

# Mineral Industry Surveys

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## VANADIUM IN MARCH 2010

Reported domestic consumption of vanadium in March 2010 was 12% more than that of the previous month, and was about 9% more than that of March 2009, according to the U.S. Geological Survey. Consumer stocks of vanadium, in all forms, were 278 metric tons (t) at the beginning of 2010 and 252 t at the end of March.

According to Ryan's Notes (2010), U.S. ferrovanadium (FeV) prices ranged from \$15.028 to \$15.611 per pound of vanadium content in March, as compared with \$12.844 to \$13.413 in February. European FeV prices ranged from \$32.389 to \$33.389 per kilogram in March, as compared with \$27.813 to \$28.844 in February. Vanadium pentoxide (V<sub>2</sub>O<sub>5</sub>) prices ranged from \$6.417 to \$6.833 per pound in March, as compared with \$5.719 to \$6.219 in February.

Denison Mines Corp. (Toronto, Ontario, Canada) announced that it would restart its White Mesa mill and resume production of V<sub>2</sub>O<sub>5</sub>. Denison's White Mesa mill is a conventional uranium processing mill near Blanding, UT, with a vanadium coproduct recovery circuit. The mill has been idle since May 2009, when it was placed on care and maintenance owing to low uranium prices (Metal-Pages, 2010).

### Reference Cited

Metal-Pages, 2010, Denison to resume vanadium pentoxide production next week: Metal-Pages, March 12. (Accessed August 13, 2010, via <http://www.metal-pages.com/>)

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

(Kilograms, contained vanadium)

	2009		2010					
	Consumption	Stocks	February		March		January-March	
			Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium <sup>2</sup>	4,030,000	227,000	329,000 <sup>†</sup>	217,000 <sup>†</sup>	368,000	198,000	1,030,000	XX
Vanadium-aluminum alloy	W	W	(3)	(3)	(3)	(3)	(3)	XX
Other <sup>4</sup>	694,000	51,700	(3)	(3)	(3)	(3)	(3)	XX
Total	4,720,000	278,000	384,000 <sup>†</sup>	261,000 <sup>†</sup>	428,000	252,000	1,200,000	XX

<sup>†</sup>Revised. W Withheld to avoid disclosing company proprietary data; included with "Other." XX Not applicable.

<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.

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

(Kilograms, contained vanadium)

	2009	2010		
		February	March	January-March
Steel:				
Carbon	610,000	49,900	54,300	157,000
High-strength low-alloy	1,540,000	W	W	W
Stainless and heat-resisting	119,000	5,110	W	48,900
Full alloy	1,880,000	157,000	158,000	473,000
Tool	417,000	W	W	W
Total steel	4,570,000	212,000	212,000	679,000
Superalloys	5,410	327 <sup>†</sup>	363	973
Miscellaneous and unspecified <sup>2</sup>	151,000	W	W	W
Total consumption	4,720,000	384,000 <sup>†</sup>	428,000	1,200,000

<sup>†</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
Imports for consumption:				
2009	282,000	\$979,000	21,700	\$940,000
2010:				
January	213,000	484,000	--	--
February	--	--	--	--
Exports:				
2009	11,200,000	27,800,000	22,700	1,040,000
2010:				
January	580,000	1,360,000	--	--
February:				
Canada	683,000	1,520,000	--	--
Japan	5,300	156,000	80	3,080
Korea, Republic of	2,340	59,400	--	--
Mexico	601,000	1,610,000	--	--
United Arab Emirates	54,400	296,000	--	--
Total	1,350,000	3,640,000	80	3,080
Year to date	1,930,000	5,010,000	80	3,080

-- 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>						
2009	353,000	\$12,600,000	1,120,000	\$16,500,000	25,200	\$551,000
<b>2010:</b>						
January	57,800	1,430,000	261,000	3,330,000	--	--
<b>February:</b>						
Austria	12,100	305,000	--	--	--	--
Canada	15,600	473,000	--	--	--	--
Germany	355	20,300	--	--	--	--
Russia	--	--	189,000	2,690,000	--	--
South Africa	--	--	139,000	1,200,000	--	--
Total	28,100	799,000	328,000	3,890,000	--	--
Year to date	85,900	2,230,000	589,000	7,220,000	--	--
<b>Exports:</b>						
2009	971,000	15,000,000	401,000	4,970,000	506,000	5,270,000
<b>2010:</b>						
January	114,000	1,670,000	25,500	448,000	78,800	734,000
<b>February:</b>						
Argentina	--	--	--	--	10,600	45,100
Brazil	--	--	--	--	6,230	55,400
Canada	23,500	550,000	--	--	38,000	338,000
Germany	--	--	10,000	182,000	--	--
India	15,000	158,000	--	--	--	--
Mexico	18,600	502,000	200	4,420	--	--
Netherlands	18,000	263,000	--	--	20,000	359,000
Saudi Arabia	--	--	2,550	43,100	--	--
Spain	--	--	10,300	105,000	--	--
Total	75,000	1,470,000	23,100	335,000	74,800	797,000
Year to date	189,000	3,140,000	48,600	782,000	154,000	1,530,000

-- 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 gross weight	Value
	2009	791,000	\$12,300,000	615,000	\$1,260,000	80,500,000
2010:						
January	18,200	378,000	95,600	171,000	130,000	70,000
February:						
Canada	--	--	38,700	221,000	68,200	18,700
Dominican Republic	--	--	--	--	1,590	7,120
Mexico	68,200	460,000	--	--	133,000	46,400
Trinidad and Tobago	15,400	4,710	--	--	--	--
Total	83,600	465,000	38,700	221,000	202,000	72,200
Year to date	102,000	843,000	134,000	391,000	333,000	142,000

-- 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
2009	16,500	\$182,000	214,000	\$3,390,000
2010:				
January	100	9,280	11,100	189,000
February:				
China	6,670	64,100	--	--
Germany	--	--	15,900	412,000
India	--	--	300	3,040
Total	6,670	64,100	16,200	415,000
Year to date	6,770	73,400	27,300	604,000

-- 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.