

Mineral Industry Surveys

For information, contact:

M. Michael Miller, Fluorspar Commodity Specialist
U.S. Geological Survey
989 National Center
Reston, VA 20192
Telephone: (703) 648-7716, Fax: (703) 648-7757
E-mail: mmiller1@usgs.gov

Samir Hakim (Data)
Telephone: (703) 648-7955
Fax: (703) 648-7792
E-mail: shakim@usgs.gov

Internet: <http://minerals.usgs.gov/minerals>

FLUORSPAR IN THE SECOND QUARTER 2010

Reported fluorspar consumption in the second quarter was 123,000 metric tons (t), an increase of 6% compared with that of the previous quarter and nearly 26% more than that consumed in the second quarter of 2009. Second quarter stocks increased only slightly compared with those of the previous quarter but were 12% higher than those of the second quarter of 2009.

End-of-second-quarter-2010 acidspars prices were unchanged from those of the previous quarter for China [dry basis, cost, insurance, freight (c.i.f.), U.S. Gulf of Mexico port] at \$350 to \$380 per metric ton, and Mexico free on board (f.o.b.) Tampico, \$300 to \$360 per ton for low-arsenic acidspars. The price range for regular acidspars from Mexico, f.o.b. Tampico, contracted slightly to \$260 to \$285 per ton (from \$260 to \$290 per ton). The price range for South African acidspars, f.o.b. Durban, also contracted slightly to \$250 to \$280 per ton (from \$250 to \$300 per ton) (Industrial Minerals, 2010).

Fluorspar was included in the list of 14 raw materials labeled as "critical" by an expert group chaired by the European Commission of the European Union (EU). The EU faces a potential shortage of these materials, which have high supply risks because a large share of the worldwide production comes from a handful of countries. This concentration of production is compounded by low substitutability and low recycling rates. The list was established in the framework of the 2008 EU Raw Materials Initiative, and the results of the report were expected to be used to help form strategies to ensure future access to critical raw materials. The expert group recommended updating the list of EU critical raw materials every 5 years and enlarging the scope for criticality assessment; policy actions to improve access to primary resources; policy actions to make recycling of raw materials or raw material-containing products more efficient; encouraging substitution of certain raw materials, notably by promoting research on substitutes for critical raw materials; and improving the overall material efficiency of critical raw materials (Blamey, 2010).

Industry News

Kenya Fluorspar Company Ltd., which mothballed its mine in March 2009 because of low prices and a severe drop in sales, resumed mine production after fluorspar demand increased in

the second quarter of 2010. The company's managing director stated earlier in the year that prices would have to exceed \$270 per metric ton before the company would consider restarting production (Watts, 2010).

In 2009, Kenya Fluorspar performed an exploration-drilling project to delineate and further expand resource data on the three mineralized zones being mined. In May 2010, Kenya Fluorspar announced the results of the National Instrument 43-101 compliant ore resource report. Drilling consisted of 350 reverse circulation drill holes and 43 diamond drill holes totaling about 30,300 meters. Grades varied between 27% and 45% calcium fluoride (CaF₂) per zone on average, with smaller zones grading in excess of 60% CaF₂. The estimated mineral resource was 22.1 million metric tons (Mt) categorized as indicated resources of 17.1 Mt and inferred resources of 5.0 Mt. Phase II of the program was scheduled to take place in 2010 and would involve preparation of a life-of-mine plan and a mineral reserves estimate for the deposit (Kenya Fluorspar Company Ltd., 2010).

Fluorochemical News

General Motors Co. announced that it would convert the air-conditioning systems in its entire fleet of cars and trucks from hydrofluorocarbon HFC-134a to hydrofluoroolefin HFO-1234yf by 2013. HFC-134a, currently used in almost every American model car and truck, has a global warming potential (GWP) of 1400 compared with that of HFO-1234yf, which has GWP of 4 (Environmental Investigation Agency, 2010). This announcement helps solidify HFO-1234yf's place as the refrigerant that likely will be adopted by all auto manufacturers.

As part of the Arkema Daikin Fluorochemicals Co. Ltd. joint venture, Arkema (Colombes, France) and Daikin Industries, Ltd. (Osaka, Japan) announced the startup of a new HFC-125 plant in Changshu, Jiangsu Province, China. The plant was expected to serve air-conditioning customers in the Asia region with new-generation refrigerant products to replace hydrochlorofluorocarbon refrigerants (Arkema, 2010).

References Cited

- Arkema, 2010, Forane 125 production plant comes on stream on Changshu platform, China: Colombes, France, Arkema news release, May 7, 1 p.
- Blamey, Andy, 2010, EU faces possible shortages of critical metals, minerals—report: Platts Metals Week, June 17. (Accessed September 24, 2010 at <http://www.platts.com/RSSFeedDetailedNews/RSSFeed/HeadlineNews/Metals/8823248/>.)
- Environmental Investigation Agency, 2010, GM to eliminate super greenhouse gases from mobile AC by 2013: PR Newswire, July 23. (Accessed July 23, 2010, at <http://www.prnewswire.com/news-releases/gm-to-eliminate-super-greenhouse-gases-from-mobile-ac-by-2013-99138119.html>.)
- Industrial Minerals, 2010, Prices: Industrial Minerals, no. 514, July, p. 69-71.
- Kenya Fluorspar Company Ltd., 2010, Release of 43-101 ore resource report: Nairobi, Kenya, Kenya Fluorspar Company Ltd. news release, March 9. (Accessed September 24, 2010, at http://www.kenyafluorspar.com/index.php?option=com_content&view=article&id=85:release-of-43-101-ore-resource-report&catid=16:kenya-fluorspar-operations.)
- Watts, Mark, 2010, Kenya Fluorspar restarts mine: Industrial Minerals, August 31. (Accessed August 31, 2010, via <http://www.indmin.com>.)

TABLE 1
SALIENT FLUORSPAR STATISTICS¹

(Metric tons, unless otherwise specified)

	2009			2010		Total or average
	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	
Imports for consumption:						
Quantity	90,200	96,000	154,000	131,000	131,000	261,000
Average value per ton, c.i.f. U.S. port, metallurgical grade	\$109	\$98	\$97	\$98	\$103	\$101
Exports	2,440	4,850	4,720	5,290	4,740	10,000
End of quarter stocks, consumer	96,100	99,500	103,000	107,000	108,000	XX
Imports for consumption of hydrofluoric acid	23,300	32,200	28,900	29,100	34,300	63,500
Imports for consumption of cryolite	319	797	1,250	1,520	960	2,480
Quarterly reported fluorspar consumption	97,700	114,000	98,500	116,000	123,000	239,000

XX Not applicable.

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
2009:				
First quarter:				
More than 97% calcium fluoride	84,100	2,220	86,300	120,000
Not more than 97% calcium fluoride	--	3,440	3,440	18,100
Total	84,100	5,660	89,800	138,000
Second quarter:				
More than 97% calcium fluoride	91,500	2,220	93,700	81,100
Not more than 97% calcium fluoride	--	4,050	4,050	15,000
Total	91,500	6,270	97,700	96,100
Third quarter:				
More than 97% calcium fluoride	106,000	2,220	108,000	85,600
Not more than 97% calcium fluoride	--	6,530	6,530	13,800
Total	106,000	8,750	114,000	99,500
Fourth quarter:				
More than 97% calcium fluoride ^f	89,900	2,720	92,700	87,200
Not more than 97% calcium fluoride	2,030	3,850	5,870	15,600
Total ^f	92,000	6,570	98,500	103,000
Grand total	373,000	27,200	400,000	XX
2010:				
First quarter:				
More than 97% calcium fluoride	107,000	2,720	110,000	93,400
Not more than 97% calcium fluoride	--	6,010	6,010	13,400
Total	107,000	8,730	116,000	107,000
Second quarter:				
More than 97% calcium fluoride	114,000	2,720	117,000	95,200
Not more than 97% calcium fluoride	--	5,820	5,820	12,900
Total	114,000	8,540	123,000	108,000
Grand total	221,000	17,300	239,000	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, 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}

	2009						2010					
	Second quarter		Third quarter		Fourth quarter		First quarter		Second quarter		Year	
	Quantity (metric tons)	Value (thousands)										
Containing more than 97% calcium fluoride:												
China	325	\$41	11,700	\$3,690	13,600	\$3,190	40,100	\$10,100	28,000	\$8,160	68,100	\$18,300
Mexico	58,500	10,300	51,100	8,520	94,300	15,400	51,200	8,850	66,600	11,500	118,000	20,400
Mongolia	--	--	9,510	3,380	19,100	5,210	--	--	11,900	3,400	11,900	3,400
South Africa	11,200	4,140	9,900	3,520	7,660	2,000	13,500	3,410	9,900	2,510	23,400	5,920
United Kingdom	88	4	484	57	2	5	1	5	1	5	2	10
Total	70,100	14,500	82,700	19,200	135,000	25,800	105,000	22,400	116,000	25,600	221,000	48,000
Containing not more than 97% calcium fluoride:												
Mexico	20,100	2,190	13,100	1,280	19,300	1,880	25,700	2,520	14,400	1,480	40,000	3,990
Namibia	--	--	203	24	--	--	--	--	--	--	--	--
Other	--	--	1	5	--	--	--	--	--	--	--	--
Total	20,100	2,190	13,300	1,310	19,300	1,880	25,700	2,520	14,400	1,480	40,000	3,990
Grand total	90,200	16,700	96,000	20,500	154,000	27,700	131,000	24,900	131,000	27,100	261,000	52,000

-- 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

	2009						2010					
	Second quarter		Third quarter		Fourth quarter		First quarter		Second quarter		Year	
	Quantity (metric tons)	Value ² (thousands)										
Canada	2,550	\$9,420	2,480	\$9,350	2,330	\$9,030	2,300	\$7,810	2,630	\$10,100	4,930	\$17,900
China	642	857	1,580	1,540	1,210	1,110	1,270	1,260	1,770	2,100	3,040	3,360
Germany	91	296	96	272	101	304	127	281	92	308	219	589
Japan	67	122	169	309	185	427	206	490	172	413	378	903
Mexico	19,900	23,000	27,800	33,000	25,000	31,300	25,200	31,600	29,600	38,000	54,700	69,500
Other	45	85	73	131	97	262	46	105	109	245	155	350
Total	23,300	33,800	32,200	44,600	28,900	42,500	29,100	41,500	34,300	51,100	63,500	92,600

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.