

# 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

Glenn W. Walker (Data)  
Telephone: (703) 648-7953  
Fax: (703) 648-7975  
E-mail: gwwalker@usgs.gov

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

## VANADIUM IN FEBRUARY 2012

Reported domestic consumption of vanadium in February 2012 was slightly less than that of the previous month and was slightly more than that of February 2011. Consumer stocks of vanadium, in all forms, were revised to 165 metric tons (t) at the beginning of 2012 and 189 t at the end of February.

According to Ryan's Notes, U.S. ferrovanadium (FeV) prices ranged from \$13.925 to \$14.975 per pound of vanadium content in February, compared with \$13.361 to \$14.194 in January. European FeV prices ranged from \$25.313 to \$25.956 per kilogram in February, compared with \$22.678 to \$23.444 in January. Vanadium pentoxide (V<sub>2</sub>O<sub>5</sub>) prices ranged from \$5.563 to \$6.281 per pound in February, compared with \$5.528 to \$6.139 in January.

Australia's TNG Ltd. began constructing a modular pilot plant to test hydrometallurgical recovery of iron, titanium, and

vanadium at its Mount Peake project. Results were expected in June. The project is in the Arunta Geological Province, 235 kilometers north-northwest of Alice Springs in the Northern Territory. The new hydrometallurgical process was jointly developed with TNG's metallurgical consultants, Mineral Engineering Technical Services Pty Ltd. (TNG Ltd., 2012).

Data for U.S. imports and exports of vanadium for January 2012 and February 2012 are published in this issue.

### Reference Cited

TNG Ltd., 2012, New metallurgical development- TIVAN™: Perth, Western Australia, Australia. (Accessed May 2, 2012, at [http://www.tngltd.com.au/projects/mount\\_peake\\_fe\\_v\\_ti/new\\_metallurgical\\_development.phtml](http://www.tngltd.com.au/projects/mount_peake_fe_v_ti/new_metallurgical_development.phtml).)

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

(Kilograms, contained vanadium)

	2011 <sup>P</sup>		2012					
	Consumption	Stocks	January		February		January-February	
			Consumption	Stocks <sup>r</sup>	Consumption	Stocks	Consumption	Stocks
Ferrovandium <sup>2</sup>	4,040,000	103,000	344,000 <sup>r</sup>	110,000	337,000	116,000	681,000	116,000
Vanadium-aluminum alloy and other forms <sup>3</sup>	869,000	62,300 <sup>r</sup>	66,600	58,000	66,400	73,200	133,000	73,200
Total	4,910,000	165,000 <sup>r</sup>	410,000 <sup>r</sup>	168,000	404,000	189,000	814,000	189,000

<sup>P</sup>Preliminary. <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)

	2011 <sup>P</sup>	2012		
		January	February	January-February
Steel:				
Carbon	677,000	63,100	56,900	120,000
High-strength low-alloy	W	W	W	W
Stainless and heat-resisting	61,500	5,140	5,110	10,200
Full alloy	2,060,000	172,000 <sup>r</sup>	172,000	345,000
Tool	W	W	W	W
Total steel	2,800,000	241,000 <sup>r</sup>	234,000	475,000
Superalloys	12,400 <sup>r</sup>	555 <sup>r</sup>	552	1,110
Miscellaneous and unspecified <sup>2</sup>	W	W	W	W
Total	4,910,000	410,000 <sup>r</sup>	404,000	814,000

<sup>P</sup>Preliminary. <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
Imports for consumption:				
2011	1,350,000	\$3,800,000	43,900	\$1,930,000
2012:				
January	36,100	219,000	240	46,700
February:				
China	16,000	88,000	--	--
Germany	--	--	9,120	270,000
Netherlands	6,500	117,000	--	--
Total	22,500	205,000	9,120	270,000
January–February	58,600	424,000	9,360	316,000
Exports:				
2011	10,600,000	36,700,000	102,000	3,340,000
2012:				
January	1,790,000	5,700,000	381	14,700
February:				
Australia	1,570	8,660	--	--
Canada	306,000	788,000	--	--
Israel	220	2,860	--	--
Mexico	1,140,000	3,440,000	--	--
New Zealand	2,640	15,100	--	--
Turkey	769	10,000	--	--
Total	1,450,000	4,270,000	--	--
January–February	3,230,000	9,960,000	381	14,700

-- 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:						
2011	2,220,000	\$64,600,000	2,800,000	\$45,800,000	886,000	\$17,400,000
2012:						
January	402,000	10,900,000	119,000	2,620,000	81,500	1,140,000
February:						
Austria	62,700	1,560,000	14,800	216,000	16,700	390,000
Canada	65,900	1,790,000	--	--	--	--
China	--	--	33,600	496,000	--	--
Czech Republic	161,000	3,510,000	--	--	--	--
South Africa	--	--	--	--	128,000	1,540,000
Total	290,000	6,860,000	48,300	713,000	144,000	1,930,000
January–February	692,000	17,800,000	168,000	3,340,000	226,000	3,070,000
Exports:						
2011	444,000	9,970,000	88,700	1,410,000	254,000	2,390,000
2012:						
January	39,700	901,000	599	17,700	1,370	12,200
February:						
Brazil	--	--	--	--	3,450	53,800
Canada	25,800	576,000	--	--	336	6,270
Germany	--	--	--	--	11,200	155,000
Japan	20,400	372,000	--	--	--	--
Korea, Republic of	508	12,700	--	--	--	--
Mexico	3,000	77,000	--	--	--	--
Netherlands	--	--	--	--	20,800	185,000
Total	49,700	1,040,000	--	--	35,800	400,000
January–February	89,400	1,940,000	599	17,700	37,100	412,000

-- 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
2011	1,420,000	\$1,570,000	89,600	\$479,000	189,000,000	\$5,170,000
2012:						
January	58,900	95,400	49,600	126,000	127,000	49,200
February:						
Canada	121,000	300,000	--	--	43,400	19,600
Germany	--	--	--	--	31,200	6,560
Mexico	--	--	--	--	189,000	42,200
Total	121,000	300,000	--	--	264,000	68,300
January–February	180,000	395,000	49,600	126,000	391,000	118,000

-- 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, unless otherwise specified)

	Sulfates		Vanadates	
	Quantity	Value	Quantity	Value
2011	42,200	\$738,000	303,000	\$7,400,000
2012:				
January	--	--	33,000	718,000
February:				
China	7,230	87,600	6,620	201,000
Germany	--	--	156	14,100
Japan	--	--	50	12,400
Total	7,230	87,600	6,830	228,000
January–February	7,230	87,600	39,800	946,000

-- 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.