

Mineral Industry Surveys

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FLUORSPAR IN THE FIRST QUARTER 2012

Reported fluorspar consumption in the first quarter was 126,000 metric tons (t), an increase of about 17% compared with that of the previous quarter and slightly more than that consumed in the first quarter of 2011. First quarter stocks increased slightly compared with those of the previous quarter and were 17% higher than those of the first quarter of 2011. Fluorspar imports in the first quarter were 151,000 t, a decrease of 29% compared with that of the previous quarter and about 17% lower than that imported in the first quarter of 2011.

According to statistics recording imports for consumption as reported by the U.S. Census Bureau, fluorspar imports into the United States increased quite substantially during the past five quarters. Much of the large increase was in the form of increased imports of subacid-grade fluorspar (metallurgical or ceramic grade). The U.S. Geological Survey's consumption survey and stocks data do not reflect these increases, and as a result there is a large difference between reported consumption and apparent consumption (imports minus exports plus or minus changes in stocks). The discrepancies are being investigated.

Industry News

On September 2, 2011, China appealed the World Trade Organization (WTO) ruling that its export restrictions on several industrial raw materials (including fluorspar) were inconsistent with WTO rules. In late January 2012, the WTO Appellate Body affirmed a WTO dispute settlement panel's July 2011 finding that found China's export restraints on these materials to be inconsistent with China's WTO obligations and rejected China's attempts to portray its export restraints as conservation or environmental protection measures or measures taken to manage critical shortages of supply (Office of the U.S. Trade Representative, 2012).

Canada Fluorspar Inc. (CFI) (Markham, Ontario, Canada) began a series of surface trenches in January 2012 to explore the extent of the Director vein that was previously mined from 1942 to 1977. The north and south extremities of the Director vein are thought to contain significant fluorspar mineralization. The south end of the Director vein is considered to have the greatest potential, in part because it is exposed at the surface and is close to CFI's mill and proposed tailings facility and a deepwater

wharf under construction. CFI designed a program to trace the mineralized structure of the Director vein to the south along strike through a series of surface trenches of which five trenches had been completed through the first quarter (Canada Fluorspar Inc., 2012).

Fluormin Plc (London, United Kingdom) reached an agreement with Kenya Fluorspar Co. Ltd. (KFC) (Nairobi, Kenya) to sell its 20% interest in KFC for \$13 million back to KFC. The cash consideration would be paid in two equal payments of \$6.5 million, with the first due on or before April 30, 2012, and the second payment due on or before November 30, 2012 (Fluormin Plc, 2012a).

The profit realized from the sale of the KFC shares improved Fluormin's ability to invest in improvements in its Witkop fluorspar mine in South Africa. The Witkop Mine has traditionally processed very low ore grades [13% to 14% calcium fluoride (CaF₂)] compared with other fluorspar mines, and since restarting production in March 2011, the company has seen its ore-grade feed dip below 9% CaF₂. Fluormin has had to deal with several other challenges, including water shortages, power outages, unplanned plant maintenance, and higher-than-expected stripping ratios. The company is undertaking a substantial infill drill program to reduce the feed grade variability and dilution. Any plans to make necessary improvements at Witkop and expand production must be measured against the backdrop of lower fluorspar prices. Because of the low ore grade at Witkop, the mine has high production costs and therefore requires relatively high fluorspar prices and a favorable exchange rate between the dollar and the rand to remain profitable (Fluormin Plc, 2012b).

Globe Metals and Mining Ltd. (Perth, Australia) released results of the preliminary drilling program performed on its Mount Muambe fluorspar and rare-earths project. Mount Muambe is a carbonatite crater roughly 4 kilometers in diameter located in the Tete Province of Mozambique. Drilling resulted in an inferred mineral resource estimate of 1.6 million metric tons (Mt) grading 19% CaF₂ at a cutoff grade of 10% CaF₂. The fluorspar mineralization is near surface and open along strike in both directions and contains valuable byproduct rare earth mineralization. The company reported that only a small area of

the crater had been drilled, and reconnaissance work showed numerous other fluorite prospects within the crater (Globe Metals and Mining Ltd., 2012).

JSC Russian Ore Mining Co. (Moscow, Russia) agreed to sell its 50% share of Russia's leading fluorspar producer, Yaroslavl Mining Co., to United Company RUSAL Plc (RUSAL) (Moscow, Russia) subject to approval by the Russia's Federal Antimonopoly Service. RUSAL, the world's leading producer of aluminum, already owned the other 50% of Yaroslavl, and this acquisition would enable RUSAL to become less dependent on outside sources of raw materials for its aluminum production needs. This asset was expected to cover 60% of RUSAL's current fluorspar concentrate requirements, and future expansion provides the potential for full coverage of the RUSAL's requirements. Under the Russian reserve classification system, Yaroslavl has licenses controlling 22 Mt of fluorspar reserves, which at current mining rates would allow a mine life of 20 years (United Company RUSAL Plc, 2012).

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TABLE 1
SALIENT FLUORSPAR STATISTICS¹

(Metric tons, unless otherwise specified)

	2011				1st quarter– 4th quarter	2012 1st quarter
	1st quarter	2d quarter	3d quarter	4th quarter		
Imports for consumption	181,000	126,000	206,000	213,000	727,000	151,000
Exports	5,520	6,250	6,650	5,630	24,100	6,040
End of the period stocks, consumer	140,000	137,000	141,000	162,000	162,000	164,000
Imports for consumption of hydrofluoric acid	34,400	35,100	33,200	29,800	132,000	35,300
Imports for consumption of aluminum fluoride	8,270	11,100	9,430	12,500	41,200	14,200
Imports for consumption of cryolite	1,900	2,090	3,140	2,440	9,560	2,170
Quarterly reported fluor spar consumption	124,000	99,900	123,000	108,000	454,000	126,000

TABLE 2
 CONSUMPTION OF FLUORSPAR BY END USE AND ASSAY RANGE¹
 (DOMESTIC AND FOREIGN IN THE UNITED STATES)

(Metric tons)

	Hydrofluoric acid and other uses ²	Metallurgical	Total	Stocks, end of period ³
2011:				
1st quarter:				
More than 97% calcium fluoride	114,000	2,990	117,000	123,000
Not more than 97% calcium fluoride	--	6,960	6,960	17,700
Total	114,000	9,950	124,000	140,000
2d quarter:				
More than 97% calcium fluoride	89,500	2,990	92,500	121,000
Not more than 97% calcium fluoride	--	7,340	7,340	16,300
Total	89,500	10,300	99,900	137,000
3d quarter:				
More than 97% calcium fluoride	112,000	2,990	115,000	113,000
Not more than 97% calcium fluoride	--	8,100	8,100	28,800
Total	112,000	11,100	123,000	141,000
4th quarter:				
More than 97% calcium fluoride	97,000	2,990	100,000	145,000
Not more than 97% calcium fluoride	--	8,000	8,000	17,500
Total	97,000	11,000	108,000	162,000
Grand total	412,000	42,400	454,000	162,000
2012:				
1st quarter:				
More than 97% calcium fluoride	115,000	2,990	118,000	142,000
Not more than 97% calcium fluoride	--	7,590	7,590	21,700
Total	115,000	10,600	126,000	164,000

-- Zero.

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

²May include cement, enamel, glass and fiberglass, steel castings, hydrofluoric acid, and welding rod coatings.

³Stocks include some distributor stocks and consumer stocks for hydrofluoric acid.

TABLE 3
U.S. IMPORTS FOR CONSUMPTION OF FLUORSPAR, BY COUNTRY AND VALUE^{1,2}

	2011										2012	
	1st quarter		2d quarter		3d quarter		4th quarter		1st quarter-4th quarter		1st quarter	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Containing more than 97% calcium fluoride:												
China	25,000	\$9,450	26,300	\$13,400	27,600	\$16,900	40,300	\$20,300	119,000	\$60,000	28,400	\$17,800
Mexico	90,500	15,900	61,600	11,900	121,000	17,400	128,000	19,900	401,000	65,100	64,500	17,300
South Africa	15,600	4,000	6,670	1,700	17,200	5,420	--	--	39,400	11,100	21,000	5,670
United Kingdom	1	5	1	5	414	49	4	15	420	74	2	7
Other	1	7	--	--	--	--	--	--	1	7	17	18
Total	131,000	29,300	94,600	27,000	166,000	39,800	169,000	40,200	560,000	136,000	114,000	40,800
Containing not more than 97% calcium fluoride:												
Mexico	50,400	5,060	31,500	3,800	40,200	4,130	44,600	4,350	167,000	17,300	36,400	3,830
Other	--	--	--	--	--	--	--	--	--	--	428	48
Total	50,400	5,060	31,500	3,800	40,200	4,130	44,600	4,350	167,000	17,300	36,900	3,880
Grand total	181,000	34,400	126,000	30,800	206,000	44,000	213,000	44,600	727,000	154,000	151,000	44,700

-- Zero.

¹Imports for consumption include imports of immediate entry and warehouse withdrawals.

²Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 4
IMPORTS FOR CONSUMPTION OF HYDROFLUORIC ACID¹

	2011										2012	
	1st quarter		2d quarter		3d quarter		4th quarter		1st quarter–4th quarter		1st quarter	
	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)
Canada	1,850	\$6,040	4,940	\$13,000	5,860	\$14,200	2,640	\$7,400	15,300	\$40,700	4,560	\$11,700
China	1,370	1,920	1,280	2,080	1,010	1,770	1,400	2,260	5,060	8,030	1,080	1,570
Germany	45	162	83	239	69	141	66	162	263	704	87	198
Japan	244	595	358	755	212	501	335	813	1,150	2,660	230	549
Mexico	30,700	43,700	28,200	40,700	25,900	37,200	25,300	39,600	110,000	161,000	29,200	47,500
Other	175	274	204	407	205	469	108	348	692	1,500	124	515
Total	34,400	52,700	35,100	57,200	33,200	54,200	29,800	50,600	132,000	215,000	35,300	62,100

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

²Cost, insurance, and freight at U.S. ports.

Source: U.S. Census Bureau.

TABLE 5
END OF QUARTER FLUORSPAR PRICES

(Dollars per metric ton)

	2011				2012
	1st quarter	2d quarter	3d quarter	4th quarter	1st quarter
Acidspar:					
Chinese, dry basis, cost, insurance, and freight (c.i.f.) Gulf port, filtercake	440–460	550–650	550–650	550–650	550–650
Chinese, free on board (f.o.b.) China, wet filtercake	400–420	500–600	500–600	450–500	450–500
Mexican, f.o.b. Tampico, filtercake	330–360	400–450	400–450	400–450	400–450
Mexican, f.o.b. Tampico, arsenic <5 parts per million	350–370	450–480	500–550	540–550	540–550
South African, f.o.b. Durban, filtercake	330–335	330–335	330–335	380–450	380–450
Metspar, Mexican, f.o.b. Tampico	180–220	220–270	230–270	230–270	230–270

Source: Industrial Minerals magazine (London).