

Mineral Industry Surveys

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VANADIUM IN FEBRUARY 2010

Reported domestic consumption of vanadium in February 2010 was slightly less than that of the previous month, and was slightly less than that of February 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 260 t at the end of February.

According to Ryan's Notes (2010), U.S. ferrovanadium (FeV) prices ranged from \$12.844 to \$13.413 per pound of vanadium content in February, as compared with \$11.450 to \$11.875 in January. European FeV prices ranged from \$27.813 to \$28.844 per kilogram in February, as compared with \$26.688 to \$27.688 in January. Vanadium pentoxide (V₂O₅) prices ranged from \$5.719 to \$6.219 per pound in February, as compared with \$5.531 to \$5.938 in January.

Denison Mines Corp. (Toronto, Ontario, Canada) V₂O₅ production was forecast to increase by 460% to 1,270 t of V₂O₅ in 2010 compared with 227 t of V₂O₅ in 2009. Denison's White Mesa mill is a conventional uranium processing mill with a vanadium coproduct recovery circuit near Blanding, Utah. The

mill uses sulfuric acid leaching and a solvent extraction recovery process to extract and recover uranium and vanadium. White Mesa is also licensed to process alternate feed materials such as uranium-bearing materials derived from metal processing facilities or material classified as waste that would otherwise be disposed of in licensed waste facilities. The company expected the mill to begin processing conventional ore in March and to continue for the remainder of the year (Denison Mines Corp., 2010).

Reference Cited

Denison Mines Corp., 2010, Denison forecasts uranium sales of 1.8 million pounds U₃O₈, cash flow from mining operations of \$19.5 million and business development investments of \$16.7 million in 2010: Toronto, Ontario, Canada, Denison Mines Corp. press release, January 25. (Accessed July 21, 2010, via <http://www.denisonmines.com/SiteResources/ViewContent.asp?DocID=31&v1ID=&RevID=658&lang=1>.)

TABLE 1
U.S. CONSUMPTION AND CONSUMER STOCKS OF VANADIUM, BY FORM¹

(Kilograms, contained vanadium)

	2009		2010				2010	
	Consumption	Stocks	January		February		January-February	
			Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium ²	4,030,000	227,000	335,000	224,000	330,000	218,000	665,000	XX
Vanadium-aluminum alloy	W	W	(3)	W	(3)	(3)	(3)	XX
Other ³	694,000	51,700	(3)	57,500	(3)	(3)	(3)	XX
Total	4,720,000	278,000	389,000	282,000	385,000	260,000	774,000	XX

W Withheld to avoid disclosing company proprietary data; included with "Other." XX Not applicable.

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

²Includes other vanadium-iron-carbon alloys as well as vanadium oxides added directly to steel.

³Withheld to avoid disclosing company proprietary data; included in "Total."

⁴Includes other vanadium alloys, vanadium metal, vanadium pentoxide, vanadates, chlorides, and other specialty chemicals.

TABLE 2
U.S. CONSUMPTION OF VANADIUM, BY END USE¹

(Kilograms, contained vanadium)

	2009	2010		2010
		January	February	January-February
Steel:				
Carbon	610,000	53,200	49,900	103,000
High-strength low-alloy	1,540,000	W	W	W
Stainless and heat-resisting	119,000	5,110	5,110	10,200
Full alloy	1,880,000	159,000	157,000	315,000
Tool	417,000	W	W	W
Total steel	4,570,000	217,000	212,000	429,000
Superalloys	5,410 [†]	151	195	347
Miscellaneous and unspecified ²	151,000	W	W	W
Total consumption	4,720,000	389,000	385,000	774,000

[†]Revised. W Withheld to avoid disclosing company proprietary data; included in "Total consumption."

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

²Includes 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 SCRAP¹

(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:				
Mexico	211,000	463,000	--	--
Netherlands	1,800	6,820	--	--
United Kingdom	1,020	14,200	--	--
Total	213,000	484,000	--	--
Exports:				
2009	11,200,000	27,800,000	22,700	1,040,000
2010, January:				
Canada	342,000	779,000	--	--
Colombia	271	3,530	--	--
Hong Kong	221	6,500	--	--
Israel	797	10,400	--	--
Italy	637	8,280	--	--
Japan	534	16,000	--	--
Korea, Republic of	425	11,900	--	--
Mexico	234,000	524,000	--	--
South Africa	603	3,670	--	--
Total	580,000	1,360,000	--	--

-- Zero.

¹Data 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 VANADIUM¹

(Kilograms, contained vanadium)

	Ferrovanadium		Vanadium pentoxide (anhydride) ²		Other oxides and hydroxides of vanadium	
	Quantity	Value	Quantity	Value	Quantity	Value
Imports for consumption:						
2009	353,000	\$12,600,000	1,120,000	\$16,500,000	25,200	\$551,000
2010, January:						
Albania	16,000	349,000	--	--	--	--
Austria	--	--	90	5,030	--	--
Canada	30,500	853,000	--	--	--	--
Korea, Republic of	11,300	230,000	--	--	--	--
Russia	--	--	113,000	1,530,000	--	--
South Africa	--	--	148,000	1,790,000	--	--
Total	57,800	1,430,000	261,000	3,330,000	--	--
Exports:						
2009	971,000	15,000,000	401,000	4,970,000	506,000	5,270,000
2010, January:						
Argentina	--	--	500	16,000	--	--
Brazil	--	--	1,000	20,000	--	--
Canada	30,000	604,000	--	--	15,300	168,000
China	18,300	243,000	--	--	--	--
Germany	--	--	--	--	18,000	160,000
India	39,900	446,000	--	--	--	--
Korea, Republic of	947	36,500	--	--	--	--
Mexico	3,200	70,800	--	--	--	406,000
Netherlands	--	--	20,000	337,000	45,600	--
Peru	1,200	44,300	--	--	--	--
Saudi Arabia	--	--	3,960	74,200	--	--
United Arab Emirates	20,100	223,000	--	--	--	--
Total	114,000	1,670,000	25,500	448,000	78,800	734,000

-- Zero.

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

²May include catalysts containing vanadium pentoxide.

Source: U.S. Census Bureau.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF VANADIUM-BEARING ASH, SLAG¹

(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:						
Belgium	--	--	--	--	6,100	21,300
Canada	--	--	95,600	171,000	57,700	25,400
Mexico	18,200	378,000	--	--	66,500	23,300
Total	18,200	378,000	95,600	171,000	130,000	70,000

-- Zero.

¹Data 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 CHEMICALS¹

(Kilograms, contained vanadium)

	Sulfates		Vanadates	
	Quantity	Value	Quantity	Value
2009	16,500	\$182,000	214,000	\$3,390,000
2010, January:				
China	100	9,280	--	--
Japan	--	--	45	2,650
South Africa	--	--	11,100	2,650
Total	100	9,280	11,100	5,300

-- Zero.

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

Source: U.S. Census Bureau.