

# Mineral Industry Surveys

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## VANADIUM IN FEBRUARY 2011

Reported domestic consumption of vanadium in February 2011 was slightly more than that of the previous month and was 8% more than that of February 2010, according to the U.S. Geological Survey. Consumer stocks of vanadium, in all forms, were 206 metric tons (t) at the beginning of 2011 and 198 t at the end of February.

According to Ryan's Notes, U.S. ferrovanadium (FeV) prices ranged from \$13.706 to \$14.050 per pound of vanadium content in February, as compared with \$13.300 to \$13.706 in January. European FeV prices ranged from \$30.500 to \$31.500 per kilogram in February, as compared with \$29.938 to \$30.813 in January. Vanadium pentoxide ( $V_2O_5$ ) prices ranged from \$7.000 to \$7.500 per pound in February, as compared with \$6.719 to \$7.144 in January.

Xstrata plc (Zug, Switzerland) announced that its Rhovan

vanadium facility, located 30 kilometers northwest of Brits, South Africa, achieved record production during 2010. The Rhovan facility produced 4,300 t of FeV in 2010, an 89% increase compared with the 2,280 t of FeV produced in 2009. The facility produced 9,920 t of  $V_2O_5$  in 2010, a 90% increase compared with the 5,210 t of  $V_2O_5$  produced in 2009. In part of 2009, the facility suspended all vanadium production owing to an extended maintenance program (Xstrata plc, 2011).

### Reference Cited

Xstrata plc., 2011, Production report for the 12 months ended 31 December 2010: Zug, Switzerland, Xstrata plc press release, February 1. (Accessed April 20, 2011, via <http://www.xstrata.com/media/news/2011/02/01/0800CET/pdf>.)

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

(Kilograms, contained vanadium)

	2010 <sup>p</sup>		2011				2011	
	Consumption	Stocks	January		February		January-February	
			Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium <sup>2</sup>	4,160,000	154,000	346,000	155,000 <sup>r</sup>	349,000	157,000	694,000	XX
Vanadium-aluminum alloy	W	W	(3)	43,700 <sup>r</sup>	(3)	40,100	(3)	XX
Other <sup>4</sup>	785,000	51,900	(3)	(5)	(3)	(5)	(3)	XX
Total	4,940,000	206,000	412,000	198,000	416,000	198,000	828,000	XX

<sup>p</sup>Preliminary. <sup>r</sup>Revised. W Withheld to avoid disclosing company proprietary data; included with "Other." XX Not applicable. -- Zero.

<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>Withheld to avoid disclosing company proprietary data; included in "Total."

<sup>4</sup>Includes other vanadium alloys, vanadium metal, vanadium pentoxide, vanadates, chlorides, other specialty chemicals, and items indicated by symbol W.

<sup>5</sup>Withheld to avoid disclosing company proprietary data; included in "Vanadium-aluminum alloy."

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

(Kilograms, contained vanadium)

	2010 <sup>p</sup>	2011		
		January	February	January-February
Steel:				
Carbon	663,000	53,600	61,600	115,000
High-strength low-alloy	1,530,000	W	W	W
Stainless and heat-resisting	120,000	5,280	5,110	10,400
Full alloy	1,970,000	170,000	165,000	334,000
Tool	417,000	W	W	W
Total steel	4,700,000	229,000	231,000	460,000
Superalloys	5,550 <sup>r</sup>	400 <sup>r</sup>	483	883
Miscellaneous and unspecified <sup>2</sup>	242,000	W	W	W
Total consumption	4,940,000	412,000	416,000	828,000

<sup>p</sup>Preliminary. <sup>r</sup>Revised. W Withheld to avoid disclosing company proprietary data; included in "Total consumption."

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

<sup>2</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>				
2010	9,200,000 <sup>r</sup>	\$20,200,000	9,660	\$434,000
2011, January:				
Canada	1,890	9,660	--	--
China	6,040	25,400	--	--
Germany	--	--	10	13,900
Mexico	1,120,000	2,730,000	--	--
United Kingdom	2,440	14,600	--	--
Total	1,130,000	2,780,000	10	13,900
<b>Exports:</b>				
2010	11,900,000	33,300,000	21,200	671,000
2011, January:				
Canada	670,000	1,790,000	--	--
China	19,900	96,500	--	--
India	265	3,440	--	--
Japan	9,070	269,000	111	4,270
Malaysia	353	4,590	--	--
Mexico	304,000	1,030,000	--	--
Singapore	769	10,000	--	--
Taiwan	18,700	61,900	--	--
Total	1,020,000	3,270,000	111	4,270

<sup>r</sup>Revised. -- 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
Imports for consumption:						
2010	1,340,000	\$41,100,000	4,000,000	\$53,700,000	167,000	\$3,330,000
2011, January:						
Austria	15,400	428,000	--	--	8,380	229,000
Canada	63,100	1,800,000	--	--	--	--
Russia	--	--	302,000	3,260,000	--	--
South Africa	--	--	20,400	552,000	40,000	664,000
Total	78,500	2,230,000	322,000	3,820,000	48,300	893,000
Exports:						
2010	882,000	18,100,000	140,000	2,140,000	1,100,000	10,600,000
2011, January:						
Canada	20,800	473,000	--	--	--	--
Colombia	191	8,140	--	--	--	--
Germany	--	--	--	--	2,250	20,000
India	18,700	247,000	--	--	--	--
Korea, Republic of	2,320	90,300	--	--	--	--
United Arab Emirates	19,600	411,000	--	--	--	--
United Kingdom	--	--	45	3,040	--	--
Total	61,600	1,230,000	45	3,040	2,250	20,000

-- 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, unless otherwise specified)

	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 (gross weight)	Value
2010	521,000	\$5,570,000	490,000	\$1,370,000	62,800,000	\$3,710,000
2011, January:						
Belgium	13,300	97,500	--	--	--	--
Canada	59,500	43,700	27,400	59,400	59,300	25,900
Germany	--	--	--	--	15,700	4,300
Mexico	--	--	--	--	68,300	17,100
Saudi Arabia	62,200	459,000	--	--	--	--
Total	135,000	600,000	27,400	59,400	143,000	47,200

-- 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
2010	48,200	\$608,000	158,000	\$4,050,000
2011, January:				
Belgium	210	10,000	--	--
China	3,720	35,700	--	--
Total	3,930	45,700	--	--

-- 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.