

## FLUORSPAR

(Data in thousand metric tons, unless otherwise noted)

**Domestic Production and Use:** There was no domestic mine production of fluorspar in 2000. 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. Domestically, an estimated 90% 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 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 68,200 tons of fluorosilicic acid (equivalent to 120,000 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.

<b>Salient Statistics—United States:</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000<sup>e</sup></b>
Production: Finished, all grades <sup>e1</sup>	8	—	—	—	—
Fluorspar equivalent from phosphate rock	119	121	118	122	120
Imports for consumption:					
Acid grade	474	485	462	419	510
Metallurgical grade	39	51	41	59	41
Fluorspar equivalent from hydrofluoric acid plus cryolite	131	175	204	192	215
Exports <sup>2</sup>	62	62	24	55	48
Shipments from Government stockpile	287	97	110	131	106
Consumption: Apparent <sup>3</sup>	719	551	591	615	612
Reported	527	491	538	515	550
Stocks, yearend, consumer and dealer <sup>4</sup>	234	375	468	373	350
Employment, mine and mill, number	5	—	—	—	—
Net import reliance <sup>5</sup> as a percent of apparent consumption	99	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 (1996-99):** China, 67%; South Africa, 22%; and Mexico, 11%.

<b>Tariff: Item</b>	<b>Number</b>	<b>Normal Trade Relations 12/31/00</b>
Acid grade (97% or more CaF <sub>2</sub> )	2529.22.0000	Free.
Metallurgical grade (less than 97% CaF <sub>2</sub> )	2529.21.0000	Free.

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

**Government Stockpile:** During fiscal year 2000, the Defense National Stockpile Center (DNSC) sold 54,400 tons (60,000 short dry tons) of metallurgical grade. Under the proposed fiscal year 2001 Annual Materials Plan, the DNSC will be authorized to sell an additional 54,400 tons (60,000 short dry tons) of metallurgical grade. In addition to the material below, the stockpile contains 57,000 tons (62,800 short dry tons) of nonstockpile-grade material.

### Stockpile Status—9-30-00<sup>6</sup>

<b>Material</b>	<b>Uncommitted inventory</b>	<b>Committed inventory</b>	<b>Authorized for disposal</b>	<b>Disposal plan FY 2000</b>	<b>Disposals FY 2000</b>
Acid grade	9	179	9	—	—
Metallurgical grade	40	79	40	54	43

## FLUORSPAR

**Events, Trends, and Issues:** After the Chinese export license fees more than doubled to \$56 to \$60 per ton in the first half of 1999 (although very little material actually sold at those fee rates), the fees for 2000 stabilized at about \$39 per ton. This was still an increase of \$13 per ton compared to the fees in 1998.

After a review of the antidumping duties (established in December 1995) on imports of Chinese fluorspar in the form of filtercake or powder into the European Union, the Council of the European Union determined that the duty should be maintained. The duty remained equal to the difference between a minimum price of 113.5 European Currency Units per dry ton and the net free-at-Community-frontier price, before customs clearance.

### **World Mine Production, Reserves, and Reserve Base:**

	Mine production		Reserves <sup>7,8</sup>	Reserve base <sup>7,8</sup>
	1999	2000 <sup>6</sup>		
United States	—	—	—	6,000
China	2,400	2,400	23,000	94,000
France	107	110	10,000	14,000
Italy	110	110	6,000	7,000
Kenya	98	100	2,000	3,000
Mexico	564	542	32,000	40,000
Mongolia	154	150	10,000	NA
Morocco	110	110	NA	NA
South Africa	217	220	30,000	36,000
Spain	133	125	6,000	8,000
Other countries	617	610	100,000	170,000
World total (may be rounded)	4,510	4,480	220,000	380,000

**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, and the potential also exists to use it as a substitute in HF production.

<sup>6</sup>Estimated. NA Not available.

<sup>1</sup>Shipments.

<sup>2</sup>Exports are all general imports reexported or National Defense Stockpile material exported.

<sup>3</sup>Excludes fluorspar equivalent of fluorosilicic acid, hydrofluoric acid, and cryolite.

<sup>4</sup>Industry stocks plus National Defense Stockpile material committed for sale pending shipment.

<sup>5</sup>Defined as imports - exports + adjustments for Government and industry stock changes.

<sup>6</sup>See Appendix B for definitions.

<sup>7</sup>See Appendix C for definitions.

<sup>8</sup>Measured as 100% calcium fluoride.