

SAND AND GRAVEL (INDUSTRIAL)

(Data in thousand metric tons, unless otherwise noted)¹

Domestic Production and Use: Industrial sand and gravel valued at about \$502 million was produced by 79 companies from 144 operations in 35 States. Leading States, in order of volume, were Illinois, Michigan, New Jersey, California, and Wisconsin. Combined production from these States represented 43% of the national total. About 38% of the national tonnage was used as glassmaking sand, 24% as foundry sand, 6% as abrasive sand, 6% as hydraulic fracturing sand, and the remainder for many other uses.

Salient Statistics—United States:	1992	1993	1994	1995	1996^e
Production	25,200	26,200	27,300	28,200	28,600
Imports for consumption	164	44	24	65	90
Exports	1,340	1,750	1,880	1,870	2,000
Consumption, apparent	24,000	24,500	25,400	26,400	26,700
Price, average value, dollars per ton	17.24	17.33	17.86	17.82	17.56
Stocks, yearend	NA	NA	NA	NA	NA
Employment, quarry and mill ^e , number	1,500	1,500	1,500	1,450	1,450
Net import reliance ² as a percent 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 amount of reused silica.

Import Sources (1992-95): Australia, 52%; Belgium, 43%; Guyana, 3%; and other, 2%.

Tariff: Item	Number	Most favored nation (MFN) 12/31/96	Non-MFN³ 12/31/96
95% or more silica and not more than 0.6% iron oxide	2505.10.1000	Free	\$1.97/t.

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

Government Stockpile: None.

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Events, Trends, and Issues: The United States was the world's largest producer and consumer of industrial sand and gravel based on estimated world production figures. However, it was difficult to collect definitive numbers on silica sand and gravel production in most nations because of the wide range of terminologies and specifications for silica from country to country. Attempts to improve the accuracy of data on world industrial sand and gravel production are ongoing, and revisions should be expected.

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 of a large variety of grades of silica, meeting virtually every specification for silica sand and gravel. 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 is shipped only when special circumstances were achieved (i.e., very favorable freight rates).

Industrial sand and gravel sold or used increased about 1.5% in 1996 compared with 1995. It is estimated that 1997 domestic production and U.S. 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 1996. Local shortages were expected to continue to increase owing to local zoning regulations and land development alternatives. This is 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 ^o		Reserves and reserve base ⁴
	1995	1996	
United States	28,200	28,600	Large. Silica is abundant in the Earth's crust. The reserves and reserve base are controlled by the location of population centers.
Australia	2,500	2,500	
Austria	7,500	7,750	
Belgium	2,500	2,500	
Brazil	2,700	2,700	
Canada	1,650	1,700	
France	7,000	6,750	
Germany	10,000	10,300	
India	1,300	1,400	
Italy	4,000	4,000	
Japan	3,740	3,700	
Mexico	1,290	1,320	
Netherlands	23,000	22,000	
Paraguay	1,500	1,500	
South Africa	2,180	2,300	
Spain	2,000	2,000	
Sweden	1,500	1,500	
United Kingdom	3,600	3,700	
Other countries	<u>13,800</u>	<u>14,000</u>	
World total (rounded)	120,000	120,000	

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; alternates are zircon, olivine, staurolite, and chromite sands.

^oEstimated. E Net exporter. NA Not available.

¹See Appendix A for conversion to short tons.

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

³See Appendix B.

⁴See Appendix C for definitions.