

Mineral Industry Surveys

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VANADIUM IN SEPTEMBER 2020

Reported domestic vanadium consumption in September 2020 was essentially unchanged from consumption in August 2020, and 55% more than consumption in September 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 180 metric tons (t) of contained vanadium at the end of September 2020, essentially unchanged compared with consumer stocks in August 2020 and a 6% decrease from 192 t at yearend 2019 (table 1).

Prices

According to CRU Group (2020), U.S. ferrovanadium (FeV) prices ranged from \$9.672 to \$10.633 per pound of contained vanadium in September 2020, compared with \$9.488 to \$10.213 per pound in August 2020. In Europe, FeV prices ranged from \$24.711 to \$25.233 per kilogram of contained vanadium in September 2020, compared with \$23.325 to \$23.863 per kilogram in August 2020. In China, vanadium pentoxide (V_2O_5) prices have ranged from \$6.300 to \$6.500 per pound of contained vanadium since June 2020 (fig. 1).

Reference Cited

CRU Group, 2020, Noble alloys and minor metals prices: CRU Group, November 2. (Accessed November 16, 2020, via <http://www.crugroup.com/>.)

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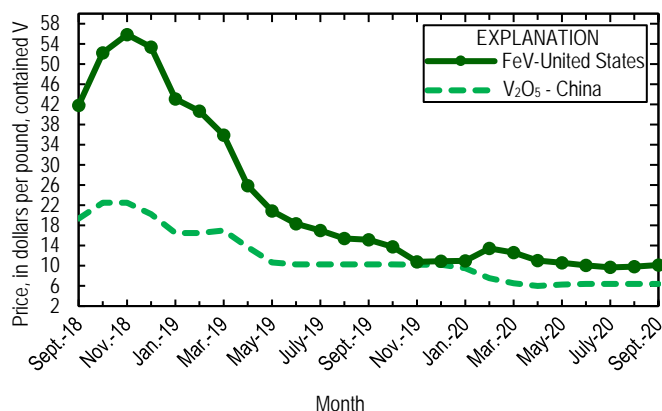


Figure 1. Average monthly prices for FeV and V_2O_5 from September 2018 through September 2020. Source: CRU Group.

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

(Kilograms, contained vanadium)

	2020					
	August ^e		September ^e		January–September ^e	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium ²	351,000	140,000	350,000	140,000	3,110,000	140,000
Vanadium-aluminum alloy and other forms ³	24,500	40,500	23,500	40,000	195,000	40,000
Total	376,000	181,000	374,000	180,000	3,300,000	180,000

^eEstimated. ^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)

	2020		
	August	September	January– September
Steel:			
Carbon	W	W	W
Full alloy	98,200 ^e	97,900 ^e	901,000 ^e
High-strength low-alloy	W	W	W
Stainless and heat resisting	4,810 ^e	4,640 ^e	43,900 ^e
Tool	W	W	W
Total steel	103,000 ^e	103,000 ^e	945,000 ^e
Superalloys	W	W	W
Miscellaneous and unspecified ²	W	W	W
Total	376,000 ^e	374,000 ^e	3,300,000 ^e

^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	2020								
		August			September			January–September		
		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	--	--	--	--	--	--	6,280	3,560	\$522,000
Vanadium bearing ash and residues	2620.40.0030, 2620.99.1000	100,000	4,270	\$270,000	(3)	(3)	\$144,000	361,000	29,100	6,680,000
Chemical compounds:										
Vanadium pentoxide (anhydride)	2825.30.0010	98,000	91,700	1,350,000	81,700	77,200	1,200,000	2,180,000	1,490,000	34,100,000
Vanadium oxides and hydroxides, other	2825.30.0050	--	--	--	--	--	--	101,000	66,500	2,830,000
Vanadium sulfates	2833.29.3000	--	--	--	--	--	--	4,290	2,680	28,300
Vanadates	2841.90.1000	9,700	6,640	143,000	11,000	8,470	127,000	185,000	103,000	1,990,000
Ferrovandium	7202.92.0000	126,000	87,900	2,730,000	147,000	109,000	3,030,000	1,430,000	947,000	44,300,000
Vanadium metal, including waste and scrap	8112.92.7000	--	--	--	1	1	2,310	273	123	65,000
Vanadium and articles thereof ⁴	8112.99.2000	955	953	163,000	445	443	208,000	128,000	84,700	5,060,000
Total		335,000	191,000	4,650,000	240,000	195,000	4,710,000	4,390,000	2,720,000	95,600,000

-- 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					
		August		September		January–September	
		Gross weight	Contained weight	Gross weight	Contained weight	Gross weight	Contained weight
Imports for consumption:							
Vanadium pentoxide (anhydride) ⁴	2825.30.0010						
Brazil		79,900	79,700	40,000	39,900	1,300,000	823,000
Germany		8,000	6,400	10,000	5,710	145,000	112,000
South Africa		10,000	5,580	11,000	11,000	531,000	357,000
Taiwan		--	--	20,700	20,700	155,000	155,000
Other [2 countries and (or) localities]		60 ^r	34 ^r	--	--	44,100	38,400
Total		98,000	91,700	81,700	77,200	2,180,000	1,490,000
Ferrovanadium	7202.92.0000						
Austria		51,200	32,600	20,000	8,160	479,000	330,000
Canada		63,300	50,500	125,000	99,400	701,000	509,000
Sweden		--	--	2,000	1,610	2,000	1,610
Other [4 countries and (or) localities]		12,000 ^r	4,880 ^r	--	--	245,000	107,000
Total		126,000	87,900	147,000	109,000	1,430,000	947,000
Exports:							
Vanadium ores and concentrates	2615.90.6090						
Cambodia		3,060	NA	--	--	17,600	NA
India		470	NA	--	--	5,730	NA
Taiwan		9,560	NA	--	--	28,700	NA
Other [2 countries and (or) localities]		--	--	--	--	1,790	NA
Total		13,100	XX	--	--	53,800	XX
Vanadium pentoxide (anhydride) ⁴	2825.30.0010						
India		NA	4,210	NA	4,740	NA	8,950
Other [3 countries and (or) localities]		--	--	--	--	NA	38,400
Total		XX	4,210	XX	4,740	XX	47,300
Other oxides and hydroxides of vanadium	2825.30.0050						
China		NA	816	--	--	NA	3,000
Trinidad and Tobago		NA	7,450	--	--	NA	7,450
Other [4 countries and (or) localities]		--	--	--	--	NA	34,600
Total		XX	8,270	--	--	XX	45,100
Ferrovanadium	7202.92.0000						
Canada		--	--	6,800	5,100	7,620	5,710
Chile		--	--	3,050	2,290	4,090	3,070
China		760	570	19,700	14,800	23,200	17,400
Mexico		--	--	7,970	5,980	42,500	31,900
Peru		--	--	411	252	411	252
Other [7 countries and (or) localities]		9,650 ^r	7,230 ^r	45	34	95,900	72,700
Total		10,400	7,800	38,000	28,400	174,000	131,000

^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 September.

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					
		August		September		January–September	
		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		594,000	NA	1,270,000	NA	5,460,000	NA
Finland		--	--	1,800	NA	21,200	NA
Mexico		77,700	NA	18,100	NA	217,000	NA
Total		671,000	XX	1,290,000	XX	5,690,000	XX
Vanadium bearing ash and residues, Belgium	2620.40.0030, 2620.99.1000	100,000	4,270	--	--	361,000	29,100
Vanadates	2841.90.1000						
South Africa		4,000	2,840	11,000	8,470	15,000	11,300
Other [8 countries and (or) localities]		5,700 ^r	3,800 ^r	--	--	170,000	91,500
Total		9,700	6,640	11,000	8,470	185,000	103,000
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
Russia		954	952	445	443	112,000	73,700
United Kingdom		--	--	1	1	2	2
Other [6 countries and (or) localities]		1 ^r	1 ^r	--	--	16,100	11,100
Total		955	953	446	444	128,000	84,900
Exports:							
Vanadium bearing ash and residues	2620.50.0000, 2620.99.1000						
Mexico		2,950	NA	18,100	NA	21,100	NA
Netherlands		--	--	173,000	NA	264,000	NA
Other [4 countries and (or) localities]		29,100 ^r	NA	--	--	300,000	NA
Total		32,100	XX	191,000	XX	585,000	XX
Vanadium metal, including waste and scrap and aluminum-vanadium master alloy	8112.92.7000, 8112.99.2000						
Italy		--	--	464	NA	732	NA
Other [11 countries and (or) localities]		1,140 ^r	NA	--	--	23,400	NA
Total		1,140	XX	464	XX	24,100	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 September.

³Harmonized Tariff Schedule of the United States.

Source: U.S. Census Bureau.