 countries and (or) localities]		--	--	--	--	21,400	NA
Total		1,870	XX	4,510	XX	40,800	XX
Vanadium pentoxide (anhydride) <sup>4</sup>	2825.30.0010						
Trinidad and Tobago		--	--	NA	37,900	NA	37,900
Other [2 countries and (or) localities]		NA	57 <sup>r</sup>	--	--	NA	487
Total		XX	57	XX	37,900	XX	38,400
Other oxides and hydroxides of vanadium	2825.30.0050						
Canada		--	--	NA	234	NA	468
India		--	--	NA	11,000	NA	11,000
Other [3 countries and (or) localities]		--	--	--	--	NA	25,400
Total		--	--	XX	11,200	XX	36,800
Ferrovandium	7202.92.0000						
Australia		--	--	92	69	92	69
China		--	--	2,730	2,050	2,730	2,050
Mexico		--	--	9,740	7,310	34,500	25,900
Netherlands		--	--	42,300	31,700	42,300	31,700
Other [6 countries and (or) localities]		--	--	--	--	45,700	35,000
Total		--	--	54,800	41,100	125,000	94,700

<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 July.

<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 BEARING ASH AND RESIDUES,  
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					
		June		July		January–July	
		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		170,000	NA	195,000	NA	3,590,000	NA
Other [2 countries and (or) localities]		19,900 <sup>r</sup>	NA	--	--	140,000	NA
Total		190,000	XX	195,000	XX	3,730,000	XX
Vanadium bearing ash and residues, Belgium	2620.40.0030, 2620.99.1000	--	--	261,000	24,900	261,000	24,900
Vanadium sulfates	2833.29.3000						
Japan		100	62	--	--	100	62
Other, China		--	--	--	--	4,190	2,620
Total		100	62	--	--	4,290	2,680
Vanadates	2841.90.1000						
Austria		50	45	--	--	57,100	28,900
India		7	3	--	--	7	3
Other [6 countries and (or) localities]		--	--	--	--	107,000	58,700
Total		57	48	--	--	164,000	87,700
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
China		--	--	2	2	12,000	8,030
Germany		1,700	1,270	272	122	1,700	1,390
Russia		37,300	24,600	36,200	23,500	110,000	72,300
Other [5 countries and (or) localities]		--	--	--	--	2,110	1,590
Total		39,000	25,900	36,400	23,600	126,000	83,400
<b>Exports:</b>							
Vanadium bearing ash and residues	2620.50.0000, 2620.99.1000						
Italy		39,500	NA	37,600	NA	165,000	NA
Thailand		--	--	34,200	NA	34,200	NA
Other [3 countries and (or) localities]		36,600 <sup>r</sup>	NA	--	--	162,000	NA
Total		76,100	XX	71,800	XX	362,000	XX
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
China		--	--	1,100	NA	1,100	NA
Other [11 countries and (or) localities]		4,970 <sup>r</sup>	NA	--	--	21,400	NA
Total		4,970	XX	1,100	XX	22,500	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 July.

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

Source: U.S. Census Bureau.