

Mineral Industry Surveys

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FLUORSPAR IN THE SECOND QUARTER 2009

Reported fluorspar consumption in the second quarter was 97,700 metric tons (t), an increase of nearly 9% compared with the revised figure for the previous quarter, but 29% less than that consumed in the second quarter of 2008. Second quarter stocks decreased by 30% compared with those of the previous quarter, and were down 10% compared with those of the second quarter of 2008. Consumers drew down stocks in the second quarter as imports decreased by 33% compared with those of the previous quarter.

According to Industrial Minerals magazine (IMM), end-of-second-quarter-2009 acidspars prices were—China, dry basis, c.i.f. U.S. Gulf of Mexico port, \$510 to \$530 per metric ton; Mexico, free on board (f.o.b.) Tampico, \$340 to \$360 per metric ton for both regular and low-arsenic acidspars; and South Africa, f.o.b. Durban, \$230 to \$300 per metric ton. The actual c.i.f. prices for Chinese acidspars were likely much lower, but United States buyers made no significant purchases in the second quarter, and the list price appears to be simply carried over from prior months. Global demand for acidspars remained weak, and because there were no major transactions, no data were available to generate accurate prices. IMM also lists an f.o.b. China price for acidspars, and it was \$280 to \$300 per metric ton for the same period (Industrial Minerals, 2009). Based on this price range, a projected end-of-second-quarter-2009 acidspars price (c.i.f. U.S. Gulf of Mexico port) would likely have been in the \$330 to \$350 per metric ton range.

Note: owing to the closure of Alcoa World Alumina LLC's aluminum fluoride (AlF₃) plant, consumption of acid-grade fluorspar (acidspars) for hydrofluoric acid (HF) is now included under the "Other uses or products" heading in table 2. This was done in order to avoid disclosing company proprietary data.

Trade

In June, the U.S. Trade Representative announced that the United States had requested World Trade Organization (WTO) dispute settlement consultations with China regarding China's export restraints on numerous important raw materials. The dispute concerned China's policy that provides substantial competitive advantages for the Chinese industries using these raw material inputs—bauxite, coke, fluorspar, magnesium,

manganese, silicon metal, silicon carbide, yellow phosphorus, and zinc. China is a leading global producer of these materials, which are key inputs for numerous downstream products in the steel, aluminum, and chemical sectors across the globe. The European Union also requested formal WTO consultations with China on this matter.

Specific to fluorspar, China imposes quantitative restrictions in the form of export quotas, export license fees, and export taxes and has abolished value-added tax export rebates. Article XI:1 of the General Agreement on Tariffs and Trade states that "No prohibitions or restrictions other than duties, taxes or other charges, whether made effective through quotas, import or export licences or other measures, shall be instituted or maintained . . . on the exportation or sale for export of any product destined for the territory of any other contracting party." In addition, China's WTO Accession Protocol contains broad commitments not to restrict the right to export goods. As part of its WTO accession, China committed to eliminate export duties for all products other than those listed in a specific annex. Further, China committed to limit any export duties on the listed products to specified levels. The export duties being challenged are on products not listed in the annex or are imposed at rates that exceed the annex limits (Office of the United States Trade Representative, 2009).

In August, Mexico joined the United States and the European Union when it also filed a complaint with the WTO over China's export restrictions. The complaint requested formal WTO consultations; China had 30 days to respond to Mexico's request for trade consultations; otherwise, Mexico could request an arbitration panel (Kiernan, 2009).

Industry News

Effects of the global financial crisis have filtered down to several fluorspar producers in Africa. Fluorspar mining companies in Kenya, Namibia, and South Africa were forced to curtail mining operations and mothball their facilities because of the plummeting demand for their products.

South African fluorspar producer Sallies Ltd. (Pretoria), which mothballed its Buffalo Mine in the fourth quarter of 2008, was forced to suspend mining at its primary fluorspar

mine—Witkop Fluorspar Mine (Pty.) Ltd.—owing to the dramatic decrease in demand for acid-grade fluorspar. The mine was mothballed in June when the company was unable to secure future orders from its customers. According to the company, the mine had already produced sufficient fluorspar to meet its contractual obligations through the end of 2009 (Miningreview.com, 2009).

Kenya Fluorspar Company Ltd. (KFC) initiated what it hoped was a short-term closure of its fluorspar mine in the Kerio Valley. Demand for the company's acid-grade fluorspar had dropped by more than 70% compared with that of 2008, when the company exported 106,000 t of fluorspar to its customers in Asia and Europe. KFC had accumulated stocks of more than 15,000 t at its flotation plant at the time of the shutdown. The closure has had a severe impact on the local economy since KFC employed 500 workers directly and was the most important economic enterprise in the district (Bii, 2009).

Okorusu Fluorspar (Pty.) Ltd. (Namibia) announced that it was suspending fluorspar production until October. Okorusu produced acid-grade fluorspar for its parent company Solvay S.A. (Belgium), which used it to produce HF at its plants in Germany and Italy. Solvay's 2009 fluorspar requirements from Okorusu are projected to be only about 56,000 t of fluorspar compared with recent year figures of 109,000 t (Kaira, 2009).

While established fluorspar mining companies are mothballing operations because of reduced demand, Lotus Resources plc (London, United Kingdom) has been arranging joint-venture agreements with partners in Mongolia for the exploration and development of fluorspar deposits. Since the beginning of 2009, Lotus has signed four agreements that included the formation of Lotus Dai Uul LLC and Lotus Ambulan LLC. Lotus Dai Uul has begun sales of metallurgical-grade fluorspar through MGB Mining LLC to customers in Russia, and the mining license in Dornogobi Province was successfully transferred to Lotus Ambulan in July. After approval of an environmental assessment and mining plan, open pit mining would begin almost immediately (Lotus Resources plc, 2009).

Fluorochemical News

As a result of accidental releases of HF at three U.S. refineries in Illinois, Pennsylvania, and Texas in recent months, the United Steelworkers union (USW) has called for the phase-

out of HF used in petroleum alkylation units at refineries. The USW (the largest industrial union in North America) planned to discuss alternatives to HF with the refining industry, and, if necessary, would work through the regulatory agencies and Congress to get the issue resolved. One-third of refineries use HF as an alkylation catalyst, while the other two-thirds use sulfuric acid, which is less dangerous because of its much lower vapor pressure. The USW also stated that it planned to work with local and national environmental groups to end the use of HF in alkylation (PR Newswire, 2009). Petroleum alkylation accounted for 14% of HF consumption in the United States in 2008 (Will, 2009, p. 85).

References Cited

- Bii, Barnabas, 2009, Hundreds jobless as fluorspar firm shuts down: Businessdailyafrica.com, July 7. (Accessed July 7, 2009, at <http://www.businessdailyafrica.com/Company%20Industry/-/539550/620080/-/u93mi6z/-/>.)
- Industrial Minerals, 2009, Latest price movements: London, United Kingdom, Industrial Minerals. (Accessed August 26, 2009, via <http://www.indmin.com>.)
- Kaira, Chamwe, 2009, Solvay's Namibian fluorspar mine suspends production, Sun says: Bloomberg.com, August 13. (Accessed August 13, 2009, at <http://www.bloomberg.com/apps/news?pid=20601116&sid=ayIIm.V2X71Y>.)
- Kiernan, Paul, 2009, Mexico files WTO complaint over China export restrictions: Dow Jones Newswires, August 21. (Accessed September 1, 2009, at <http://www.nasdaq.com/asp/stock-market-news-story.aspx?storyid=200908211714dowjonesdjonline000510&title=mexico-files-wto-complaint-over-china-export-restrictions>.)
- Lotus Resources plc, 2009, Transfer of mining licence—First sale of fluorspar from trial mining: London, United Kingdom, Lotus Resources plc, July 6. (Accessed August 26, 2009, at <http://www.lotus-resources.com/content/media/2009/06-07-09.asp>.)
- Miningreview.com, 2009, Sallies shuts down Witkop Mine: Spintelligent (Pty) Ltd., Miningreview.com, June 29. (Accessed August 25, 2009, at <http://beta.miningreview.com/node/15740>.)
- Office of the United States Trade Representative, 2009, United States files WTO case against China over export restraints on raw materials: Office of the United States Trade Representative, June 23. (Accessed August 31, 2009, at <http://www.ustr.gov/about-us/press-office/press-releases/2009/june/united-states-files-wto-case-against-china-over-expor>.)
- PR Newswire, 2009, United Steelworkers union calls for industry-wide phase-out of hydrogen fluoride in oil refinery alkylation units: PR Newswire, August 31. (Accessed September 1, 2009, at <http://www.yachtchartersmagazine.com/node/1088665>.)
- Will, R.K., 2009, Fluorspar and inorganic fluorine compounds: Menlo Park, CA, Chemical Economics Handbook—SRI Consulting, March, 159 p.

TABLE 1
SALIENT FLUORSPAR STATISTICS¹

(Metric tons, unless otherwise specified)

	2008			2009		
	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	Total or average
Imports for consumption:						
Quantity	157,000	125,000	167,000	134,000	90,200	225,000
Average value per ton, c.i.f. U.S. port, metallurgical grade ²	\$106	\$109	\$108	\$191	\$109	\$125
Exports	4,620	4,690	5,470	2,110	2,440	4,550
End of quarter stocks, consumer	107,000	89,700	115,000	138,000	96,100	XX
Imports for consumption of hydrofluoric acid ³	36,700	30,300	30,600	29,600	23,300	52,900
Imports for consumption of cryolite ³	2,160	2,070	1,050	462	319	781
Quarterly reported fluorspar consumption	138,000	127,000	101,000	89,800 ^r	97,700	187,000

^rRevised. XX Not applicable.

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

²Value data appear to be underreported and are too low to make accurate average-value-per-ton calculations for acid-grade imports.

³Until fourth quarter 2006, these data showed imports in fluorspar equivalents, but data are now actual imports for consumption of indicated materials.

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

(Metric tons)

	Hydrofluoric acid and aluminum fluoride	Metallurgical	Other uses or products ²	Total	Stocks, end of period ³
2008:					
First quarter:					
More than 97% calcium fluoride	120,000	4,020	7,640	132,000	85,800
Not more than 97% calcium fluoride	--	9,660	--	9,660	16,100
Total	120,000	13,700	7,640	142,000	102,000
Second quarter:					
More than 97% calcium fluoride	118,000	3,630	7,170	129,000	92,000
Not more than 97% calcium fluoride	--	9,280	--	9,280	15,100
Total	118,000	12,900	7,170	138,000	107,000
Third quarter:					
More than 97% calcium fluoride	107,000	3,630	7,170	118,000	70,800
Not more than 97% calcium fluoride	--	9,170	--	9,170	18,900
Total	107,000	12,800	7,170	127,000	89,700
Fourth quarter:					
More than 97% calcium fluoride	W	3,630	89,800	93,500	94,300
Not more than 97% calcium fluoride	--	7,170	--	7,170	21,200
Total	W	10,800	89,800	101,000	115,000
Grand total	346,000 ⁴	50,200	112,000	508,000	XX
2009:					
First quarter:					
More than 97% calcium fluoride	W	2,220 ^r	84,100 ^r	86,300 ^r	120,000
Not more than 97% calcium fluoride	--	3,440 ^r	--	3,440 ^r	18,100
Total	W	5,660 ^r	84,100 ^r	89,800 ^r	138,000
Second quarter:					
More than 97% calcium fluoride	W	2,220	91,500	93,700	81,100
Not more than 97% calcium fluoride	--	4,050	--	4,050	15,000
Total	W	6,270	91,500	97,700	96,100
Grand total	W	11,900	176,000	187,000	XX

^rRevised. W Withheld to avoid disclosing company proprietary data; included in "Other uses or products." XX Not applicable. -- 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 and aluminum fluoride.

⁴Cumulative total excluding fourth quarter data.

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

	2008						2009					
	Second quarter		Third quarter		Fourth quarter		First quarter		Second quarter		Year	
	Quantity (metric tons)	Value ³ (thousands)										
Containing more than 97% calcium fluoride:												
China	68,400	\$21,400	41,800	\$17,200	58,600	\$25,000	41,700	\$17,400	325	\$41	42,000	\$17,500
Mexico	63,000	11,000	54,400	8,670	64,400	10,000	55,800	11,900	58,500	\$10,300	114,000	22,300
Mongolia	--	--	--	--	5,500	2,100	--	--	--	--	--	--
South Africa	14,500	2,920	39	19	27,200	8,600	32,100	9,470	11,200	6,620	43,300	16,100
United Kingdom	4	11	592	79	40	9	2	4	88	4	90	8
Total	146,000	35,400	96,800	25,900	156,000	45,700	130,000	38,800	70,100	17,000	200,000	55,800
Containing not more than 97% calcium fluoride:												
Mexico	11,100	1,190	28,300	3,100	11,200	1,220	4,790	913	20,100	2,190	24,900	3,100
Namibia	243	21	--	--	283	26	--	--	--	--	--	--
Total	11,400	1,210	28,300	3,100	11,500	1,250	4,790	913	20,100	2,190	24,900	3,100
Grand total	157,000	36,600	125,000	29,000	167,000	46,900	134,000	39,700	90,200	19,200	225,000	58,900

-- 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.

³Value data for imports "containing more than 97% calcium fluoride" are believed to be underreported; insufficient information is available to make accurate adjustments.

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Source: U.S. Census Bureau.

TABLE 4
IMPORTS FOR CONSUMPTION OF HYDROFLUORIC ACID¹

	2008						2009					
	Second quarter		Third quarter		Fourth quarter		First quarter		Second quarter		Year	
	Quantity (metric tons)	Value ² (thousands)										
Canada	7,300	\$13,000	6,750	\$13,700	4,710	\$11,600	3,670	\$11,700	2,550	\$9,420	6,220	\$21,100
China	279	365	276	454	691	1,020	679	854	642	857	1,320	1,710
Germany	159	440	165	412	75	223	115	373	91	296	206	669
Japan	270	439	246	471	329	673	138	324	67	122	205	446
Mexico	28,700	30,700	22,800	27,100	24,700	28,200	24,900	26,700	19,900	23,000	44,800	49,800
Other	16	58	48	207	104	266	65	110	45	85	110	195
Total	36,700	45,000	30,300	42,400	30,600	42,000	29,600	40,100	23,300	33,800	52,900	73,900

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.