

# Mineral Industry Surveys

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## VANADIUM IN MAY 2008

Reported domestic consumption of vanadium in May 2008 was 5% more than that of the previous month, and was about 27% more than that of May 2007, according to the U.S. Geological Survey. Consumer stocks of vanadium, in all forms, were 295 metric tons (t) at the beginning of 2008 and 304 t at the end of May.

According to Ryan's Notes (2008b), U.S. ferrovanadium (FeV) prices ranged from \$35.889 to \$36.444 per pound of vanadium content in May, as compared with \$37.167 to \$38.444 in April. European FeV prices ranged from \$72.000 to \$74.111 per kilogram in May, as compared with \$60.889 to \$63.444 in April. Vanadium pentoxide ( $V_2O_5$ ) prices ranged from \$14.833 to \$15.389 per pound in May, as compared with \$13.211 to \$13.900 in April.

European FeV market prices rose sharply in response to an earthquake in China's Sichuan Province in the early part of May. Panzhihua New Steel and Vanadium Co., Ltd., (China), the largest vanadium producer in the region, announced shortly

after the earthquake that their production facilities for FeV and  $V_2O_5$  were unaffected. However, the transportation systems, particularly railroads, were significantly disrupted (Ryan's Notes, 2008a).

Chengde Xinxin Vanadium and Titanium (China) has formally set up a vanadium joint venture with Sichuan ZhuYu Group (China), a private vanadium producer (Ryan's Notes, 2008a). The new company, Chengde ZhuYu Canadium Titanium Company, was expected to have a production capacity of 3,000 tons per year of FeV and 3,000 tons per year of  $V_2O_5$  (Steel Guru, 2008).

### References Cited

- Ryan's Notes, 2008a, U.S. FeV starts to catch up to Europe, Ryan's Notes, v. 14, no. 21, May 26, p. 2.  
Ryan's Notes, 2008b, [untitled]: Ryan's Notes, v. 14, no. 22, June 2, p. 10.  
Steel Guru, 2008, Chengde and Sichuan ZhuYu form JV: Steel Guru. (Accessed January 22, 2009, via <http://steelguru.com/news>.)

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

(Kilograms, contained vanadium)

	2007		2008					
	Consumption	Stocks	April		May		Year to date	
			Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium <sup>2</sup>	3,320,000	253,000	355,000	236,000	385,000	247,000	1,790,000	247,000
Vanadium-aluminum alloy	W	W	W	W	W	W	W	W
Other <sup>3</sup>	809,000	42,400	77,200	40,900	68,300	57,000	357,000	57,000
Total	4,130,000	295,000	432,000	277,000	453,000	304,000	2,140,000	304,000

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)

	2007	2008		
		April	May	Year to date
Steel:				
Carbon	882,000	68,400	73,300	319,000
High-strength low-alloy	1,270,000	132,000	132,000	660,000
Stainless and heat-resisting	61,400	5,110	21,400	41,900
Full alloy	1,180,000	173,000	182,000	885,000
Tool	420,000	21,400	21,400	107,000
Total steel	3,810,000	400,000	430,000	2,010,000
Superalloys	7,180	397	529	2,340
Miscellaneous and unspecified <sup>2</sup>	314,000	31,500	22,500	129,000
Total consumption	4,130,000	432,000	453,000	2,140,000

<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
Imports for consumption:				
2007	1,110,000	\$2,110,000	3,620	\$198,000
2008:				
March	--	--	--	--
April:				
Greece	49,300	207,000	--	--
Total	49,200	207,000	--	--
Year to date	93,900	347,000	2	5,300
Exports:				
2007	21,100,000	72,700,000	49,400	2,690,000
2008:				
March	1,930,000	5,830,000	--	--
April:				
Canada	821,000	2,500,000	--	--
Germany	7,850	231,000	--	--
India	11,400	334,000	--	--
Japan	13,500	398,000	620	44,400
Mexico	983,000	2,920,000	--	--
Netherlands	3,330	97,900	--	--
Total	1,840,000	6,480,000	620	44,400
Year to date	7,990,000	26,100,000	17,300	1,320,000

-- 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
Imports for consumption:						
2007	2,220,000	\$81,300,000	2,390,000	\$46,800,000	41,900	\$1,400,000
2008:						
March	191,000	9,620,000	146,000	4,520,000	8,350	473,000
April:						
Austria	47,900	3,680,000	--	--	--	--
Brazil	7,600	567,000	--	--	--	--
Canada	37,600	1,760,000	--	--	--	--
China	--	--	199,000	6,860,000	--	--
Germany	242	33,900	--	--	--	--
Korea	167,000	10,700,000	--	--	--	--
Netherlands	3,990	319,000	--	--	--	--
Russia	--	--	37,800	896,000	--	--
Taiwan	15,800	1,120,000	6,710	359,000	--	--
Total	281,000	18,200,000	244,000	8,120,000	--	--
Year to date	1,140,000	53,300,000	1,190,000	27,200,000	42,200	1,190,000
Exports:						
2007	206,000	5,810,000	327,000	5,460,000	626,000	7,530,000
2008:						
March	57,200	2,470,000	59,200	1,680,000	100,000	953,000
April:						
Brazil	--	--	100	6,170	2,720	39,000
Canada	11,300	515,000	--	--	--	--
Germany	--	--	--	--	10,500	163,000
Japan	--	--	--	--	323	2,880
Mexico	2,300	76,700	--	--	--	--
Saudi Arabia	--	--	6,300	133,000	--	--
Total	13,600	591,000	6,400	139,000	13,600	205,000
Year to date	118,000	4,880,000	143,000	3,030,000	360,000	3,520,000

-- 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)	
	Quantity	Value	Quantity	Value
2007	1,000,000	\$9,960,000	641,000	\$913,000
2008:				
March	173,000	2,030,000	75,100	67,100
April:				
Canada	--	--	43,000	66,600
Mexico	54,500	607,000	--	--
Total	54,500	607,000	43,000	66,600
Year to date	286,000	3,180,000	193,000	228,000

-- 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
2007	80,200	\$783,000	211,000	\$3,550,000
2008:				
March	--	--	25,700	383,000
April:				
China	2	15,100	41	5,230
South Africa	--	--	11,000	255,000
United Kingdom	--	--	14,300	20,900
Total	2	15,100	25,400	281,000
Year to date	3	26,100	85,600	1,250,000

-- 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.