

# Mineral Industry Surveys

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## VANADIUM IN FEBRUARY 2007

Reported domestic consumption of vanadium in February 2007 was about 2% less than that of the previous month, and was about 7% more than that of February 2006, according to the U.S. Geological Survey. Consumer stocks of vanadium, in all forms, were 296 metric tons (t) at the beginning of 2007 and 303 t at the end of February.

According to Ryan's Notes (2007b), U.S. ferrovanadium (FeV) prices ranged from \$15.325 to \$15.675 per pound of vanadium content in February, as compared with \$15.722 to \$16.222 in January. European FeV prices ranged from \$32.625 to \$34.125 per kilogram in February, as compared with \$30.778 to \$31.778 in January. Vanadium pentoxide (V<sub>2</sub>O<sub>5</sub>) prices ranged from \$6.125 to \$6.388 per pound in February, as compared with \$6.333 to \$6.722 in January.

The European Commission (EC) ruled that the proposed acquisition of Highveld Steel and Vanadium Corp. Ltd. by Evraz Group S.A. would have given Evraz control of more than 50% of the world's annual vanadium production capacity and would "give rise to competition concerns at all levels of the

vanadium value chain." The EC granted conditional approval of the proposed merger after Evraz agreed to divest the Mapoch iron and vanadium ore mine, Highveld's vanadium extraction plants (Vanchem), a FeV smelter, and Highveld's 50% share in South Africa Japan Vanadium Pty. Ltd., a joint venture with two Japanese partners for FeV production. Evraz would retain control of Highveld's vanadium-bearing slag production as a byproduct of the steel operation and must continue to supply slag to Tulachermet Vanadium, Chusovskoy Metallurgical Works JSC, and Treibacher Industrie AG from its Highveld and Nizhny Tagil steel mills. Evraz has 9 months to complete the proposed divestitures (Ryan's Notes, 2007a).

### References Cited

- Ryan's Notes, 2007a, Evraz to keep Highveld's slag assets: Ryan's Notes, v. 13, no. 9, February 26, p. 1.  
Ryan's Notes, 2007b, [untitled]: Ryan's Notes, v. 13, no. 10, March 5, p. 10.

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

(Kilograms, contained vanadium)

	2006 <sup>p</sup>		2007					
			January		February		January-February	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium <sup>2</sup>	3,350,000	247,000	273,000	280,000 <sup>r</sup>	287,000	256,000	559,000	256,000
Vanadium-aluminum alloy	W	W	W	W	W	W	W	W
Other <sup>3</sup>	298,000	48,100	62,400	74,300 <sup>r</sup>	40,300	46,600	103,000	46,600
Total	3,650,000	296,000	335,000	354,000	327,000	303,000	662,000	303,000

<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)

	2006 <sup>p</sup>	2007		
		January	February	January-February
Steel:				
Carbon	931,000	69,800	86,800	157,000
High-strength low-alloy	1,020,000	92,900	87,100	180,000
Stainless and heat-resisting	60,700	5,110	5,110	10,200
Full alloy	1,020,000	92,400	90,900	183,000
Tool	322,000	34,000	32,300	66,300
Total steel	3,350,000	294,000	302,000	596,000
Superalloys	4,130	466	386	852
Miscellaneous and unspecified <sup>2</sup>	296,000	40,300 <sup>r</sup>	24,600	64,900
Total consumption	3,650,000	335,000	327,000	662,000

<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 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>				
2006	102,000	\$312,000	121,000	\$5,270,000
2007	--	--	--	--
<b>Exports:</b>				
2006	17,000,000	54,500,000	491,000	13,200,000
<b>2007, January:</b>				
Belgium	16,300	517,000	--	--
Canada	450,000	1,360,000	--	--
China	14,400	66,800	--	--
Japan	24,700	723,000	--	--
Mexico	1,350,000	4,390,000	--	--
United Kingdom	17,000	92,400	--	--
Total	1,870,000	7,150,000	--	--

-- 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>						
2006	2,140,000	\$90,500,000	1,920,000	\$45,200,000	129,000	\$3,370,000
<b>2007, January:</b>						
Austria	16,200	563,000	4,130	100,000	--	--
Canada	65,400	1,610,000	--	--	--	--
China	--	--	25,500	654,000	--	--
Czech Republic	48,700	1,740,000	--	--	--	--
Germany	218	20,100	1,320	29,600	--	--
Japan	4,980	226,000	--	--	--	--
Korea, Republic of	58,200	1,800,000	--	--	--	--
South Africa	--	--	50,700	1,240,000	--	--
Total	194,000	5,960,000	81,700	2,020,000	--	--
<b>Exports:</b>						
2006	389,000	11,400,000	341,000	7,150,000	832,000	7,780,000
<b>2007, January:</b>						
Canada	6,830	215,000	--	--	2,430	9,710
Japan	--	--	--	--	661	5,890
Mexico	109	3,940	2,000	43,400	--	--
Total	6,930	219,000	2,000	43,400	3,090	15,600

-- 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)	
	Quantity	Value	Quantity	Value
2006	637,000	\$7,320,000	1,140,000	\$1,130,000
2007, January:				
Canada	--	--	758,000	116,000
Germany	--	--	--	--
Mexico	160,000	431,000	--	--
Year to date	160,000	431,000	758,000	116,000

-- 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
2006	16	\$26,700	115,000	\$3,330,000
2007, January:				
China	40,000	373,000	5,600	182,000
South Africa	--	--	11,200	159,000
Total	40,000	373,000	16,800	342,000

-- 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.