

Mineral Industry Surveys

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VANADIUM IN SEPTEMBER 2013

Reported domestic consumption of vanadium in September 2013 was about the same as that of the previous month, and was 23% less than that of September 2012. Consumer stocks of vanadium, in all forms, were 228 metric tons (t) at the beginning of 2013 and 194 t at the end of September.

According to Ryan's Notes, U.S. ferrovanadium (FeV) prices ranged from \$12.300 to \$12.900 per pound of vanadium content in September, compared with \$12.611 to \$13.133 in August. European FeV prices ranged from \$26.675 to \$27.113 per kilogram in September, compared with \$24.989 to \$25.400 in August. Vanadium pentoxide (V₂O₅) prices ranged from \$5.500 to \$6.000 per pound in both August and September.

Evrax Stratcor Inc. has commenced construction at its Hot Springs, AR, plant. The \$7 million expansion was expected to improve the plant's leaching and reagent systems to enable the

plant to process roasted steelmaking slag in addition to various other feedstocks in the production of specialty vanadium alloys and chemicals. The new facilities were expected to come onstream in late 2013 and were expected to produce approximately 4,000 metric tons per year of V₂O₅ (Evrax Stratcor, Inc., 2013).

Reference Cited

EVRAZ Stratcor, Inc., 2013, Construction underway at new facilities that will process vanadium-bearing steelmaking slag: Hot Springs, AR, Evrax Stratcor, Inc., September 11, 1 p.

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

(Kilograms, contained vanadium)

	2012		2013					
	Consumption	Stocks, end of period	August		September		January–September	
			Consumption	Stocks, end of period	Consumption	Stocks, end of period	Consumption	Stocks, end of period
Ferrovandium ²	3,140,000	167,000	238,000 ^r	126,000 ^r	236,000	124,000	2,140,000	124,000
Vanadium-aluminum alloy and other forms ³	839,000	61,000	67,300	70,700	69,000	70,500	610,000	70,500
Total ⁴	3,980,000	228,000	305,000 ^r	197,000 ^r	305,000	194,000	2,750,000	194,000

^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)

	2012	2013		
		August	September	January– September
Steel:				
Carbon	759,000	43,300	41,600	409,000
Full alloy	1,510,000	125,000 ^r	125,000	1,090,000
High-strength low-alloy	W	W	W	W
Stainless and heat resisting	61,500	4,930	4,930	44,400
Tool	165,000	W	W	W
Total steel	2,500,000	277,000 ^r	275,000	2,470,000
Superalloys	9,050	154	147	1,470
Miscellaneous and unspecified ²	W	W	W	W
Total	3,980,000	305,000 ^r	305,000	2,750,000

^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:						
August	13,200	\$385,000	26,700	95,500	--	--
September:						
Germany	9	14,300	--	--	--	--
Netherlands	--	--	3,500	18,400	--	--
Russia	19,000	614,000	--	--	--	--
Total	19,000	629,000	3,500	18,400	--	--
January–September	103,000	2,940,000	58,700	220,000	19,600	707,000
Exports:						
2012	432,000	13,400,000	924,000	5,140,000	26,000	698,000
2013:						
August	42,800	1,260,000	136,000	472,000	13,300	404,000
September:						
Canada	--	--	175,000	411,000	--	--
Israel	--	--	209	5,770	--	--
Japan	25,000	666,000	11,400	286,000	2,000	79,100
Korea, Republic of	--	--	344	4,470	348	32,400
Mexico	--	--	94,600	245,000	--	--
Oman	--	--	227	5,000	--	--
Russia	26,300	653,000	--	--	--	--
South Africa	--	--	792	10,300	--	--
Taiwan	--	--	2,140	9,630	--	--
United Arab Emirates	--	--	190	4,050	--	--
United Kingdom	229	18,600	--	--	--	--
Total	51,500	1,340,000	285,000	981,000	2,350	111,000
January–September ³	265,000	7,440,000	2,840,000	12,300,000	47,200	1,420,000

-- 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:						
August	258,000	5,940,000	227,000	2,980,000	--	--
September:						
Austria	26,800	762,000	--	--	--	--
Canada	183	7,530	--	--	--	--
China	--	--	35,800	493,000	--	--
Czech Republic	32,200	638,000	--	--	--	--
Germany	359	23,500	--	--	--	--
Japan	17,200	410,000	--	--	--	--
Korea, Republic of	26,700	660,000	--	--	--	--
Russia	--	--	94,100	858,000	--	--
South Africa	--	--	130,000	1,970,000	--	--
Total	103,000	2,500,000	260,000	3,320,000	--	--
January–September	2,840,000	70,900,000	1,440,000	21,900,000	174,000	1,910,000
Exports:						
2012	454,000	11,000,000	61,800	1,160,000	287,000	3,540,000
2013:						
August	12,400	302,000	--	--	13,500	88,000
September:						
Canada	5,900	158,000	--	--	--	--
Mexico	--	--	50	4,950	--	--
Trinidad and Tobago	--	--	4,360	106,000	6,170	42,300
Total	5,900	158,000	4,410	111,000	6,170	42,300
January–September ³	287,000	6,560,000	66,300	955,000	304,000	3,040,000

-- 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
2013:						
August	472,000	2,850,000	--	--	277,000	75,100
September:						
Canada	325,000	1,900,000	--	--	15,700,000	371,000
Germany	2,780	6,320	--	--	--	--
Mexico	360,000	388,000	--	--	23,500	20,300
Total	688,000	2,300,000	--	--	15,700,000	392,000
January–September ²	3,000,000	16,400,000	5,560	11,500	57,700,000	7,840,000

-- 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:				
August	--	--	6,690	189,000
September:				
Austria	--	--	3,990	125,000
Japan	--	--	165	18,200
Total	--	--	4,160	144,000
January–September ²	24,700	244,000	209,000	4,390,000

-- 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.