FLUORSPAR

(Data in thousand metric tons, unless otherwise noted)

Domestic Production and Use: There was no domestic mine production of fluorspar in 1998. There was some recovery of byproduct calcium fluoride from industrial waste streams, although it is not included in the data shown below. Material purchased from the National Defense Stockpile or imported was screened and dried for resale to customers. An estimated 90% of U.S. 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 estimated 10% 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, and other uses or products. To supplement domestic fluorine supplies, about 67,000 tons of fluorosilicic acid (equivalent to 118,000 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:	**1994**	**1995**	**1996**	**1997**	**1998[e]**
Production: Finished, all grades[e 1]	[2]49	[2]51	8	—	—
Fluorspar equivalent from phosphate rock	97	98	119	121	118
Imports for consumption:					
Acid grade	434	470	474	485	433
Metallurgical grade	59	88	39	51	58
Fluorspar equivalent from hydrofluoric acid plus cryolite	108	114	131	175	207
Exports[3]	24	42	62	62	48
Shipments from Government stockpile	13	74	287	97	93
Consumption: Apparent[4]	556	599	719	551	522
Reported	486	534	527	491	510
Stocks, yearend, consumer and dealer[5]	284	405	234	375	457
Employment, mine and mill, number	130	130	5	—	—
Net import reliance[6] as a percent of apparent consumption	91	91	99	100	100

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

Import Sources (1994-97): China, 64%; South Africa, 21%; Mexico, 13%; and other, 2%.

Tariff: Item	**Number**	**Normal Trade Relations (NTR) 12/31/98**	**Non-NTR[7] 12/31/98**
Acid grade (more than 97% CaF_2)	2529.22.0000	$0.41/t or free[8]	$5.51/t.
Metallurgical grade (less than 97% CaF_2)	2529.21.0000	Free	13.5% ad val.

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

Government Stockpile: The Defense National Stockpile Center (DNSC) sold 137,000 tons (151,000 short dry tons) of acid grade and 45,000 tons (50,000 short dry tons) of metallurgical grade. Under the proposed fiscal year 1999 Annual Materials Plan, the DNSC will be authorized to sell 91,000 tons (100,000 short dry tons) of acid grade and 45,000 tons (50,000 short dry tons) of metallurgical grade. During fiscal year 1999, it is expected that the DNSC will be able to sell all remaining stockpiled acid grade authorized for disposal.

Stockpile Status—9-30-98[9]

Material	**Uncommitted inventory**	**Committed inventory**	**Authorized for disposal**	**Disposal plan FY 1998**	**Disposals FY 1998**
Acid grade	95	280	95	163	136
Metallurgical grade	191	25	191	45	45

Prepared by **M. Michael Miller [(703) 648-7716, mmiller1@usgs.gov, fax: (703) 648-7722]**

FLUORSPAR

Events, Trends, and Issues: On July 20, 1998, the Chinese Government suspended the export quotas on fluorspar through the end of the year. This allowed the unlimited export of fluorspar by any of the 200 to 300 authorized fluorspar traders for a flat rate export fee of about $27 per ton. This fee was about $2 to $5 per ton higher than the original export license fees established in the initial export license bidding process.[10]

The Kyoto conference on the United Nations Framework Convention on Climate Change included hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride in the list of greenhouse gases for which emission-reduction targets were established. Under the terms of the Kyoto Protocol, the United States would be obligated to cut emissions of these gases by 7%, from the base year level of 1995, by the year 2012. Followup talks were held in Buenos Aires, Argentina, in November to discuss procedures for reaching the targets. These discussions included setting up an international emissions trading system and a clean development mechanism enabling industrialized countries to finance emissions-avoiding projects in developing countries and to receive credit for doing so. A major U.S. concern was the unwillingness of many developing countries to agree to formal commitments that would put an upper limit on their emissions. An item on "voluntary" commitments by developing countries was included in the agenda of the Buenos Aires conference.[11] On a related issue, the U.S. Environmental Protection Agency issued proposed rules extending a ban on venting chlorofluorocarbons and hydrochlorofluorocarbons to include hydrofluorocarbons and perfluorocarbons because of their potential to contribute to global warming. The proposed rule was issued under authority of Title VI of the Clean Air Act, but chemical companies challenged the legal basis of the proposed rule, pointing out that Title VI only addresses the problem of stratospheric ozone-depletion, not global warming.[12]

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves[13 14]	Reserve base[13 14]
	1997	1998[e]		
United States	—	—	—	6,000
Brazil	60	60	W	W
China	2,400	2,400	23,000	94,000
France	110	110	10,000	14,000
Kenya	90	90	2,000	3,000
Mexico	553	550	32,000	40,000
Morocco	104	104	W	W
South Africa	217	217	30,000	36,000
Spain	120	120	6,000	8,000
United Kingdom	67	65	2,000	3,000
Other countries	899	824	[15]110,000	[15]170,000
World total (rounded)	4,620	4,540	220,000	370,000

World Resources: Identified world fluorspar resources were approximately 400 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.

[e]Estimated. W Withheld to avoid disclosing company proprietary data.

[1]Shipments.

[2]Includes fluorspar from National Defense Stockpile reprocessed by Ozark-Mahoning Co., Illinois.

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

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

[5]Industry stocks plus National Defense Stockpile material committed for sale pending shipment.

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

[7]See Appendix B.

[8]Free in the case of Canada, Mexico, and designated countries under the Generalized System of Preferences, Caribbean Basin Economic Recovery Act, U.S./Israel Free Trade Area, and the Andean Trade Preference Act.

[9]See Appendix C for definitions.

[10]Industrial Minerals, 1998, Fluorspar export quotas dropped: Industrial Minerals, no. 372, September, p. 17.

[11]United Nations Climate Change Secretariat, 1998, Kyoto Protocol talks in Buenos Aires to promote emissions cuts: Bonn, United Nations Climate Change Secretariat advance press release, 2 p.

[12]Hess, Glenn, 1998, Industry challenges EPA under Clean Air Act Title VI: Chemical Market Reporter, v. 254, no. 16, p. 19.

[13]See Appendix D for definitions.

[14]Measured as 100% calcium fluoride.

[15]Includes Brazil and Morocco.