

# Mineral Industry Surveys

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## VANADIUM IN MAY 2004

Reported domestic consumption of vanadium in May 2004 was about 6% less than that of the previous month and was about 14% more than that of May 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 214 t at the end of May.

According to Ryan's Notes (2004c), U.S. ferrovanadium (FeV) prices ranged from \$12.475 to \$12.900 per pound of vanadium content in May, as compared with \$12.911 to \$13.250 in April. European FeV prices ranged from \$26.375 to \$27.375 per kilogram in May as compared with \$25.889 to \$26.889 in April (Ryan's Notes, 2004a). In May, vanadium pentoxide ( $V_2O_5$ ) prices ranged from \$5.800 to \$6.000 per pound, as compared with \$6.050 to \$6.100 in April.

Metallurg Holdings, the parent of Metallurg, reportedly does not expect to have sufficient cash on hand to make interest payments due in June and December 2004 on a \$121 million senior note. Metallurg believes that refinancing and restructuring its senior indebtedness are necessary to its long-term viability. If Metallurg is not successful, reportedly it might have to seek protection under US bankruptcy code. Metallurg

owns Metallurg Vanadium, a division of Shieldalloy Metallurgical Corporation, and London & Scandinavian Metallurgical (Ryan's Notes, 2004a).

Xstrata Alloys will permanently close the Windimurra vanadium operation in Western Australia (Ryan's Notes, 2004b). The operation was commissioned in 1999 and was kept afloat by an off-take agreement with Glencore, which guaranteed \$3.50 per pound, for much of Windimurra's output. Windimurra's highest production rate was 5,440 tons per year (12 million pounds per year), in 2002. The plant was put on care and maintenance in February 2003, upon expiration of the off-take agreement. Xstrata spent \$125 million on Windimurra but could not justify an additional \$36 million investment needed to correct operational problems and to restart the plant.

### References Cited

- Ryan's Notes, 2004a, Metallurg Holdings, the parent of Metallurg: Ryan's Notes, v. 10, no. 22, May 31, p. 5.  
Ryan's Notes, 2004b, Xstrata to shut Windimurra permanently: Ryan's Notes, v. 10, no. 20, May 17, p. 3.  
Ryan's Notes, 2004c, [untitled]: Ryan's Notes, v. 10, no. 22, May 31, 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			
	Consumption	Stocks	April		May	
			Consumption	Stocks	Consumption	Stocks
Ferrovandium <sup>2</sup>	2,860,000	201,000	272,000 <sup>r</sup>	191,000 <sup>r</sup>	266,000	204,000
Vanadium-aluminum alloy	W	W	W	W	W	W
Other <sup>3</sup>	195,000	37,400	19,700	13,400	7,510	10,600
Total	3,060,000	238,000	292,000 <sup>r</sup>	204,000 <sup>r</sup>	273,000	214,000

<sup>p</sup>Preliminary. <sup>r</sup>Revised. 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		
		April	May	Year to date <sup>2</sup>
Steel:				
Carbon	782,000	75,200 <sup>r</sup>	75,700	374,000
High-strength low-alloy	928,000	89,700 <sup>r</sup>	88,800	456,000
Stainless and heat-resisting	26,800	5,360	5,360	26,800
Full alloy	802,000	85,700 <sup>r</sup>	77,800	417,000
Tool	261,000	15,400	17,900	77,600
Total steel	2,800,000	271,000 <sup>r</sup>	266,000	1,350,000
Superalloys	13,800	874	547	3,210
Miscellaneous and unspecified <sup>3</sup>	242,000	19,400	7,270	92,900
Total consumption	3,060,000	292,000 <sup>r</sup>	273,000	1,450,000

<sup>p</sup>Preliminary. <sup>r</sup>Revised.

<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:				
February	--	--	694	99,300
March	--	--	4,070	267,000
April:				
France	19,000	54,100	--	--
Germany	--	--	152	82,400
Russia	--	--	539	34,700
United Kingdom	--	--	601	37,800
Total	19,000	54,100	1,290	155,000
Year to date	19,000	54,100	7,320	741,000
<b>Exports:</b>				
2003	6,710,000	16,700,000	201,000	3,910,000
2004:				
February	370,000	922,000	5,100	144,000
March	1,320,000	2,480,000	28,900	433,000
April:				
Canada	71,400	164,000	--	--
Japan	3,320	15,000	20,100	342,000
Korea, Republic of	542	3,540	--	--
Mexico	829,000	1,530,000	--	--
United Kingdom	16,100	97,000	18,400	244,000
Singapore	1,350	8,140	--	--
Total	922,000	1,820,000	38,500	586,000
Year to date	2,820,000	5,880,000	72,700	1,200,000

-- 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.

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:						
February	277,000	4,780,000	50,200	302,000	--	--
March	343,000	6,610,000	336,000	1,890,000	--	--
April:						
Canada	4,800	19,400	--	--	--	--
China	--	--	305	5,050	--	--
Czech Republic	130,000	3,590,000	--	--	--	--
Germany	8,000	220,000	--	--	--	--
Japan	440	10,900	--	--	--	--
Korea, Republic of	16,100	356,000	--	--	--	--
South Africa	--	--	60,300	426,000	99,500	1,270,000
Swaziland	176,000	2,290,000	--	--	--	--
United Kingdom	--	--	--	--	8,720	90,000
Total	336,000	6,490,000	60,600	431,000	108,000	1,360,000
Year to date	1,180,000	20,500,000	503,000	3,020,000	108,000	1,360,000
<b>Exports:</b>						
2003	397,000	5,420,000	185,000	1,540,000	284,000	2,450,000
2004:						
February	15,200	274,000	1,000	9,800	116,000	846,000
March	32,000	873,000	199,000	1,510,000	54,100	364,000
April:						
Canada	18,400	317,000	--	--	28,300	251,000
Germany	--	--	--	--	6,230	79,200
India	--	--	8,170	77,600	1,370	19,700
Japan	--	--	--	--	393	3,490
Mexico	8,260	275,000	--	--	--	--
New Zealand	--	--	200	3,630	--	--
Trinidad and Tobago	--	--	2,180	24,200	--	--
Total	26,700	592,000	10,500	105,000	36,200	354,000
Year to date	81,600	1,890,000	217,000	1,690,000	267,000	2,050,000

-- 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:						
February	60,000	10,300	1,490,000	281,000	115,000	197,000
March	1,410,000	1,860,000	1,740,000	294,000	21,900	32,000
April:						
Canada	--	--	751,000	130,000	13,800,000	135,000
Germany	--	--	--	--	107,000	177,000
Netherlands	--	--	--	--	86,900	304,000
South Africa	--	--	--	--	2,000,000	448,000
Spain	--	--	--	--	145,000	506,000
Total	--	--	751,000	130,000	16,100,000	1,570,000
Year to date	1,470,000	1,870,000	5,430,000	998,000	16,300,000	1,830,000

-- 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.

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:				
February	--	--	208	25,100
March	--	--	6,530	73,700
April:				
Germany	--	--	507	17,400
Japan	--	--	66	13,300
South Africa	--	--	6,190	60,900
Total	--	--	6,760	91,500
Year to date	--	--	31,500	534,000

-- 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.