

Mineral Industry Surveys

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VANADIUM IN DECEMBER 2004

Reported domestic consumption of vanadium in December 2004 was about 6% more than that of the previous month and was about 36% more than that of December 2003, according to the U.S. Geological Survey. Year-to-date consumption of vanadium from January through December was about 23% more than during the same period in 2003. Consumer stocks of vanadium, in all forms, were 238 metric tons (t) at the beginning of 2004 and 398 t at the end of December.

According to Ryan's Notes (2004), U.S. ferrovanadium (FeV) prices ranged from \$22.143 to \$23.143 per pound of vanadium content in December, as compared with \$16.219 to \$16.969 in November. European FeV prices ranged from \$46.714 to \$48.571 per kilogram in December, as compared with \$37.125 to \$38.875 in November. Vanadium pentoxide (V₂O₅) prices ranged from \$9.286 to \$9.786 per pound in December as compared with \$7.688 to \$8.188 in November.

United States ferrovanadium prices rose about 30% in December owing to a surge in buying by consumers trying to cover shortages from their normal suppliers. One supplier stated, "We have no material available other than for our contract sales." A producer source pointed to the closure of the Xstrata, Plc. Windimurra Mine in Australia and their Vantech operation in South Africa as the major reason for a global restriction in both ferrovanadium and vanadium pentoxide supply. Consumers acknowledged that prices were up but said they expected them to decline with the arrival of the holiday season (Platts Metals Week, 2004).

European ferrovanadium buyers were desperate to lock in supply on long-term, formula-based contracts, as supply was forecast to be even more limited in 2005. Ferrovanadium traded at more than \$46 per kilogram, and small tonnages commanded a premium of \$1-2 per kilogram. Producers Xstrata Plc., Highveld, Treibacher, Tulachermet Vanadium, Pangang, and Stratcor Corp. dominate the supply of ferrovanadium, and few if any were believed to have any stockpiles. "We're very well booked for the first quarter, and now everyone wants long-term contracts," said one supplier (Metal Bulletin, 2004a).

Russian ferrovanadium producer Tulachermet Vanadium (Vanady Tula), which is owned by Industrial Metallurgical Holding, stood to gain from the Russian Government decision to abolish the 6.5% export duty on vanadium oxides. Vanady Tula sourced its vanadium units from slag supplied by Nizhny Tagil Metallurgical Integrated Works and converted it to pentoxide at its Tula operation. This change meant that Vanady Tula wouldn't have to pay to send vanadium pentoxide outside Russia for conversion to ferrovanadium (Metal Bulletin, 2004b).

References Cited

- Metal Bulletin, 2004a, Buyers seek long-term contracts: Metal Bulletin, no. 8871, December 6, p. 18.
- Metal Bulletin, 2004b, Russian ferro-vanadium producer Vanady Tula: Metal Bulletin, no. 8871, December 6, p. 18.
- Platts Metals Week, 2004, US FeV jumps over \$20 on year-end buys: Platts Metals Week, v. 75, no. 49, December 65, p. 6.
- Ryan's Notes, 2004, [untitled]: Ryan's Notes, v. 11, no. 1, January 3, p. 4.

TABLE 1
U.S. CONSUMPTION AND CONSUMER STOCKS OF VANADIUM, BY FORM¹

(Kilograms, contained vanadium)

	2003		2004			
	Consumption	Stocks	November		December	
			Consumption	Stocks	Consumption	Stocks
Ferrovandium ²	2,770,000	201,000	310,000 ^r	296,000	328,000	298,000
Vanadium-aluminum alloy	W	W	W	W	W	W
Other ³	188,000	37,400	18,900	7,720	21,800	101,000
Total	2,960,000	238,000	329,000 ^r	304,000	349,000	398,000

^rRevised. W Withheld to avoid disclosing company proprietary data; included with "Other."

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

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

³Includes 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 USE¹

(Kilograms, contained vanadium)

	2003	2004		
		November	December	Year to date ²
Steel:				
Carbon	783,000	86,400 ^r	103,000	1,010,000
High-strength low-alloy	924,000	93,800	96,200	1,150,000
Stainless and heat-resisting	64,500	5,360	5,470	64,500
Full alloy	799,000	90,300	87,000	1,060,000
Tool	143,000	33,800	35,600	238,000
Total steel	2,710,000	310,000 ^r	327,000	3,520,000
Superalloys	10,000	811	846	8,350
Miscellaneous and unspecified ³	235,000	18,600	21,400	211,000
Total consumption	2,960,000	329,000 ^r	349,000	3,770,000

^rRevised.

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

²Includes revisions to prior month's data.

³Includes 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 SCRAP¹

(Kilograms, gross weight)

	Aluminum-vanadium master alloy		Vanadium metal, including waste and scrap	
	Quantity	Value	Quantity	Value
Imports for consumption:				
2003	232,000	\$425,000	186,000	\$2,850,000
2004:				
September	68	4,080	143	81,700
October	--	--	--	--
November:				
Belgium	--	--	51	4,140
Germany	--	--	505	155,000
Russia	--	--	2,000	178,000
Total	--	--	2,560	338,000
Year to date	19,100	66,700	31,200	1,690,000
Exports:				
2003	6,710,000	16,700,000	201,000	3,910,000
2004:				
September	624,000	1,610,000	46,700	925,000
October	1,790,000	3,780,000	11,100	354,000
November:				
Austria	--	--	100	22,000
Canada	244,000	569,000	--	--
India	2,550	16,000	--	--
Japan	5,180	21,000	31,100	1,090,000
Korea, Republic of	1,620	10,100	--	--
Malaysia	2,020	9,680	--	--
Mexico	1,670,000	3,520,000	--	--
Senegal	--	--	202,000	987,000
Singapore	5,900	30,700	--	--
Taiwan	10,400	47,400	--	--
Thailand	16,000	73,800	--	--
United Kingdom	28,900	137,000	9,100	423,000
Total	1,990,000	4,430,000	242,000	2,520,000
Year to date	9,780,000	21,600,000	488,000	7,020,000

-- Zero.

¹Data 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 VANADIUM¹

(Kilograms, contained vanadium)

	Ferrovanadium		Vanadium pentoxide (anhydride) ²		Other oxides and hydroxides of vanadium	
	Quantity	Value	Quantity	Value	Quantity	Value
Imports for consumption:						
2003	1,360,000	\$14,300,000	474,000	\$3,610,000	38,700	\$769,000
2004:						
September	216,000	4,620,000	17,500	270,000	6,940	204,000
October	274,000	4,680,000	67,500	762,000	--	--
November:						
Austria	23,500	628,000	1,610	28,100	--	--
Canada	13,100	345,000	--	--	--	--
Czech Republic	98,000	2,510,000	--	--	--	--
Germany	--	--	--	--	56	8,470
South Africa	--	--	111,000	869,000	--	--
Swaziland	79,600	2,040,000	--	--	--	--
Total	214,000	5,520,000	112,000	897,000	56	8,470
Year to date	2,790,000	55,200,000	1,020,000	8,140,000	120,000	1,650,000
Exports:						
2003	397,000	5,420,000	185,000	1,540,000	284,000	2,450,000
2004:						
September	7,560	228,000	1,500	18,800	26,600	168,000
October	8,000	192,000	5,380	70,300	32,600	220,000
November:						
Australia	--	--	317	3,010	--	--
Canada	--	--	--	--	11,600	105,000
China	116,000	5,050,000	--	--	--	--
Mexico	681	25,000	--	--	--	--
Netherlands	2,740	76,500	--	--	--	--
South Africa	--	--	--	--	49,500	222,000
Trinidad and Tobago	--	--	4,060	76,700	--	--
Total	119,000	5,160,000	4,370	79,700	61,200	328,000
Year to date	260,000	8,440,000	235,000	1,930,000	582,000	4,130,000

-- Zero.

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

²May include catalysts containing vanadium pentoxide.

Source: U.S. Census Bureau.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF VANADIUM-BEARING ASH, SLAG¹

(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
2003	4,940,000	\$3,030,000	14,300,000	\$3,140,000	369,000,000	\$6,190,000
2004:						
September	324,000	789,000	780,000	144,000	2,000,000	448,000
October	355,000	792,000	330,000	69,200	1,460,000	1,130,000
November:						
Canada	--	--	431,000	59,600	48,100,000	819,000
Germany	--	--	--	--	11,100,000	30,500
Mexico	240,000	610,000	--	--	--	--
Total	240,000	610,000	431,000	59,600	59,200,000	849,000
Year to date	3,970,000	7,710,000	10,800,000	1,950,000	231,000,000	9,360,000

-- Zero.

¹Data 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 CHEMICALS¹

(Kilograms, contained vanadium)

	Sulfates		Vanadates	
	Quantity	Value	Quantity	Value
2003	--	--	72,900	\$902,000
2004:				
September	--	--	2,020	44,000
October	--	--	652	22,700
November:				
Germany	--	--	1,240	40,800
South Africa	--	--	7,340	121,000
Total	--	--	8,580	161,000
Year to date	500	19,100	62,500	1,010,000

-- Zero.

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

Source: U.S. Census Bureau.