

## SAND AND GRAVEL (INDUSTRIAL)

(Data in thousand metric tons, unless otherwise noted)<sup>1</sup>

**Domestic Production and Use:** Industrial sand and gravel valued at about \$560 million was produced by 69 companies from 154 operations in 37 States. Leading States, in order of tonnage, were Illinois, Michigan, Wisconsin, California, Texas, New Jersey, North Carolina, and Oklahoma. Combined production from these States represented 59% of the domestic total. About 38% of the U.S. tonnage was used as glassmaking sand, 22% as foundry sand, 5% as abrasive sand, 5% as hydraulic fracturing sand, and the remaining 30% for other uses.

<b>Salient Statistics—United States:</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001<sup>e</sup></b>
Production	28,500	28,200	28,900	28,400	28,800
Imports for consumption	39	44	211	247	122
Exports	980	2,400	1,670	1,660	1,490
Consumption, apparent	27,600	26,200	27,400	27,400	27,400
Price, average value, dollars per ton	17.93	18.19	18.64	19.58	19.50
Stocks, yearend	NA	NA	NA	NA	NA
Employment, quarry and mill, number <sup>e</sup>	1,450	1,400	1,400	1,400	1,400
Net import reliance <sup>2</sup> as a percentage of apparent consumption	E	E	E	E	E

**Recycling:** There is some recycling of foundry sand, and recycled cullet (pieces of glass) represents a significant proportion of reused silica.

**Import Sources (1997-2000):** Canada, 56%; Mexico, 23%; Australia, 16%; and other, 5%.

<b>Tariff:</b>	<b>Item</b>	<b>Number</b>	<b>Normal Trade Relations</b>
			<b><u>12/31/01</u></b>
	95% or more silica and not more than 0.6% iron oxide	2505.10.1000	Free.

**Depletion Allowance:** Industrial sand or pebbles, 14% (Domestic and foreign).

**Government Stockpile:** None.

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**Events, Trends, and Issues:** Domestic sales of industrial sand and gravel in 2001 increased by about 1% compared with those of 2000. U.S. apparent consumption reached slightly more than 27 million tons in 2001, unchanged from that of the preceding 2 years. Imports dropped 51% in 2001 compared with those of 2000. Import levels in 2000 had been the highest reported in at least the past 20 years. Imports of silica are generally of two types: small-quantity shipments of very-high-purity silica or a few large shipments of lower grade silica that were shipped only under special circumstances (e.g., very low freight rates).

The United States was the world's largest producer and consumer of industrial sand and gravel based on estimated world production figures. It was difficult to collect definitive numbers on silica sand and gravel production in most nations because of the wide range of terminology and specifications for silica from country to country. The United States remained a major exporter of silica sand, shipping sand to almost every region of the world. This was attributed to the high quality and advanced processing techniques for a large variety of grades of silica, meeting virtually every specification for silica sand and gravel.

In 2002, estimated domestic production and apparent consumption will be about 29 million tons and 27 million tons, respectively.

The industrial sand and gravel industry continued to be concerned with safety and health regulations and environmental restrictions in 2001. Local shortages were expected to continue to increase owing to local zoning regulations and land development alternatives. These situations are expected to continue to cause a movement of sand and gravel operations away from high-population centers.

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

	Mine production <sup>e</sup>		Reserves and reserve base <sup>3</sup>
	2000	2001	
United States	28,400	28,800	Large. Silica is abundant in the Earth's crust. The reserves and reserve base are determined mainly by the location of population centers.
Australia	2,500	2,500	
Austria	6,000	5,800	
Belgium	2,400	2,400	
Brazil	2,700	2,700	
Canada	2,000	2,000	
France	6,500	6,600	
Germany	7,000	6,800	
India	1,300	1,400	
Italy	3,000	3,000	
Japan	2,800	2,700	
Mexico	1,800	1,900	
Netherlands	3,000	3,000	
South Africa	2,200	2,100	
Spain	6,000	6,000	
United Kingdom	4,000	4,000	
Other countries	<u>15,000</u>	<u>15,000</u>	
World total (rounded)	<u>97,000</u>	<u>97,000</u>	

**World Resources:** Sand and gravel resources of the world are sizable. However, because of their geographic distribution, environmental restrictions, and quality requirements for some uses, extraction of these resources is sometimes uneconomic. Quartz-rich sand and sandstones, the main source of industrial silica sand, occur throughout the world.

**Substitutes:** Silica sand continues to be the major material used for glassmaking and for foundry and molding sands; alternatives are zircon, olivine, staurolite, and chromite sands.

<sup>e</sup>Estimated. E Net exporter. NA Not available.

<sup>1</sup>See Appendix A for conversion to short tons.

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

<sup>3</sup>See Appendix C for definitions.