

Mineral Industry Surveys

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VANADIUM IN NOVEMBER 2013

Reported domestic consumption of vanadium in November 2013 was slightly more than that of the previous month, and was 4% more than that of November 2012. Consumer stocks of vanadium, in all forms, were 228 metric tons (t) at the beginning of 2013 and 192 t at the end of November.

According to Ryan's Notes, U.S. ferrovanadium (FeV) prices ranged from \$12.075 to \$12.600 per pound of vanadium content in November, as compared with \$12.067 to \$12.667 in October. European FeV prices ranged from \$24.813 to \$25.313 per kilogram in November, as compared with \$25.656 to \$26.133 in October. Vanadium pentoxide (V₂O₅) prices ranged from \$5.500 to \$6.000 per pound in both October and November.

Atlantic Ltd. announced that its Windimurra project achieved record monthly FeV production of 106 t of contained V in

November, more than double the previous monthly record of 50 t of contained V. This came despite a loss of eight days of production while the furnace crucible was changed for re-lining. The Windimurra project is approximately 600 kilometers north of Perth, in Western Australia (Atlantic Ltd., 2013).

Reference Cited

Atlantic Ltd., 2013, Production and sales report month of November 2013: Perth, Western Australia, Australia, Atlantic Ltd., December 2, 4 p. (Accessed March 4, 2014, at <http://atlanticltd.com.au/upload/documents/InvestorRelations/asx/131203MonthlyProductionandSalesReport.pdf>.)

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

(Kilograms, contained vanadium)

	2012		2013					
	Consumption	Stocks, end of period	October		November		January–November	
			Consumption	Stocks, end of period	Consumption	Stocks, end of period	Consumption	Stocks, end of period
Ferrovandium ²	3,140,000	167,000	227,000 ^r	119,000 ^r	230,000	121,000	2,610,000	121,000
Vanadium-aluminum alloy and other forms ³	839,000	61,000	66,000	70,400	65,900	70,400	742,000	70,400
Total ⁴	3,980,000	228,000	293,000 ^r	189,000	296,000	192,000	3,350,000	192,000

^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.

⁴May include revisions to previously published data.

TABLE 2
U.S. CONSUMPTION OF VANADIUM, BY END USE¹

(Kilograms, contained vanadium)

	2013			
	2012	October	November	January–November
Steel:				
Carbon	759,000	42,700 ^r	45,400	502,000
Full alloy	1,510,000	115,000	115,000	1,310,000
High-strength low-alloy	W	W	W	W
Stainless and heat resisting	61,500	4,930	4,960	54,300
Tool	165,000	W	W	W
Total steel	2,500,000	162,000 ^r	166,000	1,870,000
Superalloys	9,050	167	152	1,780
Miscellaneous and unspecified ²	W	W	W	W
Total	3,980,000	293,000 ^r	296,000	3,350,000

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

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

(Kilograms, gross weight)

	Aluminum-vanadium master alloy ²		Unwrought aluminum-vanadium master alloy		Vanadium metal, including waste and scrap	
	Quantity	Value	Quantity	Value	Quantity	Value
Imports for consumption:						
2012	115,000	\$3,010,000	103,000	\$681,000	154,000	\$4,840,000
2013:						
October	10,100	426,000	--	--	714	164,000
November:						
China	5,900	163,000	--	--	--	--
Germany	1,010	58,500	--	--	--	--
Russia	10	11,600	--	--	--	--
United Kingdom	1	3,530	--	--	--	--
Total	6,920	236,000	--	--	--	--
January–November	120,000	3,600,000	58,700	220,000	20,300	871,000
Exports:						
2012	432,000	13,400,000	924,000	5,140,000	26,000	698,000
2013:						
October	25,100	725,000	420,000	1,310,000	5,250	142,000
November:						
Australia	1,500	115,000	--	--	--	--
Canada	--	--	220,000	529,000	--	--
China	272	10,500	--	--	--	--
Czech Republic	63	16,100	--	--	--	--
France	379	14,600	--	--	--	--
Japan	--	--	--	--	5,070	133,000
Mexico	--	--	160,000	468,000	--	--
Switzerland	2	2,540	--	--	--	--
Total	2,220	158,000	380,000	997,000	5,070	133,000
January–November ³	292,000	8,320,000	3,640,000	14,600,000	57,500	1,700,000

-- Zero.

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

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

³May include revisions to previously published data.

Source: U.S. Census Bureau; data adjusted by the U.S. Geological Survey.

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

(Kilograms, contained vanadium)

	Ferrovanadium		Vanadium pentoxide (anhydride) ²		Other oxides and hydroxides of vanadium	
	Quantity	Value	Quantity	Value	Quantity	Value
Imports for consumption:						
2012	4,190,000	\$108,000,000	1,640,000	\$26,500,000	905,000	\$12,800,000
2013:						
October	222,000	5,210,000	286,000	3,300,000	8,350	189,000
November:						
Austria	26,300	670,000	--	--	--	--
Canada	54,800	1,060,000	--	--	--	--
China	--	--	4,460	125,000	--	--
Czech Republic	176,000	3,520,000	--	--	--	--
Kazakhstan	--	--	223	4,850	--	--
Korea, Republic of	8,960	224,000	--	--	--	--
Russia	--	--	56,500	528,000	21,800	462,000
South Africa	26,900	586,000	30,700	718,000	--	--
Total	293,000	6,060,000	91,900	1,380,000	21,800	462,000
January–November	3,350,000	82,200,000	1,820,000	26,600,000	205,000	2,560,000
Exports:						
2012	454,000	11,000,000	61,800	1,160,000	287,000	3,540,000
2013:						
October	55,200	1,160,000	10,200	155,000	54,300	743,000
November:						
Austria	--	--	--	--	13,400	119,000
Brazil	--	--	150	6,950	--	--
Canada	3,860	68,500	--	--	--	--
Hong Kong	--	--	--	--	514	4,570
Mexico	--	--	--	--	400	7,420
Netherlands	--	--	--	--	31,300	510,000
Peru	1,030	25,700	--	--	--	--
Spain	--	--	10,500	152,000	--	--
Trinidad and Tobago	--	--	1,820	58,500	--	--
Total	4,890	94,200	12,500	217,000	45,600	641,000
January–November ³	347,000	7,820,000	89,000	1,330,000	404,000	4,430,000

-- Zero.

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

²May include catalysts containing vanadium pentoxide.

³May include revisions to previously published data.

Source: U.S. Census Bureau.

TABLE 5
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
2012	2,040,000	\$9,880,000	175,000	\$141,000	108,000,000	\$14,700,000
2013:						
October	362,000	2,000,000	--	--	165,000	349,000
November:						
Canada	338,000	1,950,000	--	--	59,600	29,800
Mexico	191,000	216,000	--	--	24,000	19,500
Total	528,000	2,160,000	--	--	83,600	49,400
January–November ²	3,890,000	20,600,000	5,560	11,500	57,900,000	8,230,000

-- Zero.

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

²May include revisions to previously published data.

Source: U.S. Census Bureau.

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

(Kilograms, contained vanadium)

	Sulfates		Vanadates	
	Quantity	Value	Quantity	Value
2012	29,100	\$370,000	280,000	\$6,190,000
2013:				
October	4,780	46,000	25,600	468,000
November:				
Canada	1	6,560	--	--
China	49	9,590	6,630	189,000
India	--	--	83	7,070
Total	50	16,200	6,710	196,000
January–November ²	29,500	306,000	241,000	5,050,000

-- Zero.

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

²May include revisions to previously published data.

Source: U.S. Census Bureau.