

# Mineral Industry Surveys

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## VANADIUM IN SEPTEMBER 2008

Reported domestic consumption of vanadium in September 2008 was about 5% less than that of the previous month, and was about 28% more than that of September 2007, according to the U.S. Geological Survey. Consumer stocks of vanadium, in all forms, were 295 metric tons (t) at the beginning of 2008 and 301 t at the end of September.

According to Ryan's Notes (2008), U.S. ferrovanadium (FeV) prices ranged from \$30.694 to \$31.667 per pound of vanadium content in September, as compared with \$31.611 to \$33.111 in August. European FeV prices ranged from \$61.222 to \$63.111 per kilogram in September, as compared with \$63.667 to \$65.667 in August. Vanadium pentoxide (V<sub>2</sub>O<sub>5</sub>) prices ranged from \$14.311 to \$14.922 per pound in September, as compared with \$15.111 to \$15.722 in August.

China's Panzhihua New Steel and Vanadium Co., Ltd., a subsidiary of Panzhihua Iron and Steel Group, completed the expansion of its Panhong Vanadium Products Plant in southwest China's Sichuan Province. The expansion increased the plant's FeV production capacity to 9,000 metric tons per year (t/yr) and its V<sub>2</sub>O<sub>5</sub> production capacity to 18,000 t/yr, making it the world's largest capacity vanadium plant, according to the Economic Commission of Sichuan Province (Metal Pages, 2008).

### References Cited

- Metal Pages, 2008, Pangang completes vanadium expansion: Metal Pages., September 29. (Accessed April 8, 2009, via <http://www.metal-pages.com/news>.)  
Ryan's Notes, 2008, [untitled]: Ryan's Notes, v. 14, no. 40, October 6, p. 10.

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

(Kilograms, contained vanadium)

	2007		2008					
			August		September		Year to date	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium <sup>2</sup>	3,320,000	253,000	379,000	254,000	348,000	249,000	3,250,000	249,000
Vanadium-aluminum alloy	W	W	W	W	W	W	W	W
Other <sup>3</sup>	809,000	42,400	71,600	55,200	77,900	51,300	655,000	51,300
Total	4,130,000	295,000	451,000	309,000	426,000	301,000	3,900,000	301,000

W Withheld to avoid disclosing company proprietary data; included with "Other."

<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 other vanadium alloys, vanadium metal, vanadium pentoxide, vanadates, chlorides, other specialty chemicals, and items indicated by symbol W.

TABLE 2  
U.S. CONSUMPTION OF VANADIUM, BY END USE<sup>1</sup>

(Kilograms, contained vanadium)

	2007	2008		
		August	September	Year to date
Steel:				
Carbon	882,000	63,600	66,100	603,000
High-strength low-alloy	1,270,000	132,000	132,000	1,190,000
Stainless and heat-resisting	61,400	32,300	5,110	101,000
Full alloy	1,180,000	175,000	169,000	1,570,000
Tool	420,000	21,400	21,400	192,000
Total steel	3,810,000	424,000	394,000	3,660,000
Superalloys	7,180	415	371	4,090
Miscellaneous and unspecified <sup>2</sup>	314,000	25,900	32,200	244,000
Total consumption	4,130,000	451,000	426,000	3,900,000

<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>				
2007	1,110,000	\$2,110,000	3,620	\$198,000
<b>2008:</b>				
July	42,700	169,000	680	29,100
<b>August:</b>				
France	--	--	2,540	141,000
Germany	--	--	573	99,500
Greece	151,000	681,000	--	--
Netherlands	4,880	24,300		
United Kingdom	--	--	81	31,600
Total	156,000	705,000	3,200	272,000
Year to date	392,000	1,700,000	3,880	307,000
<b>Exports:</b>				
2007	21,100,000	72,700,000	49,400	2,690,000
<b>2008:</b>				
July	1,420,000	5,220,000	1,980	50,700
<b>August:</b>				
Belgium	38,600	1,130,000	--	--
Canada	708,000	2,320,000	--	--
Germany	255	7,500	--	--
Mexico	1,660,000	5,250,000	--	--
Peru	582	17,100	--	--
United Kingdom	23,300	686,000	--	--
Total	2,430,000	9,420,000	--	--
Year to date	14,600,000	50,900,000	27,600	1,900,000

-- 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>						
2007	2,220,000	\$81,300,000	2,390,000	\$46,800,000	41,900	\$1,400,000
<b>2008:</b>						
July	241,000	17,100,000	362,000	13,500,000	56,300	1,510,000
<b>August:</b>						
Austria	31,900	2,300,000	--	--	--	--
Canada	86,200	5,200,000	--	--	--	--
China	--	--	73,500	3,200,000	--	--
Czech Republic	786	70,800	--	--	--	--
Germany	469	66,100	--	--	--	--
Japan	--	--	182	56,300	--	--
Korea	116,000	7,830,000	--	--	--	--
Russia	--	--	266,000	7,680,000	--	--
South Africa	--	--	94,100	4,440,000	24,000	483,000
Total	235,000	15,500,000	434,000	15,400,000	24,000	483,000
Year to date	2,250,000	125,000,000	2,780,000	84,200,000	122,000	3,180,000
<b>Exports:</b>						
2007	206,000	5,810,000	327,000	5,460,000	626,000	7,530,000
<b>2008:</b>						
July	22,700	1,150,000	21,400	860,000	107,000	1,420,000
<b>August:</b>						
Brazil	1,320	43,800	--	--	2,720	39,000
Canada	1,810	102,000	--	--	--	--
Germany	--	--	--	--	2,890	25,800
Italy	--	--	14,400	267,000	--	--
Mexico	--	--	500	24,900	--	--
Netherlands	--	--	--	--	9,490	157,000
Russia	--	--	--	--	140,000	1,730,000
Trinidad and Tobago	--	--	2,180	96,000	--	--
Total	3,130	146,000	17,100	388,000	155,000	1,950,000
Year to date	187,000	8,140,000	203,000	4,820,000	731,000	8,430,000

-- 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)

	Ash and residues		Ash and residues (not from the manufacture of iron and steel)	
	Quantity	Value	Quantity	Value
2007	1,000,000	\$9,960,000	641,000	\$913,000
2008:				
July	31,400	207,000	48,800	115,000
August, Canada	--	--	47,200	96,800
Year to date	450,000	5,470,000	387,000	594,000

-- 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
2007	80,200	\$783,000	211,000	\$3,550,000
2008:				
July	25	7,300	14,000	425,000
August:				
Germany	--	--	260	19,700
South Africa	--	--	22,200	706,000
Total	--	--	22,500	725,000
Year to date	35	48,500	175,000	3,860,000

-- 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.