

# Mineral Industry Surveys

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## VANADIUM IN FEBRUARY 2013

Reported domestic consumption of vanadium in February 2013 was 8% more than that of the previous month and was 5% more than that of February 2012. Consumer stocks of vanadium, in all forms, were 228 metric tons (t) at the beginning of 2013 and 244 t at the end of February.

According to Ryan's Notes, U.S. ferrovanadium (FeV) prices ranged from \$14.575 to \$14.806 per pound of vanadium content in February, compared with \$13.750 to \$14.281 in January. European FeV prices ranged from \$30.875 to \$31.563 per kilogram in February, compared with \$30.813 to \$31.813 in January. Vanadium pentoxide (V<sub>2</sub>O<sub>5</sub>) prices ranged from \$6.269 to \$6.513 per pound in February, compared with \$6.250 to \$6.500 in January.

In 2012, Japan's imports of FeV decreased to 4,291 t compared with 4,792 in 2011. In 2012, Japan's FeV production increased 16% to 4,121 t in the first 11 months in 2012 compared with 3,551 t for the same period in 2011, according to the Ministry of Economy, Trade, and Industry (Ryan's Notes, 2013).

Included in this Mineral Industry Surveys are U.S. imports and exports of vanadium for January and February 2013.

### Reference Cited

Ryan's Notes, 2013, Ferroalloy notes: Ryan's Notes, v. 19, no. 6, February 11, p. 2.

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

(Kilograms, contained vanadium)

	2012		2013					
	January–December		January		February		January–February	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium <sup>2</sup>	2,950,000	172,000	235,000 <sup>r</sup>	162,000 <sup>r</sup>	259,000	171,000	493,000	171,000
Vanadium-aluminum alloy and other forms <sup>3</sup>	818,000	56,400	70,100	71,400	69,300	73,500	139,000	73,500
Total	3,770,000	228,000	305,000 <sup>r</sup>	233,000 <sup>r</sup>	328,000	244,000	633,000	244,000

<sup>r</sup>Revised. -- Zero.

<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)

	2012	2013		
	January–December	January	February	January–February
Steel:				
Carbon	602,000	47,000 <sup>r</sup>	51,900	98,900
Full alloy	1,440,000	113,000	116,000	229,000
High-strength low-alloy	W	W	W	W
Stainless and heat resisting	61,500	5,120	5,130	10,200
Tool	W	W	W	W
Total steel	2,110,000	165,000 <sup>r</sup>	173,000	338,000
Superalloys	5,390	457	491	948
Miscellaneous and unspecified <sup>2</sup>	W	W	W	W
Total	3,770,000	305,000 <sup>r</sup>	328,000	633,000

<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 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>				
2012	103,000	\$681,000	154,000	\$4,840,000
2013:				
January	--	--	--	--
February, Germany	--	--	4,090	126,000
January–February	--	--	4,090	126,000
<b>Exports:</b>				
2012	23,900,000	65,300,000	26,000	698,000
2013:				
January	2,240,000	6,270,000	5,160	131,000
February:				
Australia	962	12,500	--	--
Canada	258,000	658,000	--	--
Israel	1,720	26,800	--	--
Mexico	1,710,000	4,510,000	--	--
Netherlands	140	2,800	--	--
Singapore	4,050	12,500	--	--
United Kingdom	--	--	130	5,000
Total	1,970,000	5,220,000	130	5,000
January–February	4,220,000	11,500,000	5,290	136,000

-- 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
<b>Imports for consumption:</b>						
2012	4,190,000	\$108,000,000	1,640,000	\$26,500,000	905,000	\$12,800,000
2013:						
January	222,000	5,750,000	238,000	3,080,000	8,340	180,000
February:						
Austria	42,000	1,290,000	--	--	--	--
Canada	101,000	2,340,000	--	--	--	--
China	--	--	19,900	287,000	--	--
Czech Republic	177,000	4,240,000	--	--	--	--
Germany	533	42,000	--	--	--	--
India	10,200	273,000	--	--	--	--
Japan	8,730	219,000	--	--	--	--
South Africa	--	--	62,600	1,150,000	--	--
Taiwan	--	--	10,000	257,000	--	--
Total	339,000	8,410,000	92,600	1,700,000	--	--
January–February	561,000	14,200,000	331,000	4,770,000	8,340	180,000
<b>Exports:</b>						
2012	454,000	11,000,000	61,800	1,160,000	287,000	3,540,000
2013:						
January	56,600	1,220,000	--	--	14,900	207,000
February:						
Brazil	--	--	99	4,630	--	--
Canada	37,900	871,000	--	--	2,420	21,500
Korea, Republic of	2,850	116,000	--	--	--	--
Mexico	27,900	772,000	--	--	--	--
Thailand	--	--	200	7,200	--	--
Venezuela	--	--	1,000	40,100	16,800	141,000
Total	68,700	1,760,000	1,300	51,900	19,200	163,000
January–February	125,000	2,970,000	1,300	51,900	34,000	370,000

-- 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		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
	2012	2,040,000	\$9,880,000	175,000	\$141,000	108,000,000
2013:						
January	44,300	246,000	5,560	11,500	225,000	205,000
February:						
Austria	--	--	--	--	7,440	106,000
Canada	214,000	1,220,000	--	--	79,000	35,300
Italy	--	--	--	--	37,200	46,200
Kuwait	33,300	268,000	--	--	--	--
Mexico	--	--	--	--	41,900	25,500
South Africa	--	--	--	--	40,000	549,000
Trinidad and Tobago	25,400	204,000	--	--	--	--
Total	272,000	1,690,000	--	--	206,000	762,000
January–February	317,000	1,940,000	5,560	11,500	431,000	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 6  
U.S. IMPORTS FOR CONSUMPTION OF MISCELLANEOUS VANADIUM CHEMICALS<sup>1</sup>

(Kilograms, contained vanadium)

	Sulfates		Vanadates	
	Quantity	Value	Quantity	Value
2012	29,100	\$370,000	280,000	\$6,190,000
2013:				
January	--	--	41,500	874,000
February:				
China	6,000	43,600	18,500	396,000
Japan	--	--	25	5,270
South Africa	--	--	15,000	149,000
Total	6,000	43,600	33,500	550,000
January–February	6,000	43,600	75,000	1,420,000

-- 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.