

## STRONTIUM

(Data in metric tons of strontium content<sup>1</sup> unless otherwise noted)

**Domestic Production and Use:** Although deposits of strontium minerals occur widely throughout the United States, strontium minerals have not been mined in the United States since 1959. Domestic production of strontium carbonate, the principal strontium compound, ceased in 2006. A few domestic companies produce small amounts of downstream strontium chemicals. 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%.

<b><u>Salient Statistics—United States:</u></b>	<b><u>2007</u></b>	<b><u>2008</u></b>	<b><u>2009</u></b>	<b><u>2010</u></b>	<b><u>2011<sup>e</sup></u></b>
Production	—	—	—	—	—
Imports for consumption:					
Strontium minerals	541	2,030	6,420	2,370	6,200
Strontium compounds	8,550	9,420	5,860	8,640	13,000
Exports, compounds	688	594	532	566	800
Consumption, apparent, celestite and compounds	8,400	10,900	11,800	10,400	18,400
Price, average value of mineral imports					
at port of exportation, dollars per ton	67	64	47	45	46
Net import reliance <sup>2</sup> as a percentage of apparent consumption	100	100	100	100	100

**Recycling:** None.

**Import Sources (2007–10):** Strontium minerals: Mexico, 100%. Strontium compounds: Mexico, 70%; Germany, 15%; and other, 15%. Total imports: Mexico, 79%; Germany, 10%; and other, 11%.

<b><u>Tariff:</u></b>	<b><u>Item</u></b>	<b><u>Number</u></b>	<b><u>Normal Trade Relations</u></b>
			<b><u>12-31-11</u></b>
	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:** Strontium compounds are mostly consumed by the ceramic, glass, and pyrotechnics industries, with smaller amounts consumed by a multitude of other industries. Ceramics and glass manufacture remained the top end-use industries through strontium's estimated 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.

With expected improvements to global economic conditions, demand for strontium carbonate in more traditional applications is expected to increase. Use of strontium by the ceramics, glass, and pyrotechnic industries is expected to continue, with solid demand for strontium used in ferrite magnets. With improvements in advanced applications, consumption of strontium in new end uses may increase.

In descending order of production, China, Spain, and Mexico are the world's leading producers of celestite. China is becoming more reliant on imported celestite because Chinese celestite reserves are smaller and of lower quality than those in other major producing countries. The Iranian celestite industry was expecting strong growth owing to increased exports to China, coupled with the low cost of container freights and government subsidies. A key Spanish celestite mine and refinery ceased operations because its sales to China declined significantly and demand for CRTs decreased.

### **World Mine Production and Reserves:**<sup>3</sup>

	Mine production		Reserves <sup>4</sup>
	2010	2011 <sup>e</sup>	
United States	—	—	—
Argentina	7,000	7,100	All other:
China <sup>e</sup>	220,000	210,000	6,800,000
Iran	2,000	2,000	
Mexico	31,400	35,000	
Morocco	2,500	2,500	
Pakistan	1,600	1,600	
Spain	140,000	120,000	
World total (rounded)	405,000	380,000	6,800,000

**World Resources:** World resources of strontium are thought to exceed 1 billion tons.

**Substitutes:** Barium can be substituted for strontium in ferrite ceramic magnets; however, the resulting barium composite will have reduced maximum operating temperature when compared with that of strontium composites. Substituting for strontium in pyrotechnics is hindered by difficulty in obtaining the desired brilliance and visibility imparted by strontium and its compounds.

<sup>e</sup>Estimated. — Zero.

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

<sup>2</sup>Defined as imports – exports + adjustments for Government and industry stock changes.

<sup>3</sup>Metric tons of strontium minerals.

<sup>4</sup>[See Appendix C for resource/reserve definitions and information concerning data sources.](#)