

Mineral Industry Surveys

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VANADIUM IN JANUARY 2020

Reported domestic vanadium consumption was 242 metric tons (t) of contained vanadium in January 2020, slightly less than consumption in December 2019 and essentially unchanged compared with that in January 2019. Consumer stocks of all forms of vanadium were 190 t at the end of January, a decrease from 192 t at yearend 2019 (table 1).

Prices

According to CRU Group (2020), U.S. ferrovanadium (FeV) prices ranged from \$10.694 to \$11.189 per pound of contained vanadium in January 2020, compared with \$10.517 to \$11.306 per pound in December 2019. In Europe, FeV prices ranged from \$24.594 to \$25.789 per kilogram of contained vanadium in January 2020, compared with \$22.472 to \$23.378 per kilogram in December 2019. In China, vanadium pentoxide (V₂O₅) prices ranged from \$9.222 to \$9.811 per pound of contained vanadium in January 2020, compared with \$10.000 to \$10.400 per pound in December 2019 (fig. 1).

Reference Cited

CRU Group, 2020, Noble alloys and minor metals prices: CRU Group, February 28. (Accessed March 31, 2020, via <http://www.crugroup.com/>)

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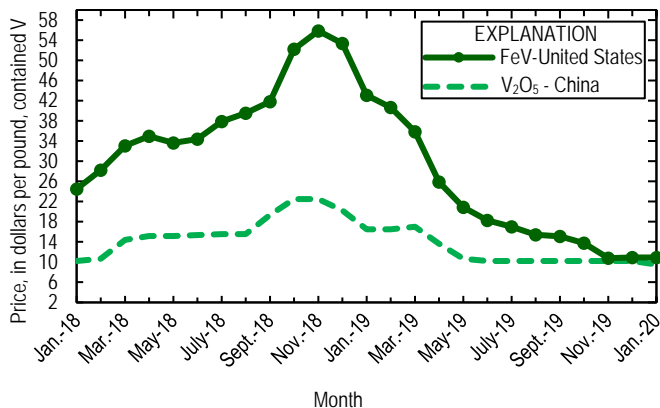


Figure 1. Average monthly prices for FeV and V₂O₅ from January 2018 through January 2020. Source: CRU Group.

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

(Kilograms, contained vanadium)

	2019				2020	
	December		January–December		January	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium ²	223,000	154,000	2,640,000	154,000	221,000	152,000
Vanadium-aluminum alloy and other forms ³	21,100	37,600	252,000	37,600	21,000	38,000
Total	244,000	192,000	2,890,000	192,000	242,000	190,000

^pPreliminary.

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 USE¹

(Kilograms, contained vanadium)

	2019		2020 January
	December	January– December	
Steel:			
Carbon	W	W	W
Full alloy	101,000	1,210,000	101,000
High-strength low-alloy	W	W	W
Stainless and heat resisting	4,930	59,200	4,930
Tool	W	W	W
Total steel	106,000	1,270,000	106,000
Superalloys	W	W	W
Miscellaneous and unspecified ²	W	W	W
Total	244,000	2,890,000	242,000

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	January–December 2019			January 2020		
		Gross weight	Contained weight	Value (thousands)	Gross weight	Contained weight	Value (thousands)
Vanadium ores and concentrates	2615.90.6090	728,000	191,000	\$9,310,000	1,180	684	\$90,800
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000	21,400,000	2,120,000	58,800,000	(3)	(3)	1,710,000
Chemical compounds:							
Vanadium pentoxide (anhydride)	2825.30.0010	3,910,000	3,650,000	110,000,000	445,000	291,000	6,930,000
Vanadium oxides and hydroxides, other	2825.30.0050	162,000	105,000	6,840,000	21,000	13,800	416,000
Vanadium sulfates	2833.29.3000	86,600	73,400	623,000	--	--	--
Vanadates	2841.90.1000	117,000	72,900	3,260,000	--	--	--
Ferrovandium	7202.92.0000	3,380,000	2,260,000	163,000,000	138,000	87,800	7,730,000
Vanadium metal, including waste and scrap	8112.92.7000	57,800	44,500	4,100,000	--	--	--
Vanadium and articles thereof ⁴	8112.99.2000	332,000	222,000	17,600,000	37,800	24,600	1,270,000
Total		30,200,000	8,740,000	374,000,000	642,000	417,000	18,200,000

¹Revised. -- Zero.

²Data are rounded to no more than three significant digits; may not add to totals shown.

³Harmonized Tariff Schedule of the United States.

⁴Withheld to avoid disclosing company proprietary data; not included in "Total".

⁵Aluminum-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	January–December 2019		December 2019		January 2020	
		Gross weight	Contained weight	Gross weight	Contained weight	Gross weight	Contained weight
Imports for consumption:							
Vanadium ores and concentrates	2615.90.6090						
Canada		1,580	946	--	--	278	167
Mexico		91,600	52,400	2,740	1,530	900	517
Other [2 countries and (or) localities]		635,000	137,000	--	--	--	--
Total		728,000	191,000	2,740	1,530	1,180	684
Vanadium pentoxide (anhydride) ³	2825.30.0010						
Brazil		2,110,000	1,980,000	170,000	99,100	260,000	145,000
China		92,300	52,900	--	--	5,060	5,030
Germany		150,000	139,000	11,000	8,800	6,880	3,930
South Africa		1,430,000	1,370,000	120,000	93,200	163,000	127,000
Taiwan		65,300	63,400	--	--	10,000	9,940
Other [4 countries and (or) localities]		52,100 ^r	46,900 ^r	--	--	--	--
Total		3,910,000	3,650,000	301,000	201,000	445,000	291,000
Other oxides and hydroxides of vanadium	2825.30.0050						
Morocco		--	--	--	--	983	627
South Africa		162,000	105,000	20,000	13,200	20,000	13,100
Other, Germany		1	1	--	--	--	--
Total		162,000	105,000	20,000	13,200	21,000	13,800
Ferrovandium	7202.92.0000						
Austria		749,000	561,000	20,000	15,800	80,700	47,100
Canada		1,230,000	941,000	114,000	85,600	39,600	31,600
Latvia		219,000	103,000	--	--	5,250	4,200
Ukraine		474,000	233,000	9,070	4,640	12,100	4,920
Other [6 countries and (or) localities]		703,000 ^r	421,000 ^r	50,000 ^r	23,500 ^r	--	--
Total		3,380,000	2,260,000	193,000	129,000	138,000	87,800
Exports:							
Vanadium ores and concentrates	2615.90.6090						
Cambodia		10,500	NA	3,120	NA	7,120	NA
Taiwan		23,900	NA	14,900	NA	4,080	NA
Other [5 countries and (or) localities]		134,000	NA	3,710	NA	--	--
Total		169,000	XX	21,700	XX	11,200	XX
Vanadium pentoxide (anhydride) ⁴	2825.30.0010						
Germany		NA	49,600	NA	409	--	--
Mexico		NA	987	NA	887	--	--
Other [6 countries and (or) localities]		NA	373,000	--	--	--	--
Total		XX	423,000	XX	1,300	--	--
Other oxides and hydroxides of vanadium	2825.30.0050						
Canada		NA	80,100	NA	8,170	NA	234
Other [7 countries and (or) localities]		NA	669,000	NA	76,300 ^r	--	--
Total		XX	750,000	XX	84,500	XX	234
Ferrovandium	7202.92.0000						
Canada		55,400	41,500	--	--	812	609
Chile		3,040	1,750	--	--	1,040	782
Colombia		14,000	10,500	--	--	200	150
Korea, Republic of		2,860	2,150	959	719	1,920	1,440
Mexico		315,000	205,000	11,000	8,250	670	503
Other, India		45,300 ^r	34,000 ^r	18,000	13,500	--	--
Total		436,000	295,000	30,000	22,500	4,640	3,480

^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 January.

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	January–December 2019		December 2019		January 2020	
		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		155,000,000	NA	76,800	NA	86,400	NA
Other [6 countries and (or) localities]		535,000 ^r	NA	29,400 ^r	NA	--	--
Total		156,000,000	XX	106,000	XX	86,400	XX
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000						
Canada		20,600,000	3,600,000 ^r	1,660,000	290,000 ^r	--	--
Other [3 countries and (or) localities]		813,000	182,000 ^r	--	--	--	--
Total		21,400,000	3,780,000 ^r	1,660,000	290,000 ^r	--	--
Vanadium sulfates	2833.29.3000						
Finland		79,500	69,000	19,700	12,300	--	--
Other, China		7,030	4,390	--	--	--	--
Total		86,600	73,400	19,700	12,300	--	--
Vanadates	2841.90.1000						
Germany		14,700	5,840	500	220	--	--
India		26	18	9	6	--	--
Other [6 countries and (or) localities]		103,000	67,100	--	--	--	--
Total		117,000	72,900	509	226	--	--
Vanadium metal, including waste and scrap and Aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
Belgium		2,750	2,750	--	--	1,500	975
Germany		50,200	38,100	--	--	1	1
Mexico		2,610	2,140	--	--	35	35
Russia		283,000	186,000	38,300	25,600	36,300	23,600
Other [6 countries and (or) localities]		51,800 ^r	37,600 ^r	5 ^r	5 ^r	--	--
Total		390,000	267,000	38,300	25,600	37,800	24,600
Exports:							
Vanadium bearing ash and residues	2620.50.0000, 2620.99.1000						
Italy		19,700	NA	--	--	19,500	NA
Other [3 countries and (or) localities]		2,260,000 ^r	NA	128,000 ^r	NA	--	--
Total		2,280,000	XX	128,000	XX	19,500	XX
Vanadium metal, including waste and scrap and Aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
France		10,100	NA	181	NA	518	NA
Saudi Arabia		--	--	--	--	89	NA
Singapore		--	--	--	--	113	NA
Other [15 countries and (or) localities]		68,100 ^r	NA	640 ^r	NA	--	--
Total		78,200	XX	821	XX	720	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 January.

³Harmonized Tariff Schedule of the United States.

Source: U.S. Census Bureau.