

Mineral Industry Surveys

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VANADIUM IN JANUARY 2012

Reported domestic consumption of vanadium in January 2012 was 7% less than that of the previous month and was 4% more than that of January 2011. Consumer stocks of vanadium, in all forms, were 166 metric tons (t) at the beginning of 2012 and 167 t at the end of January.

According to Ryan's Notes, U.S. ferrovanadium (FeV) prices ranged from \$13.361 to \$14.194 per pound of vanadium content in January 2012, compared with \$13.194 to \$14.028 in December 2011. European FeV prices ranged from \$22.678 to \$23.444 per kilogram in January, compared with \$23.833 to \$24.667 in December. Vanadium pentoxide (V₂O₅) prices ranged from \$5.528 to \$6.139 per pound in January, compared with \$6.083 to \$6.356 in December.

Evraz Highveld Steel and Vanadium Ltd. (Russia) announced a 20% increase in vanadium slag production in the fourth

quarter of 2011 compared to the third quarter of 2011. The company attributed the increase to higher steel production in Russia and South Africa as well as more efficient vanadium production. For 2011, Evraz's slag output of 20,741 t was roughly the same as in 2010. Evraz's FeV production in 2011 increased 24% to 16,708 t compared with 13,507 t of FeV produced in 2010 (Ryan's Notes, 2012).

Data for U.S. imports and exports of vanadium for November 2011, December 2011, and January 2012 are published in this issue.

Reference Cited

Ryan's Notes, 2012, Ferroalloy notes: Ryan's Notes, v. 18, no. 5, January 23, p. 3.

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

(Kilograms, contained vanadium)

	2010		2011				2012	
			December		January–December		January	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks, end of period	Consumption	Stocks
Ferrovandium ²	4,210,000	187,000	336,000 ^r	103,000 ^r	4,040,000 ^r	103,000 ^r	345,000	108,000
Vanadium-aluminum alloy and other forms ³	815,000	61,600	107,000	63,500	869,000	63,500	66,600	59,200
Total	5,030,000	248,000	443,000 ^r	166,000 ^r	4,910,000 ^r	166,000 ^r	412,000	167,000

^rRevised.

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.

³Includes 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 USE¹

(Kilograms, contained vanadium)

	2010	2011		2012 January
		December	January– December	
Steel:				
Carbon	843,000	57,200	677,000	63,100
High-strength low-alloy	W	W	W	W
Stainless and heat-resisting	120,000	5,110	61,500	5,140
Full alloy	2,030,000	170,000 ^r	2,060,000 ^r	174,000
Tool	W	W	W	W
Total steel	2,990,000	232,000 ^r	2,800,000	242,000
Superalloys	9,230	508	11,900	512
Miscellaneous and unspecified ²	252,000	W	W	W
Total consumption	5,030,000	443,000 ^r	4,910,000 ^r	412,000

^rRevised. 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 3A
U.S. IMPORTS AND EXPORTS OF ALUMINUM-VANADIUM MASTER ALLOY AND VANADIUM
METAL, INCLUDING WASTE AND SCRAP¹

(Kilograms, gross weight, unless otherwise specified)

	Aluminum-vanadium master alloy		Vanadium metal, including waste and scrap	
	Quantity	Value	Quantity	Value
Imports for consumption:				
2010	9,200,000	\$20,200,000	9,660	\$434,000
2011:				
November	2,980	28,100	907	46,300
December:				
China	9,000	61,700	--	--
Egypt	5	3,200	--	--
Germany	--	--	9,410	304,000
Total	9,010	64,800	9,410	304,000
January–December	1,350,000	3,800,000	43,900	1,930,000
Exports:				
2010	11,900,000	33,300,000	21,200	671,000
2011:				
November	1,500,000	4,950,000	111	10,300
December				
Canada	51,200	128,000	--	--
India	17,000	154,000	--	--
Israel	2,260	29,300	--	--
Italy	7,010	80,100	--	--
Japan	7,260	204,000	3,280	100,000
Korea, Republic of	1,390	18,600	--	--
Mexico	1,010,000	3,010,000	--	--
Poland	3,850	50,000	--	--
United Kingdom	365	4,750	--	--
Total	1,100,000	3,680,000	3,280	100,000
January–December	10,600,000	36,700,000	102,000	3,340,000

-- Zero.

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

Source: U.S. Census Bureau.

TABLE 3B
U.S. IMPORTS AND EXPORTS OF ALUMINUM-VANADIUM MASTER ALLOY AND VANADIUM
METAL, INCLUDING WASTE AND SCRAP¹

(Kilograms, gross weight, unless otherwise specified)

	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:				
China	36,100	219,000	--	--
Germany	--	--	240	46,700
Total	36,100	219,000	240	46,700
Exports:				
2011	10,600,000	36,700,000	102,000	3,340,000
2012, January:				
Bolivia	3,710	48,200	--	--
Canada	657,000	1,580,000	--	--
Israel	344	4,480	--	--
Italy	18,700	246,000	--	--
Japan	3,690	98,400	163	6,280
Mexico	1,060,000	3,050,000	218	8,400
Netherlands	134	2,520	--	--
United Kingdom	41,600	669,000	--	--
Total	1,790,000	5,700,000	381	14,700

-- Zero.

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

Source: U.S. Census Bureau.

TABLE 4A
U.S. IMPORTS AND EXPORTS OF FERROVANADIUM, VANADIUM PENTOXIDE (ANHYDRIDE) AND
OTHER OXIDES AND HYDROXIDES OF VANADIUM¹

(Kilograms, contained vanadium, unless otherwise specified)

	Ferrovanadium		Vanadium pentoxide (anhydride) ²		Other oxides and hydroxides of vanadium	
	Quantity	Value	Quantity	Value	Quantity	Value
Imports for consumption:						
2010	1,340,000	\$41,100,000	4,000,000	\$53,700,000	167,000	\$3,330,000
2011:						
November	246,000	6,760,000	98,300	2,470,000	105,000	2,200,000
December:						
Austria	24,200	703,000	7,380	110,000	--	--
Canada	114,000	3,730,000	--	--	--	--
China	--	--	46,800	828,000	--	--
Czech Republic	16,000	432,000	--	--	--	--
Germany	650	57,400	--	--	--	--
South Africa	--	--	67,600	1,300,000	26,800	497,000
Total	155,000	4,920,000	122,000	2,240,000	26,800	497,000
January–December	2,220,000	64,600,000	2,800,000	45,800,000	886,000	17,400,000
Exports:						
2010	882,000	18,100,000	140,000	2,140,000	1,100,000	10,600,000
2011:						
November	32,000	813,000	3,300	55,000	7,460	90,900
December:						
Canada	21,800	559,000	--	--	--	--
China	--	--	--	--	6,950	122,000
Colombia	246	9,370	--	--	--	--
Germany	--	--	--	--	11,200	155,000
Korea, Republic of	3,050	124,000	--	--	1,750	29,400
Mexico	16,700	432,000	1,190	19,300	--	--
Saudi Arabia	--	--	2,800	48,900	--	--
Trinidad and Tobago	--	--	1,630	36,000	--	--
Total	41,800	1,120,000	5,620	104,000	19,900	307,000
January–December	444,000	9,970,000	88,700	1,410,000	254,000	2,390,000

-- 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 4B
U.S. IMPORTS AND EXPORTS OF FERROVANADIUM, VANADIUM PENTOXIDE (ANHYDRIDE) AND
OTHER OXIDES AND HYDROXIDES OF VANADIUM¹

(Kilograms, contained vanadium, unless otherwise specified)

	Ferrovanadium		Vanadium pentoxide (anhydride) ²		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:						
Austria	145,000	3,640,000	--	--	8,370	212,000
Canada	57,800	1,890,000	--	--	--	--
China	--	--	995	13,600	--	--
Czech Republic	86,700	2,010,000	--	--	--	--
Korea, Republic of	112,000	3,380,000	--	--	--	--
South Africa	--	--	108,000	2,310,000	73,200	931,000
Taiwan	--	--	10,100	302,000	--	--
Total	402,000	10,900,000	119,000	2,620,000	81,500	1,140,000
Exports:						
2011	444,000	9,970,000	88,700	1,410,000	254,000	2,390,000
2012, January:						
Canada	35,700	797,000	--	--	--	--
Germany	--	--	--	--	447	3,980
Mexico	4,000	104,000	599	17,700	924	8,220
Total	39,700	901,000	599	17,700	1,370	12,200

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

(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
2010	521,000	\$5,570,000	490,000	\$1,370,000	62,800,000	\$3,710,000
2011:						
November	128,000	45,300	--	--	73,500	29,900
December:						
Canada	63,700	27,000	--	--	12,600,000	227,000
Germany	--	--	14,500	112,000	32,800	9,520
Total	63,700	27,000	14,500	112,000	12,700,000	236,000
January–December	1,420,000	1,570,000	89,600	479,000	189,000,000	5,170,000

-- Zero.

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

Source: U.S. Census Bureau.

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

(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:						
Canada	58,900	95,400	49,600	126,000	39,300	17,300
Mexico	--	--	--	--	88,000	32,000
Total	58,900	95,400	49,600	126,000	127,000	49,200

-- Zero.

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

Source: U.S. Census Bureau.

TABLE 6A
U.S. IMPORTS FOR CONSUMPTION OF MISCELLANEOUS VANADIUM CHEMICALS¹

(Kilograms, contained vanadium, unless otherwise specified)

	Sulfates		Vanadates	
	Quantity	Value	Quantity	Value
2010	48,200	\$608,000	158,000	\$4,050,000
2011:				
November	4,880	69,100	45,600	1,010,000
December:				
Germany	--	--	143	11,000
South Africa	--	--	52,500	1,070,000
Total	--	--	52,700	1,080,000
January–December	42,200	738,000	303,000	7,400,000

-- Zero.

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

Source: U.S. Census Bureau.

TABLE 6B
U.S. IMPORTS FOR CONSUMPTION OF MISCELLANEOUS VANADIUM CHEMICALS¹

(Kilograms, contained vanadium, unless otherwise specified)

	Sulfates		Vanadates	
	Quantity	Value	Quantity	Value
2011	42,200	\$738,000	303,000	\$7,400,000
2012, January:				
Germany	--	--	156	14,300
Japan	--	--	25	5,690
South Africa	--	--	32,800	698,000
Total	--	--	33,000	718,000

-- Zero.

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

Source: U.S. Census Bureau.