

# Mineral Industry Surveys

## For information, contact:

Michael J. Magyar, Vanadium Commodity Specialist  
U.S. Geological Survey  
989 National Center  
Reston, VA 20192  
Telephone: (703) 648-4964, Fax: (703) 648-7757  
E-mail: mmagyar@usgs.gov

Subina W. Pandey (Data)  
Telephone: (703) 648-7966  
Fax: (703) 648-7975  
E-mail: spandey@usgs.gov

**Internet:** <http://minerals.usgs.gov/minerals>

## VANADIUM IN FEBRUARY 2004

Reported domestic consumption of vanadium in February 2004 was about 3% less than that of the previous month and was about 5% more than that of February 2003, according to the U.S. Geological Survey. Consumer stocks of vanadium, in all forms, were 238 metric tons (t) at the beginning of 2004, and 218 t at the end of February.

According to Ryan's Notes (2004d), U.S. ferrovanadium (FeV) prices ranged from \$12.325 to \$13.263 per pound of vanadium content in February, as compared with \$8.288 to \$8.769 in January. European FeV prices ranged from \$22.850 to \$23.438 per kilogram in February as compared with \$17.575 to \$18.250 in January. In the United States, FeV spot sales were booked at \$14.50 per pound, and European FeV spot prices were above \$23.00 per kilogram at the end of February (Ryan's Notes, 2004a). In February, vanadium pentoxide ( $V_2O_5$ ) prices ranged from \$4.338 to \$4.600 per pound, as compared with \$3.119 to \$3.250 in January.  $V_2O_5$  spot sales in the United States rose to \$5.00 to \$5.15 per pound from about \$3.55 to \$4.00 at the end of January.

The strike at Shieldalloy Metallurgical Corporation's (Shieldalloy) Cambridge, OH, plant continued as the plant operated with 29 replacement workers. General Manager Hoy E. Frakes, Jr. reportedly said "*force majeure* had not been declared" and "we are trying to take care of our customers." Suppliers pointed to the strike as the reason for current (early February) tight spot ferrovanadium supply; however, Frakes noted that Shieldalloy does not make spot sales of its Ferrovan ferrovanadium product. United Steelworkers of America

representatives and Shieldalloy had held some negotiations (Platts Metals Week, 2004).

Russia's Tulachermet-Vanadium (Tula) operated at 65% of capacity in 2003 and for 2004 "we still have the same approach of balanced production planning based on real orders," said Yuri Mishin, Tula's marketing director. Tula continues to sell directly to customers in Europe and Asia through its marketing arm, Alpicom S.A. (Alpicom), and expects to send more ferrovanadium to China where demand is expected to be strong (Ryan's Notes, 2004b). In addition, Tula has appointed Mineraiis, US, Inc. (Mineraiis) as its North American sales agent for ferrovanadium. Mineraiis confirmed that it has been selling 80% ferrovanadium in the United States for Alpicom since November 2003. The ferrovanadium is not subject to antidumping duties on Russian imports because it is produced by the Czech converter, Nikkom, using vanadium pentoxide from Tula (Ryan's Notes, 2004c).

## References Cited

- Platts Metals Week, 2004, Strike continues at Ohio FeV plant: Platts Metals Week, v. 75, no. 5, February 2, p. 12.  
Ryan's Notes, 2004a, Ferrovanadium prices were steady: Ryan's Notes, v. 10, no. 8, February 23, p. 4.  
Ryan's Notes, 2004b, Limited production at Tula confirmed: Ryan's Notes, v. 10, no. 5, February 2, p. 2.  
Ryan's Notes, 2004c, Tulachermet has appointed Mineraiis: Ryan's Notes, v. 10, no. 6, February 9, p. 5.  
Ryan's Notes, 2004d, [untitled]: Ryan's Notes, v. 10, no. 9, March 1, p. 4.

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

(Kilograms, contained vanadium)

	2003 <sup>p</sup>		2004			
			January		February	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium <sup>2</sup>	2,860,000	201,000	243,000	193,000	239,000	190,000
Vanadium-aluminum alloy	W	W	W	W	W	W
Other <sup>3</sup>	195,000	37,400	23,600	15,200	19,600	27,400
Total	3,060,000	238,000	267,000	208,000	259,000	218,000

<sup>p</sup>Preliminary. W Withheld to avoid disclosing company proprietary data; included with "Other."

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

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

<sup>3</sup>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<sup>1</sup>

(Kilograms, contained vanadium)

	2003 <sup>p</sup>	2004		
		January	February	Year to date <sup>2</sup>
Steel:				
Carbon	782,000	69,100	54,700	124,000
High-strength low-alloy	928,000	78,900	82,000	161,000
Stainless and heat-resisting	26,800	2,320	2,290	4,600
Full alloy	802,000	69,300	75,600	145,000
Tool	261,000	22,800	23,900	46,700
Total steel	2,800,000	242,000	238,000	481,000
Superalloys	13,800	1,210	920	2,130
Miscellaneous and unspecified <sup>3</sup>	242,000	23,300	19,300	42,600
Total consumption	3,060,000	267,000	259,000	526,000

<sup>p</sup>Preliminary.

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

<sup>2</sup>Includes revisions to prior month's data.

<sup>3</sup>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<sup>1</sup>

(Kilograms, gross weight)

	Aluminum-vanadium master alloy		Vanadium metal, including waste and scrap	
	Quantity	Value	Quantity	Value
<b>Imports for consumption:</b>				
2003	232,000	\$425,000	186,000	\$2,850,000
2004:				
January:				
Germany	--	--	267	145,000
Russia	--	--	997	74,500
Total	--	--	1,260	220,000
<b>Exports:</b>				
2003	6,710,000	16,700,000	201,000	3,910,000
2004:				
January:				
Canada	33,100	77,300	--	--
Germany	463	13,600	300	39,700
Hong Kong	701	20,600	--	--
Ireland	644	2,500	--	--
Japan	12,200	188,000	--	--
Mexico	127,000	208,000	--	--
Russia	109	3,200	--	--
United Kingdom	31,000	134,000	--	--
Singapore	1,780	8,490	--	--
Spain	317	4,120	--	--
Total	208,000	659,000	300	39,700

-- Zero.

<sup>1</sup>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<sup>1</sup>

(Kilograms, contained vanadium)

	Ferrovanadium		Vanadium pentoxide (anhydride) <sup>2</sup>		Other oxides and hydroxides of vanadium	
	Quantity	Value	Quantity	Value	Quantity	Value
<b>Imports for consumption:</b>						
2003	1,360,000	\$14,300,000	474,000	\$3,610,000	38,700	\$769,000
2004:						
January:						
Austria	--	--	1,680	11,100	--	--
Canada	81,200	944,000	--	--	--	--
Czech Republic	32,000	414,000	--	--	--	--
Germany	15,500	170,000	1,000	31,100	--	--
South Africa	--	--	53,400	352,000	--	--
Switzerland	94,400	1,140,000	--	--	--	--
Total	223,000	2,670,000	56,100	394,000	--	--
<b>Exports:</b>						
2003	397,000	5,420,000	185,000	1,540,000	284,000	2,450,000
2004:						
January:						
Canada	7,830	148,000	--	--	31,800	331,000
Mexico	--	--	--	--	13,500	76,700
Saudi Arabia	--	--	6,790	64,500	--	--
South Africa	--	--	--	--	16,000	74,100
Total	7,830	148,000	6,790	64,500	61,300	482,000

-- Zero.

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

<sup>2</sup>May include catalysts containing vanadium pentoxide.

Source: U.S. Census Bureau.

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

(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:						
January:						
Canada	--	--	1,450,000	293,000	--	--
Germany	--	--	--	--	16,800	28,600
Total	--	--	1,450,000	293,000	16,800	28,600

-- Zero.

<sup>1</sup>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<sup>1</sup>

(Kilograms, contained vanadium)

	Sulfates		Vanadates	
	Quantity	Value	Quantity	Value
2003	--	--	72,900	\$902,000
2004:				
January:				
Canada	--	--	4,260	178,000
Germany	--	--	177	15,300
South Africa	--	--	13,600	151,000
Total	--	--	18,000	344,000

-- Zero.

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

Source: U.S. Census Bureau.