

Mineral Industry Surveys

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FLUORSPAR IN THE FOURTH QUARTER 2013

Reported fluorspar consumption in the fourth quarter was 105,000 metric tons (t), an 11% decrease compared with that of the previous quarter but 60% more than that in the fourth quarter of 2012. Stocks totaled 313,000 t at the end of the fourth quarter, an increase of about 9% compared with those at the end of the previous quarter. Fluorspar imports in the fourth quarter were 134,000 t, a 29% decrease compared with those of the previous quarter. Hydrofluoric acid (HF) imports in the fourth quarter were 24,700 t, a 22% decrease compared with those of the previous quarter.

Reported fluorspar consumption for 2013 was 441,000 t, a 6% increase compared with that of 2012. Fluorspar stocks at yearend 2013 increased by 34% compared with those at yearend 2012. Fluorspar imports for the year were 643,000 t, which was an increase of 4% compared with those of 2012.

Mining and Exploration News

Canada Fluorspar Inc. reported new mineral resources for its Director Vein and AGS Vein deposits in the St. Lawrence area of Newfoundland and Labrador, Canada. The indicated resources were 2.1 million metric tons (Mt) at an average grade of 51.0% CaF₂ and inferred resources were 8.5 Mt at an average grade of 42.2% CaF₂. These new resource data were based on recent drilling at the down-dip and southern extensions of the Director Vein as well as the western part of the AGS Vein (Canada Fluorspar Inc., 2013). The Director Vein had been mined from 1936 to 1978 and from 1986 to 1991.

Sephaku Fluoride Ltd. (SepFluor) let contracts to install a fluorspar beneficiation plant (crushing and screening) and a flotation mill at SepFluor's Nokeng Mine project in Gauteng Province in South Africa. Both plants were expected to be in operation by yearend 2017 (Hindu Business Line, The, 2013). SepFluor's plans call for production of up to 185,000 metric tons per year (t/yr) of acid-grade fluorspar (acidspar) and a maximum of 30,000 t/yr of metallurgical-grade fluorspar. An HF plant and an aluminum fluoride plant also were planned that would consume 130,000 t/yr of acidspar, with the balance of the acidspar available for export. Original plans called for mine production to begin in late 2014 (SepFluor, 2013).

Fluorochemical News

Honeywell International Inc. announced that it was constructing a hydrofluoroolefin 1234yf (HFO-1234yf) manufacturing plant at the company's existing Geismar, LA, HF and refrigerants manufacturing site. Plans called for the new plant to be fully operational in 2016. Global automobile manufacturers are adopting HFO-1234yf as the replacement for hydrofluorocarbon 134a (HFC-134a) to comply with legislation and regulations designed to reduce greenhouse gas emissions by eliminating or reducing the use of high-global warming potential (GWP) chemicals (Honeywell International Inc., 2013a).

Recent research has indicated that HFO-1234yf has a lower GWP than carbon dioxide (CO₂) making it an excellent replacement for HFC-134a, which in comparison has a GWP of 1,300 (Honeywell International, 2013b). The GWP represents how much a given mass of a chemical contributes to global warming over a given time period compared to the same mass of CO₂. The GWP of CO₂ is defined as 1.0 (U.S. Environmental Protection Agency, 2014).

Honeywell also announced that it was suspending HF production at its plant in Amherstburg, Ontario, Canada, for at least 2 years. The company cited lower demand for HF as the reason for the suspension. At the time of the announcement, the plant was undergoing regularly scheduled maintenance. Once the scheduled maintenance was completed, the plant was to resume HF production until it had depleted its current supply of raw materials (CBC News, 2013).

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TABLE 1
SALIENT FLUORSPAR STATISTICS¹

(Metric tons, unless otherwise specified)

	2012		2013				
	4th quarter	1st quarter– 4th quarter	1st quarter	2d quarter	3d quarter	4th quarter	1st quarter– 4th quarter
<u>Fluorspar:</u>							
Imports for consumption	139,000	620,000	172,000	147,000	190,000	134,000	643,000
Exports	5,670	23,800	5,360	3,460	3,480	3,660	16,000
End of the period stocks, consumer	234,000	234,000	264,000	256,000	287,000	313,000	313,000
Reported consumption	65,800	416,000	111,000	107,000	118,000	105,000	441,000
<u>Other compounds, imports for consumption:</u>							
Aluminum fluoride	9,720	50,000	11,700	13,500	10,800	7,450	43,400
Cryolite	2,400	8,140	1,960	3,240	9,970	3,780	18,900
Hydrofluoric acid	29,200	133,000	31,700	30,600	31,700	24,700	119,000

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

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
2012:				
4th quarter:				
More than 97% calcium fluoride	55,000	2,990	58,000	219,000
Not more than 97% calcium fluoride	--	7,830	7,830	15,100
Total	55,000	10,800	65,800	234,000
1st quarter–4th quarter	368,000	47,800	416,000	234,000
2013:				
1st quarter:				
More than 97% calcium fluoride	99,200	2,990	102,000	248,000
Not more than 97% calcium fluoride	--	8,320 ^r	8,320 ^r	16,000
Total	99,200	11,300	111,000 ^r	264,000
2d quarter:				
More than 97% calcium fluoride	96,400	2,990	99,400	237,000
Not more than 97% calcium fluoride	--	7,890 ^r	7,890 ^r	18,900
Total	96,400	10,900 ^r	107,000	256,000
3d quarter:				
More than 97% calcium fluoride	107,000	2,990	110,000	269,000
Not more than 97% calcium fluoride	--	7,990 ^r	7,990 ^r	18,700
Total	107,000	11,000 ^r	118,000	287,000
4th quarter:				
More than 97% calcium fluoride	94,100	2,990	97,100	293,000
Not more than 97% calcium fluoride	--	8,020	8,020	19,800
Total	94,100	11,000	105,000	313,000
1st quarter–4th quarter	397,000	44,200	441,000	313,000

^rRevised. -- 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}

	2012		2013									
	4th quarter		1st quarter		2d quarter		3d quarter		4th quarter		1st quarter-4th quarter	
	Quantity (metric tons)	Value (thousands)										
Containing more than 97% calcium fluoride:												
China	17,400	\$8,600	8,870	\$4,640	22	\$28	37,400	\$14,400	24,400	\$8,940	70,600	\$28,000
Germany	--	--	--	--	--	--	26	16	--	--	26	16
Mexico	61,600	13,800	121,000	22,500	76,900	16,700	96,300	18,700	57,600	13,200	352,000	71,100
Mongolia	--	--	12,000	5,220	13,000	5,960	13,200	5,090	--	--	38,200	16,300
South Africa	19,200	7,040	6,870	3,100	10,600	4,420	13,100	4,130	20,700	7,280	51,300	18,900
United Kingdom	2	8	2	8	22	8	249	132	2	8	275	156
Total	98,200	29,400	149,000	35,400	101,000	27,100	160,000	42,500	103,000	29,400	512,000	134,000
Containing not more than 97% calcium fluoride:												
China	262	28	--	--	--	--	--	--	--	--	--	--
Mexico	39,100	3,740	20,700	2,060	45,600	4,690	29,000	2,790	30,700	2,960	126,000	12,500
Mongolia	1,050	98	2,640	251	432	47	432	40	734	82	4,230	420
Total	40,400	3,870	23,400	2,310	46,100	4,740	29,500	2,830	31,500	3,040	130,000	12,900
Grand total	139,000	33,300	172,000	37,700	147,000	31,900	190,000	45,300	134,000	32,400	643,000	147,000

-- 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

	2012		2013									
	4th quarter		1st quarter		2d quarter		3d quarter		4th quarter		1st quarter–4th quarter	
	Quantity (metric tons)	Value ² (thousands)										
Canada	1,500	\$5,080	2,010	\$5,940	2,620	\$7,510	2,680	\$7,230	2,110	\$5,720	9,430	\$26,000
China	1,270	1,610	1,340	1,770	1,290	1,740	1,190	1,550	1,510	1,810	5,320	6,600
Germany	37	117	74	196	146	380	250	629	212	531	682	1,800
Japan	377	922	283	678	332	730	350	680	332	715	1,300	2,300
Mexico	25,900	42,500	27,800	43,500	26,100	40,900	27,200	42,400	20,400	33,100	102,000	160,000
Spain	38	116	57	145	38	113	38	113	38	114	171	326
Other	101	322	64	212	58	177	23	57	61	117	206	500
Total	29,200	50,600	31,700	52,500	30,600	51,600	31,700	52,700	24,700	42,100	119,000	199,000

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.

TABLE 5
END OF QUARTER FLUORSPAR PRICES

(Dollars per metric ton)

	2012	2013			
	4th quarter	1st quarter	2d quarter	3d quarter	4th quarter
Acidspars:					
Chinese, dry basis, cost, insurance, and freight, Gulf port, filtercake	480–600	480–530	480–530	480–530	480–530
Chinese, free on board (f.o.b.) China, wet filtercake	400–415	400–415	350–370	290–320	310–330
Mexican, f.o.b. Tampico, filtercake	400–450	400–450	350	350	350
Mexican, f.o.b. Tampico, arsenic <5 parts per million	540–550	540–550	450	540–550	540–550
South African, f.o.b. Durban, filtercake	380–450	380–450	380–450	380–450	380–450
Metspar, Mexican, f.o.b. Tampico	230–270	230–270	230–270	230–270	230–270

Source: Industrial Minerals magazine (London).