

# Mineral Industry Surveys

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**For information, contact:**

Désirée E. Polyak, Vanadium Commodity Specialist  
U.S. Geological Survey  
989 National Center  
Reston, VA 20192  
Telephone: (703) 648-4909, Fax: (703) 648-7757  
E-mail: dpolyak@usgs.gov

Shonta E. Osborne (Data)  
Telephone: (703) 648-7960  
Fax: (703) 648-7975  
E-mail: sosborne@usgs.gov

**Internet:** <http://minerals.usgs.gov/minerals>

## VANADIUM IN SEPTEMBER 2009

Reported domestic consumption of vanadium in September 2009 was slightly less than that of the previous month, and was about 28% more than that of September 2007, according to the U.S. Geological Survey. Consumer stocks of vanadium, in all forms, were 308 metric tons (t) at the beginning of 2009 and 266 t at the end of September.

According to Ryan's Notes (2009), U.S. ferrovanadium (FeV) prices ranged from \$12.611 to \$13.083 per pound of vanadium content in September, compared with \$12.906 to \$13.219 in August. European FeV prices ranged from \$30.944 to \$31.944 per kilogram in September, compared with \$32.188 to \$33.313 in August. Vanadium pentoxide ( $V_2O_5$ ) prices ranged from \$6.583 to \$7.139 per pound in September, compared with \$6.563 to \$7.063 in August.

Uranium Star Corp. (Toronto, Ontario, Canada) announced plans to spend \$10 million to conduct environmental, geotechnical, and metallurgical studies, as well as complete a feasibility study on its Green Giant vanadium deposit in southwestern Madagascar. The Green Giant is a continuous 11-mile mineralized trend of vanadium spanning the entire length of the 194 acre property. Uranium Star recently built a licensed airstrip on the property making it accessible year-round by private aircraft (Resource World, 2009).

### References Cited

Resource World, 2009, Uranium Star discovers extensive vanadium mineralization: Resource World, September 2009. (Accessed January 6, 2010, at [http://www.uraniumstar.com/resource\\_world.pdf](http://www.uraniumstar.com/resource_world.pdf).)  
Ryan's Notes, 2009, [untitled]: Ryan's Notes, v. 15, no. 39, October 8, p. 10.

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

(Kilograms, contained vanadium)

	2008		2009					
	Consumption	Stocks	August		September		January-September	
			Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium <sup>2</sup>	4,030,000	231,000	333,000	219,000	332,000	214,000	3,010,000	214,000
Vanadium-aluminum alloy	W	W	W	W	W	W	W	W
Other <sup>3</sup>	817,000	76,400	55,300	43,700	54,300	51,900	525,000	51,900
Total	4,850,000	308,000	388,000	263,000	387,000	266,000	3,540,000	266,000

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)

	2008	2009		
		August	September	January-September
Steel:				
Carbon	760,000	47,100	52,500	436,000
High-strength low-alloy	1,540,000	128,000	128,000	1,160,000
Stainless and heat-resisting	116,000	13,300	5,110	98,600
Full alloy	2,000,000	154,000	157,000	1,410,000
Tool	151,000	34,700	34,700	312,000
Total steel	4,570,000	378,000	377,000	3,420,000
Superalloys	2,490	167	130	1,940
Miscellaneous and unspecified <sup>2</sup>	275,000	10,200	9,150	119,000
Total consumption	4,850,000	388,000	387,000	3,540,000

<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
<b>Imports for consumption:</b>				
2008	1,110,000	\$2,110,000	3,620	\$198,000
<b>2009:</b>				
July	9,310	32,100	579	25,900
<b>August:</b>				
Germany	--	--	2	2,300
Netherlands	--	--	--	--
Total	--	--	2	2,300
Year to date	257,000	872,000	2,770	317,000
<b>Exports:</b>				
2008	21,900,000	76,200,000	57,100	3,740,000
<b>2009:</b>				
July	802,000	1,800,000	221	5,660
<b>August:</b>				
Canada	207,000	633,000	--	--
Germany	200	3,400	--	--
Israel	901	12,800	--	--
Kuwait	--	--	302	6,890
Mexico	653,000	1,420,000	--	--
Russia	--	--	300	26,500
Singapore	107	3,130	--	--
Total	862,000	2,070,000	602	33,400
Year to date	7,400,000	17,900,000	21,700	966,000

-- 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:						
2008	2,800,000	\$159,000,000	3,700,000	\$115,000,000	144,000	\$4,320,000
2009:						
July	25,900	1,580,000	8,490	150,000	8,390	137,000
August:						
Austria	15,800	306,000	--	--	--	--
Canada	27,300	643,000	--	--	--	--
China	--	--	18,300	154,000	--	--
Germany	136	14,300	--	--	--	--
Korea, Republic of	11,600	526,000	--	--	--	--
Russia	--	--	114,000	1,470,000	--	--
Taiwan	--	--	7,250	130,000	--	--
Total	54,800	1,490,000	140,000	1,760,000	--	--
Year to date	251,000	10,000,000	815,000	12,400,000	16,800	320,000
Exports:						
2008	281,000	12,600,000	249,000	5,650,000	1,040,000	11,300,000
2009:						
July	134,000	2,290,000	14,900	170,000	281,000	288,000
August:						
Brazil	--	--	--	--	--	--
Canada	15,700	487,000	--	--	--	--
India	38,100	1,080,000	--	--	--	--
Korea, Republic of	8,920	294,000	--	--	18,300	214,000
Mexico	10,400	309,000	594	10,700	--	--
Netherlands	13,900	434,000	25,800	317,000	34,000	464,000
Spain	--	--	7,290	81,200	--	--
Trinidad and Tobago	--	--	3,790	63,800	--	--
Venezuela	--	--	4,010	136,000	--	--
Total	87,000	2,600,000	41,400	609,000	52,300	677,000
Year to date	582,000	12,600,000	279,000	2,970,000	233,000	2,480,000

-- 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
2008	1,040,000	\$18,000,000	601,000	\$795,000
2009:				
July:	81,900	799,000	57,500	106,000
August:				
Canada	--	--	49,700	84,200
Germany	--	--	987	6,860
Mexico	32,400	532,000	--	--
Total	32,400	532,000	50,700	91,000
Year to date	673,000	11,000,000	389,000	670,000

-- 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
2008	2,160	\$119,000	187,000	\$4,230,000
2009:				
July	--	--	22,500	211,000
August:				
China	4,930	61,800	--	--
South Africa	--	--	11,100	118,000
Total	4,930	61,800	11,100	118,000
Year to date	11,700	130,000	102,000	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.