

STRONTIUM(Data in metric tons of strontium content¹ unless otherwise 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, and analysis of celestite import data indicates that production at this operation has decreased substantially since 2001. Estimates of primary strontium compound end uses in the United States were pyrotechnics and signals, 30%; ferrite ceramic magnets, 30%; master alloys, 10%; pigments and fillers, 10%; electrolytic production of zinc, 10%; and other applications, 10%.

Salient Statistics—United States:	2004	2005	2006	2007	2008^e
Production	—	—	—	—	—
Imports for consumption:					
Strontium minerals	2,760	799	671	541	445
Strontium compounds	14,500	11,700	8,860	8,550	8,250
Exports, compounds	552	255	716	720	725
Shipments from Government stockpile excesses	—	—	—	—	—
Consumption, apparent, celestite and compounds	16,700	12,200	8,820	8,370	7,750
Price, average value of mineral imports at port of exportation, dollars per ton	53	56	64	67	70
Net import reliance ² as a percentage of apparent consumption	100	100	100	100	100

Recycling: None.

Import Sources (2004-07): Strontium minerals: Mexico, 100%. Strontium compounds: Mexico, 78%; Germany, 11%; and other, 11%. Total imports: Mexico, 79%; Germany, 10%; and other, 11%.

Tariff:	Item	Number	Normal Trade Relations 12-31-08
	Celestite	2530.90.8010	Free.
	Strontium metal	2805.19.1000	3.7% ad val.
	Compounds:		
	Strontium oxide, hydroxide, peroxide	2816.40.1000	4.2% ad val.
	Strontium nitrate	2834.29.2000	4.2% ad val.
	Strontium carbonate	2836.92.0000	4.2% ad val.

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

Government Stockpile: None.

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Events, Trends, and Issues: China is the world's leading producer of strontium carbonate, with plant capacity of 200,000 tons per year, followed by Germany and Mexico, with 70,000 and 127,000 tons per year, respectively. China uses mostly domestic and some imported celestite to supply its strontium carbonate plants; the German producer uses imported celestite; and Mexican producers use domestic ore to supply their plants. Major markets for Chinese strontium carbonate are in Asia and Europe. Chinese celestite reserves are smaller and of lower quality than the ores in other major producing countries, including Mexico and Spain, raising the question of whether Chinese celestite producers will be able to maintain high enough production levels to meet the demand at strontium carbonate plants for an extended period of time, or if additional imports will be required. Turkey had been another leading celestite producer, but continues to experience significant decline in production.

Strontium demand for cathode ray tubes (CRTs) continues to be strong in Asia and Mexico, but newer television technology is likely to eventually replace CRTs in those markets as well. Although CRTs are still available, growth continues in flat-panel technology, which requires much smaller quantities of strontium carbonate, resulting in steadily decreasing demand for strontium carbonate for television displays, especially in North America and Europe. Even without strontium carbonate consumption in television glass, estimated strontium consumption in ceramics and glass manufacture remained one of the top end-use industries through its use in ceramic ferrite magnets and other ceramic and glass applications. The use of strontium nitrate in pyrotechnics was estimated to equal the use of strontium carbonate in ferrite magnets.

World Mine Production, Reserves, and Reserve Base:³

	Mine production		Reserves ⁴	Reserve base ⁴
	2007	2008 ^e		
United States	—	—	—	1,400,000
Argentina	20,000	5,000	All other:	All other:
China ^e	190,000	200,000	6,800,000	11,000,000
Iran	—	—		
Mexico	96,900	96,900		
Morocco	2,700	2,700		
Pakistan	2,000	2,100		
Spain	190,000	200,000		
Turkey	9,000	5,000		
World total (rounded)	511,000	512,000	6,800,000	12,000,000

World Resources: Resources of strontium in the United States are several times the reserve base. World resources are thought to exceed 1 billion tons.

Substitutes: Although it is possible to substitute other materials 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 CRT 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 magnets. Substituting for strontium in pyrotechnics would be impractical because the desired brilliance and visibility are imparted only by strontium and its compounds.

^eEstimated. — Zero.

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

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

³Metric tons of strontium minerals.

⁴See Appendix C for definitions.