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Mineral Industry Surveys

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FLUORSPAR IN THE FOURTH QUARTER 2007

Reported fluorspar consumption in the fourth quarter was 132,000 metric tons (t), a decrease of 8% compared with that of the previous quarter but a 44% increase compared with consumption in the fourth quarter of 2006. Consumption of acid-grade fluorspar (acidspar) for hydrofluoric acid (HF) and aluminum fluoride (AlF_3) was 113,000 t, a 10% decrease compared with that of the previous quarter but 51% higher than that in the fourth quarter of 2006. Consumption of metallurgical-grade fluorspar (metspar) was 8,660 t, an increase of about 10% compared with that of the previous quarter, and 14% more than was consumed in the fourth quarter of 2006.

According to yearend totals for 2007, reported fluorspar consumption increased by 29,000 t, or about 6%, compared with that for 2006. Higher consumption levels for HF and AlF_3 accounted for the increase. Fluorspar imports increased by 12%, but imports of HF decreased by about 3% compared with those of 2006.

In 2007, there was a significant shift in import patterns by U.S. fluorspar consumers. Mexico edged out China as the leading import source for fluorspar, although China remained the leading source of acidspar imports. Imports from China decreased by 23% compared with those of 2006, while combined acidspar and metspar fluorspar imports from Mexico increased by 136% compared with those of 2006. This shift was the result of a reduction in Chinese fluorspar available for export, higher prices for Chinese fluorspar, and high ocean freight rates.

In recent years, the import values [cost, insurance, and freight (c.i.f.)] for some acidspar imports have been underreported. As a result, average import values for acidspar are no longer listed in table 1. Most of the value errors have been on Chinese imports, so in place of import values, published prices are provided as follows. In 2007, March import prices for Chinese acidspar, dry basis, c.i.f. Gulf of Mexico ports, were \$230 to \$240 per metric ton; June and September import prices were \$270 to \$280 per metric ton; and December prices were \$305 to \$310 per metric ton (Industrial Minerals, 2007a, b, c, d).

Industry News

China has once again reduced its fluorspar export quota, reducing the amount available for export in 2008 to 550,000 t. This follows the 2007 quota of 685,000 t and the 2006 quota of 710,000 t. This reduction has helped fuel the increase in acid-grade fluorspar prices since the reduction in supply comes at a time of strong global demand. In addition, the cost to importers of Chinese acidspar is increased by an export license fee (about \$28 per metric ton in 2007), a 13% value added tax, and a 15% export tax. Import prices for Chinese acid-grade fluorspar, c.i.f. Gulf of Mexico ports, are more than \$300 per metric ton, Mexican low-arsenic acid-grade prices, f.o.b. Tampico, are in the \$270 to \$280 per metric ton range, and South African prices are \$215 per metric ton, f.o.b. Durban (Industrial Minerals, 2008).

INEOS Fluor (Runcorn, United Kingdom) announced that it had acquired Glebe Mines Ltd., which is the United Kingdom's sole fluorspar mining company. Glebe Mines has been a primary supplier of acidspar to INEOS Fluor's fluorochemicals facility at Runcorn. Glebe Mines will operate as a stand-alone company and the name will remain the same (Chemie.DE Information Service GmbH, 2008).

Tertiary Minerals plc. (United Kingdom) was awarded an exploration license for a large, low-grade fluorspar deposit located near Storuman in northern Sweden. The Storuman fluorspar deposit was first evaluated by Sweden's Gränges Group in the 1970s when drilling, resource evaluation, and metallurgical test work was performed. The deposit is a flat-lying replacement deposit that, in 1974, was reported to have an ore reserve of 12.5 million metric tons grading 13.3% calcium fluoride. Under the original 1970s evaluation, about 40% of the ore body was judged mineable by open-pit methods while the rest would require underground mining techniques. Tertiary plans to drill the property to confirm ore grades, perform resource calculations, and provide samples for metallurgical test work (Tertiary Minerals plc., 2008). Unless drilling proves higher ore grades, development of this resource into a viable mining operation may be difficult. The only other fluorspar mine currently working such a low-grade deposit is Sallies' Witkop Mine in South Africa, which, for various reasons (many unrelated to geology of the ore deposit), reportedly has operated in the red in recent years (Hill, 2008).

References Cited

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TABLE 1

SALIENT FLUORSPAR STATISTICS[1]

(Metric tons, unless otherwise specified)

	2006	2007				
	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	Total or average
Imports for consumption:	122,000	111,000	202,000	129,000	177,000	620,000
Average value per ton, c.i.f U.S. port, acid grade	$219 [2]	NA [3]	NA [3]	NA [3]	NA [3]	NA [3]
Average value per ton, c.i.f. U.S. port, metallurgical grade	$111	$110	$112	$110	$110	$111
Exports	2,300	3,750	3,190	3,010	3,600	13,600
End of quarter stocks, consumer	79,400	88,900	115,000	114,000	90,100	XX
Imports for consumption of hydrofluoric acid[4]	40,400	41,500	41,000	35,000	34,300	152,000
Imports for consumption of cryolite[4]	733	1,550	1,270	800 [r]	853	4,470
Quarterly reported fluorspar consumption	91,400	132,000	143,000	144,000	132,000	552,000

[r]Revised. NA Not available. XX Not applicable.

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

[2]Average 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.

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

[4]In 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 RANGE[1]

(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
Fourth quarter:					
More than 97% calcium fluoride	113,000	3,710	7,230	124,000	78,200
Not more than 97% calcium fluoride	--	4,210	4,450	8,660	11,900
Total	113,000	7,920	11,700	132,000	90,100
Grand total	476,000	39,000	36,600	552,000	XX

XX Not applicable. -- Zero.

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

[2]May include cement, enamel, glass and fiberglass, steel castings, and welding rod coatings.

[3]Stocks 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									
	Fourth quarter		First quarter		Second quarter		Third quarter		Fourth quarter		Year	
	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)	Quantity (metric tons)	Value[4] (thousands
ontaining more than 97% calcium fluoride:												
China	80,000	$17,900	46,200	$9,450	130,000	$23,800	11,900	$2,630	88,600	$20,600	277,000	$56,500
Germany	17	13	--	--	--	--	--	--	--	--	--	--
Japan	61	10	--	--	--	--	--	--	--	--	--	--
Mexico	17,100	3,270	58,300	9,040	46,600	7,870	66,600	10,300	63,500	10,100	235,000	37,300
Mongolia	--	--	--	--	--	--	23,800	4,450	--	--	23,800	4,450
South Africa	18,200	4,070	--	--	10,900	1,830	19,900	3,320	10,600	2,840	41,400	7,990
United Kingdom	347	46	3	6	4	16	21	6	348	51	376	79
Total	116,000	25,300	105,000	18,500	187,000	33,500	122,000	20,700	163,000	33,600	577,000	106,000
ontaining not more than 97% calcium fluoride:												
Mexico	6,540	728	6,860	751	14,400	1,620	6,560	722	14,300	1,580	42,100	4,670
Namibia	--	--	--	--	278	24	191	17	--	--	469	41
South Africa	--	--	18	5	19	3	--	--	--	--	37	8
Total	6,540	728	6,880	756	14,700	1,640	6,750	739	14,300	1,580	42,600	4,710
Grand total	122,000	26,000	111,000	19,300	202,000	35,200	129,000	21,400	177,000	35,100	620,000	111,000

Zero.

mports for consumption include imports of immediate entry and warehouse withdrawals.

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

Cost, 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.

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

ource: U.S. Census Bureau.

TABLE 4

IMPORTS FOR CONSUMPTION OF HYDROFLUORIC ACID[1]

	2006		2007									
	Fourth quarter		First quarter		Second quarter		Third quarter		Fourth quarter		Year	
	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	8,950	$12,500	9,610	$13,900	9,770	$14,100	6,880	$12,200 [r]	5,230	$9,390	31,500	$49,500
China	615	438	435	398	540	430 [r]	708 [r]	680	441	457	2,120	1,970
Germany	31	64	93	214	79	189 [r]	92 [r]	232	163	371	427	1,010
Japan	398	819	319	696	212	481	298 [r]	618	255	543	1,080	2,340
Mexico	30,200	30,500	31,000	32,000	30,300	31,000	26,900	28,000	28,200	29,700	116,000	121,000
Other	220	367	77	63	53	48 [r]	123	144	35	82	288	337
Total	40,400	44,700	41,500	47,200	41,000	46,200 [r]	35,000	41,800 [r]	34,300	40,500	152,000	176,000

[r]Revised.

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

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

Source: U.S. Census Bureau.