

# Mineral Industry Surveys

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## VANADIUM IN APRIL 2014

Reported domestic consumption of vanadium in April 2014 was slightly more than that of the previous month, and 6% more than that of April 2013. Consumer stocks of vanadium, in all forms, were 166 metric tons (t) at yearend 2013 and 177 t at the end of April.

According to Ryan's Notes, U.S. ferrovanadium (FeV) prices ranged from \$13.250 to \$13.794 per pound of vanadium content in April, as compared with \$13.250 to \$13.675 in March. European FeV prices ranged from \$26.200 to \$26.644 per kilogram in April, as compared with \$25.088 to \$25.550 in March. Vanadium pentoxide (V<sub>2</sub>O<sub>5</sub>) prices ranged from \$5.500 to \$6.000 per pound in both March and April.

EVRAZ Highveld Steel and Vanadium Ltd. announced that its FeV production increased by 31% in the first quarter of 2014

compared with the same period of 2013. FeV production increased slightly in the first quarter of 2014 compared with the fourth quarter of 2013 (EVRAZ Highveld Steel and Vanadium Ltd., 2014).

### Reference Cited

EVRAZ Highveld Steel and Vanadium Ltd., 2014, First quarter ending 31 March 2014 operational results: Mpumalanga, South Africa, EVRAZ Highveld Steel and Vanadium Ltd., April 15. (Accessed June 24, 2014, at [http://www.evrazhighveld.co.za/SENS/150414\\_Evraz\\_Q1\\_Operational\\_Results.pdf](http://www.evrazhighveld.co.za/SENS/150414_Evraz_Q1_Operational_Results.pdf).)

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

(Kilograms, contained vanadium)

	2013		2014					
	January–December		March		April		January–April	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium <sup>2</sup>	2,810,000	93,400	230,000 <sup>r</sup>	80,300 <sup>r</sup>	233,000	106,000	914,000	106,000
Vanadium-aluminum alloy and other forms <sup>3</sup>	812,000	72,600	66,700	71,000	67,400	70,700	269,000	70,700
Total	3,620,000	166,000	296,000 <sup>r</sup>	151,000 <sup>r</sup>	301,000	177,000	1,180,000	177,000

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

<sup>3</sup>Includes vanadium-aluminum alloy, other vanadium alloys, vanadium metal, vanadium pentoxide, vanadates, chlorides, and other specialty chemicals.

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

(Kilograms, contained vanadium)

	2013		2014	
	January–December	March	April	January–April
Steel:				
Carbon	518,000	43,500 <sup>r</sup>	39,900	167,000
Full alloy	1,430,000	122,000	122,000	485,000
High-strength low-alloy	W	W	W	W
Stainless and heat resisting	59,200	4,930	4,940	19,700
Tool	W	W	W	W
Total steel	2,010,000	171,000 <sup>r</sup>	167,000	672,000
Superalloys	2,810	202	171	698
Miscellaneous and unspecified <sup>2</sup>	W	W	W	W
Total	3,620,000	296,000 <sup>r</sup>	301,000	1,180,000

<sup>r</sup>Revised

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

<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 ALLOYS AND VANADIUM  
METAL, INCLUDING WASTE AND SCRAP<sup>1</sup>

(Kilograms, gross weight)

	Aluminum-vanadium master alloy <sup>2</sup>		Vanadium metal, including waste and scrap	
	Quantity	Value	Quantity	Value
<b>Imports for consumption:</b>				
2013	169,000	\$4,660,000	35,300	\$1,310,000
2014:				
March	61,300	1,370,000	33,700	645,000
April:				
Australia	20,000	462,000	--	--
China	17,700	380,000	--	--
Germany	12	9,300	--	--
Japan	--	--	229	25,200
United Kingdom	--	--	2	4,950
Total	37,700	851,000	231	30,200
January–April	129,000	2,920,000	43,200	1,100,000
<b>Exports:</b>				
2013	347,000	9,800,000	57,500	1,700,000
2014:				
March	20,600	576,000	208	12,200
April:				
Australia	1,020	76,400	--	--
China	--	--	2,070	80,000
Russia	52,700	1,350,000	--	--
United Kingdom	--	--	406	15,700
Total	53,700	1,430,000	2,480	95,700
January–April	150,000	4,270,000	6,790	391,000

-- Zero.

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

<sup>2</sup>Aluminum-vanadium master alloy consisting of 35% aluminum and 64.5% vanadium. Includes Harmonized Tariff Schedule code 8112.99.2000.

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>						
2013	3,710,000	\$89,800,000	2,040,000	\$29,900,000	205,000	\$2,560,000
2014:						
March	416,000	10,200,000	349,000	4,490,000	9,510	222,000
April:						
Austria	74,700	1,950,000	--	--	8,350	197,000
Canada	86,300	2,340,000	--	--	--	--
China	--	--	79,900	1,470,000	--	--
Czech Republic	121,000	2,930,000	--	--	--	--
Japan	9,390	213,000	--	--	--	--
Kazakhstan	--	--	41,900	872,000	--	--
Korea, Republic of	87,200	2,240,000	--	--	--	--
Russia	--	--	188,000	1,640,000	--	--
South Africa	--	--	90,700	1,580,000	--	--
Total	379,000	9,670,000	401,000	5,570,000	8,350	197,000
January–April	1,370,000	33,400,000	1,100,000	15,400,000	34,500	814,000
<b>Exports:</b>						
2013	395,000	8,790,000	89,600	1,340,000	448,000	4,850,000
2014:						
March	30,900	703,000	1,000	18,600	36,000	608,000
April:						
Canada	16,900	390,000	--	--	--	--
Netherlands	--	--	--	--	30,900	367,000
Total	16,900	390,000	--	--	30,900	367,000
January–April	122,000	2,210,000	26,200	493,000	97,500	1,300,000

-- 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, unless otherwise specified)

	Ash and residues <sup>2</sup>		Slag, from the manufacture of iron and steel	
	Quantity	Value	Quantity (gross weight)	Value
2013	4,190,000	\$22,500,000	66,100,000	\$8,480,000
2014:				
March	454,000	3,370,000	70,100	41,100
April:				
Canada	312,000	1,730,000	85,700	55,200
Mexico	--	--	18,500	7,900
Russia	74,800	1,020,000	580,000	984,000
Trinidad and Tobago	15,800	127,000	--	--
Total	403,000	2,880,000	684,000	1,050,000
January–April	1,630,000	10,500,000	28,300,000	1,760,000

-- Zero.

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

<sup>2</sup>Includes Harmonized Tariff Schedule code 2620.40.0030 and 2620.99.1000.

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
2013	29,500	\$306,000	276,000	\$5,700,000
2014:				
March	8,040	72,800	24,000	377,000
April:				
Austria	--	--	3,990	103,000
China	100	3,300	--	--
Japan	260	9,370	--	--
South Africa	--	--	8,670	110,000
Total	360	12,700	12,700	213,000
January–April	13,200	131,000	51,000	1,120,000

-- 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.