

FLUORSPAR

(Data in thousand metric tons, unless noted)

Domestic Production and Use: In 1995, fluorspar shipments totaled 48,000 tons from one mining company in southern Illinois. An estimated 74% of the reported fluorspar consumption in the United States in 1995 went into the production of hydrofluoric acid (HF) in Louisiana, Texas, and Kentucky. HF is the primary ingredient from which virtually all organic and inorganic fluorine-bearing chemicals are produced, and is also a key ingredient in the processing of aluminum and uranium. An estimated 9% of the fluorspar was consumed as a flux in steelmaking and in iron and steel foundries. The remainder was consumed in aluminum fluoride manufacture, primary aluminum production, glass manufacture, enamels, welding-rod coatings, and other end uses or products. To supplement domestic fluorine supplies, about 52,300 tons of fluorosilicic acid (equivalent to 92,000 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:	1991	1992	1993	1994	1995^e
Production: Finished, all grades ^{e 1}	58	51	56	² 49	48
Fluorspar equivalent from phosphate rock	106	106	116	97	102
Imports for consumption:					
Acid grade	412	423	434	433	419
Metallurgical grade	83	111	63	59	112
Fluorspar equivalent from hydrofluoric acid plus cryolite	128	106	99	108	124
Exports ³	74	14	13	24	52
Sales from Government stockpile	—	4	21	273	186
Consumption: Apparent ⁴	485	569	537	543	603
Reported	484	485	447	486	510
Stocks, yearend, consumer and dealer	69	72	75	300	335
Employment, mine and mill ^e	180	180	180	180	180
Net import reliance ⁵ as a percent of apparent consumption	88	91	90	91	92

Recycling: Primary aluminum producers recycled HF and fluorides from smelting operations. HF is recycled in the petroleum alkylation process.

Import Sources (1991-94): China, 56%; South Africa, 23%; Mexico, 16%; and other, 5%.

Tariff:	Item	Number	Most favored nation (MFN) 12/31/95	Non-MFN⁶ 12/31/95
	Acid grade (more than 97% CaF ₂)	2529.22.0000	\$1.66/t	\$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: In fiscal year 1995, the Defense National Stockpile Center (DNSC) was originally authorized to sell 40,000 short dry tons (sdt) of metallurgical grade and 200,000 sdt of acid grade. The disposal authority was subsequently revised to 80,000 sdt of metallurgical grade and 90,000 sdt of acid grade. During the period January through September 1995, the DNSC sold 40,000 Sdt of metallurgical grade from the stockpile at Memphis, TN; 40,000 sdt of metallurgical grade from the stockpile at Pine Bluff, AR; and 89,000 sdt of acid grade from the stockpile at Northgate, CO. An additional 36,000 sdt of acid grade was sold from the Northgate, CO, stockpile, pending approval of the fiscal year 1996 annual materials plan.

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Stockpile Status—9-30-95 (Thousand short dry tons)

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposals Jan.-Sept. 95
Acid grade	545	300	516	89
Metallurgical grade	289	73	289	80

Events, Trends, and Issues: China, the world's largest fluor spar producer, restructured its export license/quota system in an attempt to address problems with the existing system. Bids by exporters were restricted to those that fell within a certain percentage range above and below the established average bidding price. The price range was determined by the bidding committee based on international market price, domestic supply, and export costs. The price range was announced prior to the commencement of bidding.

As required by the Montreal Protocol and the Clean Air Act Amendments of 1990, most U.S. production of chlorofluorocarbons (CFC's) ceased on December 31, 1995. The current market for CFC's and their replacements is muddled. The demand for the major replacement, HFC-134a, is lower than expected. Producers of HCFC-22 are finding that feedstock costs are high and margins low. In the case of HFC-134a, many customers are still relying on CFC-12, which will no longer be produced for domestic use after December 31, 1995. Producers expect U.S. supplies of CFC-12 will likely be exhausted by 1997-98.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves ^{7 8}	Reserve base ^{7 8}
	1994	1995 ⁹		
United States	49	48	W	10,000
Brazil	90	90	W	W
China	2,100	2,100	27,000	46,000
France	125	120	10,000	14,000
Kenya	64	70	2,000	3,000
Mexico	327	490	19,000	23,000
Morocco	85	90	W	W
South Africa	174	230	30,000	36,000
Spain	95	90	6,000	8,000
United Kingdom	59	60	2,000	3,000
Other countries	<u>682</u>	<u>680</u>	⁹ <u>114,000</u>	¹⁰ <u>167,000</u>
World total (may be rounded)	3,850	4,070	210,000	310,000

World Resources: Identified world fluor spar resources were approximately 400 million tons of contained fluor spar. Resources of equivalent fluor spar from domestic phosphate rock were approximately 32 million tons. World resources of fluor spar from phosphate rock were estimated at 330 million tons.

Substitutes: Olivine and/or dolomitic limestone were used as substitutes for fluor spar. Byproduct fluorosilicic acid from phosphoric acid production was used as a substitute in aluminum fluoride production.

⁹Estimated. W Withheld to avoid disclosing company proprietary data.

¹Shipments.

²Includes fluor spar from National Defense Stockpile reprocessed by Ozark-Mahoning Co., Illinois.

³Exports are all general imports reexported.

⁴Excludes fluor spar equivalent of fluorosilicic acid, hydrofluoric acid, and cryolite.

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

⁶See Appendix B.

⁷See Appendix C for definitions.

⁸Measured as 100% calcium fluoride.

⁹Includes Brazil, Morocco, and the United States.

¹⁰Includes Brazil and Morocco.