FLUORSPAR

(Data in thousand metric tons, unless otherwise noted)

Domestic Production and Use: There was a small quantity of metallurgical-grade fluorspar mined and some byproduct calcium fluoride was recovered from industrial waste streams, although data are not available on exact quantities. Material purchased from the National Defense Stockpile or imported was screened and dried for resale to customers. Domestically, about 80% of reported fluorspar consumption went into the production of hydrofluoric acid (HF) in Louisiana and Texas and aluminum fluoride in Texas. HF is the primary feedstock for the manufacture of virtually all organic and inorganic fluorine-bearing chemicals, and is also a key ingredient in the processing of aluminum and uranium. The remaining 20% of the reported fluorspar consumption was consumed as a flux in steelmaking, in iron and steel foundries, primary aluminum production, glass manufacture, enamels, welding rod coatings, cement production, and other uses or products. To supplement domestic fluorine supplies, an estimated 71,500 metric tons of fluorosilicic acid (equivalent to126,000 tons of 92% fluorspar) was recovered from phosphoric acid plants processing phosphate rock. Fluorosilicic acid was used primarily in water fluoridation, either directly or after processing into sodium silicofluoride, and to make aluminum fluoride for the aluminum industry.

Salient Statistics—United States:	1998	1999	2000	2001	2002[e]
Production:					
Finished, all grades[1]	—	—	NA	NA	NA
Fluorspar equivalent from phosphate rock	118	122	119	104	126
Imports for consumption:					
Acid grade	462	419	484	495	466
Metallurgical grade	41	59	39	27	36
Total fluorspar imports	503	478	523	522	502
Fluorspar equivalent from hydrofluoric acid plus cryolite	204	192	208	176	189
Exports[2]	24	55	40	21	25
Shipments from Government stockpile	110	131	106	65	13
Consumption: Apparent[3]	591	615	601	543	472
Reported	538	514	512	536	562
Stocks, yearend, consumer and dealer[4]	468	373	289	221	240
Employment, mine and mill, number	—	—	5	5	5
Net import reliance[5] as a percentage of apparent consumption	100	100	100	100	100

Recycling: An estimated 8,000 to 10,000 tons per year of synthetic fluorspar is recovered from uranium enrichment, stainless steel pickling, and petroleum alkylation. Primary aluminum producers recycled HF and fluorides from smelting operations. HF is recycled in the petroleum alkylation process.

Import Sources (1998-2001): China, 66%; South Africa, 23%; and Mexico, 11%.

Tariff: Item	Number	Normal Trade Relations 12/31/02
Acid grade (97% or more CaF_2)	2529.22.0000	Free.
Metallurgical grade (less than 97% CaF_2)	2529.21.0000	Free.

Depletion Allowance: 22% (Domestic), 14% (Foreign).

Government Stockpile: During fiscal year 2002, there were no fluorspar sales from the Defense National Stockpile. Under the proposed fiscal year 2003 Annual Materials Plan, the Defense National Stockpile Center (DNSC) will be authorized to sell 54,400 metric tons (60,000 short dry tons) of metallurgical grade and 10,900 tons (12,000 short dry tons) of acid grade. In previous Mineral Commodity Summaries nonstockpile-grade materials were not reported in the Stockpile Status table, however, stockpile-grade and nonstockpile-grade material have now been combined. The latest DNSC data classified about 12,600 tons (13,900 short dry tons) of uncommitted inventory for metallurgical-grade fluorspar as being nonstockpile-grade material.

Stockpile Status—9-30-02[6]

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 2002	Disposals FY 2002
Acid grade	7	109	11	11	—
Metallurgical grade	102	35	54	54	—

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FLUORSPAR

Events, Trends, and Issues: A ban on the production and importation of the widely used foam blowing agent hydrochlorofluorocarbon 141b goes in effect in January 2003. The loss of market share to nonfluorocarbon replacements is expected to be significant and will affect consumption of acid-grade fluorspar. Foam blowing makes up an estimated 18% of the fluorocarbon market, which is the largest market for hydrofluoric acid and acid-grade fluorspar.

Based on recommendations made by the U.S. International Trade Commission, as part of a Section 201 investigation under the Trade Act of 1974, the President imposed tariffs for 3 years ranging from 8% to 30% on various types of imported steel, excluding imports from free-trade partners. As a result of the protections supplied by the tariffs, according to weekly statistics of the American Iron and Steel Institute, the adjusted year-to-date steel production through October 28, 2002, increased by 4.8% compared with the same period in 2001. Sales to the steel industry account for about 50% of the merchant fluorspar market, which is normally a 120,000-ton-per-year market.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves[7]	Reserve base[7]
	2001	2002[e]		
United States	NA	NA	NA	6,000
China	2,450	2,450	21,000	110,000
France	110	110	10,000	14,000
Italy	45	50	6,000	7,000
Kenya	108	95	2,000	3,000
Mexico	635	640	32,000	40,000
Mongolia	200	200	12,000	16,000
Morocco	75	95	NA	NA
Namibia	[8]83	[8]86	3,000	5,000
Russia	190	190	Moderate	18,000
South Africa	286	240	41,000	80,000
Spain	130	130	6,000	8,000
Other countries	220	240	100,000	170,000
World total (may be rounded)	4,530	4,530	230,000	480,000

World Resources: Identified world fluorspar resources were approximately 500 million tons of contained fluorspar. Resources of equivalent fluorspar from domestic phosphate rock were approximately 32 million tons. World resources of fluorspar from phosphate rock were estimated at 330 million tons.

Substitutes: Olivine and/or dolomitic limestone were used as substitutes for fluorspar. Byproduct fluorosilicic acid from phosphoric acid production was used as a substitute in aluminum fluoride production, and the potential also exists to use it as a substitute in HF production.

[e]Estimated. NA Not available. — Zero.

[1]Shipments.

[2]Exports are all general imports reexported or National Defense Stockpile material exported.

[3]Excludes fluorspar equivalent of fluorosilicic acid, hydrofluoric acid, and cryolite.

[4]Industry stocks for three largest consumers, fluorspar distributors, and National Defense Stockpile material committed for sale pending shipment.

[5]Defined as imports - exports + adjustments for Government and industry stock changes.

[6]See Appendix B for definitions.

[7]See Appendix C for definitions; measured as 100% calcium fluoride.

[8]Data are reported in wet tons.