

# Mineral Industry Surveys

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## VANADIUM IN SEPTEMBER 2001

According to Metal Bulletin, U.S. ferrovanadium prices during September ranged from \$3.80 to \$4.00 per pound of vanadium content, compared with \$3.90 to \$4.30 in August. The range for European ferrovanadium prices in September was \$7.45 to \$7.80 per kilogram of vanadium content. In August, European ferrovanadium ranged from \$7.60 to \$8.15. For vanadium pentoxide, the September range was \$1.30 to \$1.42 per pound.

South Africa's Highveld Steel & Vanadium Corp. and Japan's Nippon Denko and Mitsui & Co., Ltd. agreed to begin a feasibility study aimed at increasing ferrovanadium conversion capacity in South Africa. Mitsui and Nippon Denko will transfer demand for their existing vanadium products within the Japanese market to the South African plant and will provide

their aluminothermic technology to produce ferrovanadium for the joint venture. Highveld will provide a stable supply of vanadium pentoxide at a competitive price and will manage the operation. The move by Mitsui was not unexpected as slumping prices and increased imports, notably from China, forced the company to close its Awamura conversion plant in Japan. During 2000, Awamura produced 9,000 metric tons of ferrovanadium, a 22% share of the local market (Metal Bulletin, 2001).

### Reference Cited

Metal Bulletin, 2001, Highveld, Nippon Mining and Mitsui join in FeV venture:  
Metal Bulletin, no. 8604, September 3, p. 9.

TABLE 1  
U.S. CONSUMPTION AND CONSUMER STOCKS OF VANADIUM, BY FORM 1/

(Kilograms, contained vanadium)

	2000		2001			
	Consumption	Stocks	August		September	
			Consumption	Stocks r/	Consumption	Stocks
Ferrovandium 2/	3,460,000	228,000	252,000 r/	183,000	221,000	231,000
Vanadium-aluminum alloy	W	9,800	W	7,850	W	9,920
Other 3/	403,000	7,350	37,900	5,890	48,500	7,440
Total	3,860,000	245,000	290,000 r/	196,000	270,000	248,000

r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

1/ Data are rounded to three significant digits; may not add to totals shown.

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

3/ Includes other vanadium alloys, vanadium metal, vanadium pentoxide, vanadates, chlorides, other specialty chemicals, and items indicated by symbol W.

TABLE 2  
U.S. CONSUMPTION OF VANADIUM, BY END USE 1/

(Kilograms, contained vanadium)

	2000	2001		
		August	September	Year to date
Steel:				
Carbon	1,220,000	77,700	77,900	858,000
High-strength low-alloy	981,000	77,200 r/	67,100	651,000
Stainless and heat-resisting	68,000	W	W	W
Full alloy	866,000	67,400 r/	48,000	558,000
Tool	303,000	W	W	W
Total steel	3,440,000	247,000 r/	217,000	2,290,000
Superalloys	16,800	1,410	1,420	12,400
Miscellaneous and unspecified 2/	409,000	41,300	51,400	306,000
Total consumption	3,860,000	290,000 r/	270,000	2,610,000

r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Total Steel."

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

2/ Includes cast irons, alloys excluding steel and superalloys, chemical and ceramic uses, and other miscellaneous and unspecified uses.

TABLE 3  
U.S. IMPORTS AND EXPORTS OF ALUMINUM-VANADIUM MASTER ALLOY AND  
VANADIUM METAL, INCLUDING WASTE AND SCRAP 1/

(Kilograms, gross weight)

	Aluminum-vanadium master alloy		Vanadium metal, including waste and scrap	
	Quantity	Value	Quantity	Value
<b>Imports for consumption:</b>				
2000	16,400	\$83,200	44,800	\$939,000
2001:				
June	1,710	--	199	11,000
July	--	--	71	40,900
August:				
Germany	--	--	97	52,900
United Kingdom	--	--	1	2,590
Total	--	--	98	55,500
Year to date	3,710	17,600	20,000	429,000
<b>Exports:</b>				
2000	677,000	9,120,000	105,000	1,680,000
2001:				
June	6,780	150,000	--	--
July	42,400	847,000	7,800	33,900
August:				
Canada	2,910	85,500	--	--
El Salvador	447	13,100	--	--
Hong Kong	4,090	110,000	--	--
Korea, Republic of	731	21,500	--	--
Malaysia	4,500	120,000	--	--
Taiwan	606	17,800	--	--
United Kingdom	--	--	17	9,680
Total	13,300	368,000	17	9,680
Year to date	259,000	4,780,000	14,700	223,000

-- Zero.

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

Source: U.S. Census Bureau.

TABLE 4  
U.S. IMPORTS AND EXPORTS OF FERROVANADIUM, VANADIUM PENTOXIDE (ANHYDRIDE) AND  
OTHER OXIDES AND HYDROXIDES OF VANADIUM 1/

(Kilograms, contained vanadium)

	Ferrovanadium		Vanadium pentoxide (anhydride) 2/		Other oxides and hydroxides of vanadium	
	Quantity	Value	Quantity	Value	Quantity	Value
<b>Imports for consumption:</b>						
2000	2,510,000	\$24,900,000	902,000	\$6,260,000	13,500	\$231,000
2001:						
June	116,000	949,000	61,300	418,000	3,990	72,300
July	262,000	2,190,000	30,200	163,000	--	--
August:						
Austria	7,810	65,300	--	--	--	--
Canada	19,400	157,000	--	--	--	--
China	34,700	280,000	--	--	--	--
South Africa	90600	727000	54,900	375,000	--	--
Total	152,000	1,230,000	54,900	375,000	--	--
Year to date	1,670,000	13,500,000	439,000	2,500,000	22,500	262,000

See footnotes at end of table.

TABLE 4--Continued  
 U.S. IMPORTS AND EXPORTS OF FERROVANADIUM, VANADIUM PENTOXIDE (ANHYDRIDE) AND  
 OTHER OXIDES AND HYDROXIDES OF VANADIUM 1/

(Kilograms, contained vanadium)

	Ferrovanadium		Vanadium pentoxide (anhydride) 2/		Other oxides and hydroxides of vanadium	
	Quantity	Value	Quantity	Value	Quantity	Value
Exports:						
2000	172,000	\$2,360,000	653,000	\$3,360,000	99,800	\$741,000
2001:						
June	617	16,900	2,030	25,200	2,930	30,300
July	602	10,200	5,060	28,200	11,300	81,300
August:						
Canada	--	--	--	--	2,270	20,300
Total	--	--	--	--	2,270	20,300
Year to date	54,300	617,000	47,900	278,000	52,400	461,000

-- Zero.

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

2/ May include catalysts containing vanadium pentoxide.

Source: U.S. Census Bureau.

TABLE 5  
 U.S. IMPORTS FOR CONSUMPTION OF VANADIUM-BEARING ASH, SLAG 1/

(Kilograms, contained vanadium pentoxide)

	Ash and residues		Ash and residues (not from the manufacture of iron and steel)		Slag, from the manufacture of iron and steel	
	Quantity	Value	Quantity	Value	Quantity	Value
2000	2,420,000	\$2,210,000	4,100,000	\$1,680,000	959,000	\$1,650,000
2001:						
June	143,000	205,000	71,100	94,400	--	--
July	254,000	192,000	285,000	143,000	--	--
August:						
Canada	--	--	199,000	123,000	--	--
Mexico	67,700	46,200	--	--	--	--
Total	67,700	46,200	199,000	123,000	--	--
Year to date	1,370,000	1,550,000	1,740,000	1,020,000	657,000	761,000

-- Zero.

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

Source: U.S. Census Bureau.

TABLE 6  
 U.S. IMPORTS FOR CONSUMPTION OF MISCELLANEOUS  
 VANADIUM CHEMICALS 1/

(Kilograms, contained vanadium)

	Sulfates		Vanadates	
	Quantity	Value	Quantity	Value
2000	872	\$31,000	148,000	\$1,040,000
2001:				
June	--	--	--	--
July	--	--	44,100	194,000
August	--	--	--	--
Year to date	--	--	96,000	557,000

-- Zero.

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

Source: U.S. Census Bureau.