

Mineral Industry Surveys

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FLUORSPAR IN THE THIRD QUARTER 2007

Reported fluorspar consumption in the third quarter was 144,000 metric tons (t), essentially unchanged compared with that of the previous quarter and about a 6% decrease compared with consumption in the third quarter of 2006. Consumption of fluorspar for hydrofluoric acid (HF) and aluminum fluoride was 126,000 t, essentially unchanged compared with that of the previous quarter and 5% lower than that in the third quarter of 2006. Imports of fluorspar were 129,000 t, a decrease of 36% compared with those of the previous quarter, and 22% less than was imported in the third quarter of 2006.

Owing to high prices and high ocean freight costs for Chinese acid-grade fluorspar, some major United States importers of acid-grade fluorspar have shifted significant purchases to Mexican suppliers. Through September 2007, imports of Mexican acid-grade fluorspar (171,000 t) had increased by more than 350% compared with the same period in 2006. Including imports of metallurgical-grade fluorspar from Mexico (27,800 t, year to date), this may be the first year since 1990 that Mexico has ranked as the number one import source.

In recent years, the import values [cost, insurance, and freight (c.i.f.)] for some acid-grade fluorspar imports have been underreported. Attempts were made by the U.S. Geological Survey to adjust these values in order to better reflect actual market prices, but beginning in 2007 this was no longer deemed practical. As a result, average import values for acid-grade fluorspar no longer will be listed in table 1. Most of the value errors are on Chinese imports, which account for about 60% to 65% of United States fluorspar imports. March import prices for Chinese acid-grade fluorspar, dry basis, c.i.f. Gulf of Mexico ports were \$230 to \$240 per metric ton; second and third quarter import prices for the same material were \$270 to \$280 per metric ton (Industrial Minerals, 2007a, b).

Industry News

South Africa's Sallies Ltd. continued to have major problems at its Witkop and Buffalo fluorspar operations. Problems at the Witkop Mine, including poor mining methods and too low a cut-off grade, resulted in poor ore blends and plant stoppages. The Buffalo operation was beset by problems resulting from mixed ore grades, contaminants, and labor problems. Company

engineers and metallurgists are performing a strategic review of both operations. The company is under new management; the previous chief executive officer resigned and has since been replaced (Naidoo, 2007).

Fluorochemical News

Gulf Fluor, a subsidiary of Fluor Corporation, announced plans to construct a combined aluminum fluoride-hydrofluoric acid facility in Abu Dhabi Emirate, United Arab Emirates. The planned facility will produce 60,000 metric tons per year (t/yr) of aluminum fluoride and 10,000 t/yr of hydrofluoric acid. This will be the first such facility built in the region and is intended primarily to supply the aluminum smelting market. Aluminum is one of the largest industries in the United Arab Emirates, a federation of seven emirates, which includes Abu Dhabi. It is forecast that the Persian Gulf's aluminum production will increase from the current level of about 1.7 million metric tons per year (Mt/yr) to more than 5 Mt/yr by 2011 (Reuters, 2007).

In accordance with the Montreal Protocol on Substances that Deplete the Ozone Layer, China's State Environmental Protection Agency has banned the production of chlorofluorocarbons (CFCs) beginning on July 1, 2007, with the exception of their use as a feedstock and certain other exempted uses. The order stated that companies must demolish equipment involved in the production of CFCs by August 15, 2007 (Backus, 2007).

References Cited

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- Reuters, 2007, Abu Dhabi firm eyes \$500mn fluorides complex: *ArabianBusiness.com*, August 5. (Accessed November 28, 2007, at http://www.arabianbusiness.com/index.php?option=com_content&view=article&id=497376&Itemid=1.)

TABLE 1
SALIENT FLUORSPAR STATISTICS¹

(Metric tons, unless otherwise specified)

	2006		2007			
	Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter	Total or average
Imports for consumption:	165,000	122,000	111,000	202,000	129,000	442,000
Average value per ton, c.i.f. U.S. port, acid grade	\$211 ²	\$219 ²	NA ³	NA ³	NA ³	NA ³
Average value per ton, c.i.f. U.S. port, metallurgical grade	\$100	\$111	\$110	\$112	\$110	\$111
Exports	3,060	2,300	3,750	3,190	3,010	9,950
End of quarter stocks, consumer	103,000	79,400	88,900	115,000	114,000	XX
Imports for consumption of hydrofluoric acid ⁴	37,400	40,400	41,500	41,000	35,000	118,000
Imports for consumption of cryolite ⁴	919	733	1,550	1,270	960	3,780
Quarterly reported fluorspar consumption	154,000	91,400	132,000	143,000	144,000	419,000

NA Not available. XX Not applicable.

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

²Average values per ton have been adjusted by the USGS using published prices and data from industry sources and may not agree with values calculated strictly from U.S. Census Bureau data.

³Value data appear to be underreported and are too low to make accurate average-value-per-ton calculations for acid-grade imports.

⁴In the past, 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
2006:					
First quarter:					
More than 97% calcium fluoride	123,000	4,160	8,080	135,000	93,700
Not more than 97% calcium fluoride	--	8,160	--	8,160	15,600
Total	123,000	12,300	8,080	143,000	109,000
Second quarter:					
More than 97% calcium fluoride	113,000	4,520	8,520	126,000	53,900
Not more than 97% calcium fluoride	--	8,880	--	8,880	24,300
Total	113,000	13,400	8,520	135,000	78,200
Third quarter:					
More than 97% calcium fluoride	133,000	4,520	8,170	146,000	74,500
Not more than 97% calcium fluoride	--	8,250	--	8,250	28,700
Total	133,000	12,800	8,170	154,000	103,000
Fourth quarter:					
More than 97% calcium fluoride	75,000	2,440	6,360	83,800	56,900
Not more than 97% calcium fluoride	--	3,820	3,750	7,570	22,400
Total	75,000	6,260	10,100	91,400	79,400
Grand total	444,000	44,800	34,900	523,000	XX
2007:					
First quarter:					
More than 97% calcium fluoride	114,000	3,630	7,020	124,000	67,900
Not more than 97% calcium fluoride	--	3,920	3,810	7,740	20,900
Total	114,000	7,550	10,800	132,000	88,900
Second quarter:					
More than 97% calcium fluoride	124,000	3,710	7,120	135,000	94,600
Not more than 97% calcium fluoride	--	8,230	--	8,230	20,700
Total	124,000	11,900	7,120	143,000	115,000
Third quarter:					
More than 97% calcium fluoride	126,000	3,710	6,990	136,000	95,800
Not more than 97% calcium fluoride	--	7,890	--	7,890	18,300
Total	126,000	11,600	6,990	144,000	114,000
Grand total	363,000	31,100	24,900	419,000	XX

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, and welding rod coatings.

³Stocks include distributor stocks (excluding National Defense Stockpile holdings) and consumer stocks for hydrofluoric acid and aluminum fluoride.

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

	2006				2007							
	Third quarter		Fourth quarter		First quarter		Second quarter		Third quarter		Year to date	
	Quantity (metric tons)	Value ³ (thousands)	Quantity (metric tons)	Value ³ (thousands)	Quantity (metric tons)	Value ⁴ (thousands)	Quantity (metric tons)	Value ⁴ (thousands)	Quantity (metric tons)	Value ⁴ (thousands)	Quantity (metric tons)	Value ⁴ (thousands)
Containing more than 97% calcium fluoride:												
China	104,000	\$22,000	80,000	\$17,900	46,200	\$9,450	130,000	\$23,800	11,900	\$2,630	188,000	\$35,900
Germany	--	--	17	13	--	--	--	--	--	--	--	--
Japan	--	--	61	10	--	--	--	--	--	--	--	--
Mexico	9,860	2,100	17,100	3,270	58,300	9,040	46,600	7,870	66,600	10,300	171,000	27,200
Mongolia	27,600	5,600	--	--	--	--	--	--	23,800	4,450	23,800	4,450
South Africa	--	--	18,200	4,070	--	--	10,900	1,830	19,900	3,320	30,800	5,150
United Kingdom	--	--	347	46	3	6	4	16	21	6	28	28
Total	141,000	29,700	116,000	25,300	105,000	18,500	187,000	33,500	122,000	20,700	414,000	72,700
Containing not more than 97% calcium fluoride:												
Mexico	24,500	2,430	6,540	728	6,860	751	14,400	1,620	6,560	722	27,800	3,090
Namibia	--	--	--	--	--	--	278	24	191	17	469	41
South Africa	--	--	--	--	18	5	19	3	--	--	37	8
Total	24,500	2,430	6,540	728	6,880	756	14,700	1,640	6,750	739	28,300	3,140
Grand total	165,000	32,100	122,000	26,000	111,000	19,300	202,000	35,200	129,000	21,400	442,000	75,900

-- 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.

³Cost, insurance, and freight at U.S. ports. Values for some countries have been adjusted by the USGS using published prices and data from industry sources.

⁴Value data for imports "containing more than 97% calcium fluoride" are believed to be underreported; insufficient information is available to make accurate adjustments.

Source: U.S. Census Bureau.

TABLE 4
IMPORTS FOR CONSUMPTION OF HYDROFLUORIC ACID¹

	2006				2007							
	Third quarter		Fourth quarter		First quarter		Second quarter		Third quarter		Year to date	
	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	10,500	\$13,300	8,950	\$12,500	9,610	\$13,900	9,770	\$14,100	6,880	\$12,300	26,300	\$40,200
China	803	518	615	438	435	398	540	1,250	707	680	1,680	2,330
Germany	77	188	31	64	93	214	79	521	93	232	265	967
Japan	407	906	398	819	319	696	212	481	297	618	828	1,800
Mexico	25,400	25,700	30,200	30,500	31,000	32,000	30,300	31,000	26,900	28,000	88,300	90,900
Other	271	478	220	367	77	63	53	47	123	144	253	254
Total	37,400	41,200	40,400	44,700	41,500	47,200	41,000	47,400	35,000	41,900	118,000	137,000

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.