

STRONTIUM

(Data in metric tons of contained strontium,¹ unless noted)

Domestic Production and Use: No strontium minerals have been produced in the United States since 1959. The most common strontium mineral, celestite, which consists primarily of strontium sulfate, was imported exclusively from Mexico. A company in Georgia was the only major U.S. producer of strontium compounds. Primary strontium compounds were used in the faceplate glass of color television picture tubes, 69%; ferrite ceramic magnets, 11%; pyrotechnics and signals, 9%; and other, 11%.

Salient Statistics—United States:	1991	1992	1993	1994	1995^e
Production, strontium minerals	—	—	—	—	—
Imports for consumption:					
Strontium minerals	14,600	19,700	11,600	16,000	15,000
Strontium compounds	9,550	13,000	15,300	20,000	22,000
Exports, compounds	1,080	650	260	110	1,300
Shipments from Government stockpile excesses	—	—	—	—	—
Consumption, apparent, celestite and compounds	W	W	W	W	W
Price, average value of mineral imports at port of exportation, dollars per ton	77	68	73	68	72
Stocks, consumer, yearend, celestite only	W	W	W	W	W
Net import reliance ² as a percent of apparent consumption	100	100	100	100	100

Recycling: None.

Import Sources (1991-94): Strontium minerals: Mexico, 100%. Strontium compounds: Mexico, 84%; Germany, 15%; and other, 1%. Total imports: Mexico, 93% and Germany, 7%.

Tariff:	Item	Number	Most favored nation (MFN) 12/31/95	Mexico 12/31/95	Non-MFN³ 12/31/95
	Celestite	2530.90.0010	Free	Free	Free.
	Alkaline earth metals (strontium and barium)	2805.22.1000	3.7% ad val.	Free	25% ad val.
	Compounds:				
	Strontium nitrate	2834.29.2000	4.2% ad val.	Free	25% ad val.
	Strontium carbonate	2836.92.0000	4.2% ad val.	Free	25% ad val.
	Strontium oxide, hydroxide, peroxide	2816.20.0000	4.2% ad val.	Free	25% ad val.

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

Government Stockpile:

Stockpile Status—9-30-95

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposals Jan.-Sept. 95
Celestite ¹	5,100	—	5,100	—

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Events, Trends, and Issues: Although there is celestite in the National Defense Stockpile, none of it is stockpile grade; its total value is listed as zero. The stockpile goal was reduced to zero in 1969, and at that time the stockpile contained both stockpile- and nonstockpile-grade material. Since then, all the stockpile-grade celestite has been sold. Although the nonstockpile-grade celestite has been offered for sale, none has been sold since 1979. The fiscal year 1996 Annual Materials Plan, announced at the end of September by the Defense Materials Stockpile Center, identified 3,300 tons of celestite to be offered for disposal.

World Mine Production, Reserves, and Reserve Base:⁴

	Mine production		Reserves ⁵	Reserve base ⁵
	<u>1994</u>	<u>1995^e</u>		
United States	—	—	—	1,360,000
Algeria	5,400	5,400		
China	35,000	35,000		
Iran	20,000	20,000		
Mexico	70,000	75,000	Other:	Other:
Pakistan	1,500	1,500	6,800,000	10,600,000
Spain	12,000	12,000		
Tajikistan	NA	NA		
Turkey	40,000	40,000		
United Kingdom	1,000	—		
World total (may be rounded)	<u>⁶180,000</u>	<u>⁶190,000</u>	<u>6,800,000</u>	<u>12,000,000</u>

World Resources: Resources in the United States are several times the reserve base. World resources, although not thoroughly evaluated, are believed to exceed 1 billion tons.

Substitutes: Although it is possible to substitute for strontium in some of its applications, such a change would adversely affect product performance and/or cost. For example, barium could replace strontium in color television picture tube glass only after extensive circuit redesign to reduce operating voltages that produce harmful secondary X-rays. Barium replacement of strontium in ferrite ceramic magnets would decrease the maximum energy and temperature characteristics of the magnet. Substituting for strontium in pyrotechnics would be impractical because the desired brilliance and visibility are imparted only by strontium and its compounds.

^eEstimated. NA Not available. W Withheld to avoid disclosing company proprietary data.

¹The strontium content of celestite is 43.88%; this amount was used to convert units of celestite.

²Defined as imports - exports + adjustments for Government and industry stock changes.

³See Appendix B.

⁴Metric tons of strontium minerals.

⁵See Appendix C for definitions.

⁶Excludes Tajikistan.