

SAND AND GRAVEL (INDUSTRIAL)¹

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: Industrial sand and gravel valued at about \$832 million was produced by 68 companies from 136 operations in 34 States. Leading States, in order of tonnage produced, were Illinois, Texas, Wisconsin, Oklahoma, Minnesota, North Carolina, California, and Michigan. Combined production from these States represented 63% of the domestic total. About 33% of the U.S. tonnage was used as glassmaking sand, 21% as hydraulic fracturing sand and well-packing and cementing sand, 14% as foundry sand, 8% as whole-grain fillers and building products, 5% as ground silica and whole-grain silica, 4% as golf course sand, and 15% for other uses.

Salient Statistics—United States:	2004	2005	2006	2007	2008^e
Production	29,700	30,600	28,800	30,000	30,000
Imports for consumption	490	711	855	511	323
Exports	1,790	2,910	3,830	3,000	3,070
Consumption, apparent	28,400	28,400	25,800	27,500	27,300
Price, average value, dollars per ton	23.06	24.57	26.58	28.60	27.73
Employment, quarry and mill, number ^e	1,400	1,400	1,400	1,400	1,400
Net import reliance ² 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 (2004-07): Mexico, 60%; Canada, 36%; and other, 4%.

Tariff: Item	Number	Normal Trade Relations 12-31-08
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.

Events, Trends, and Issues: Domestic sales of industrial sand and gravel in 2008 remained unchanged compared with those of 2007, but were sufficient to fulfill demand for many uses, which included ceramics, chemicals, fillers (ground and whole-grain), container, filtration, flat and specialty glass, hydraulic fracturing, and recreational uses. U.S. apparent consumption was 27.3 million tons in 2008, down slightly from that of the previous year. Imports of industrial sand and gravel in 2008 decreased to 323,000 tons from 511,000 tons in 2007. Imports of silica are generally of two types: small shipments of very high-purity silica or a few large shipments of lower grade silica shipped only under special circumstances (for example, very low freight rates). Exports of industrial sand and gravel in 2008 remained essentially unchanged compared with those of 2007.

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

The industrial sand and gravel industry continued to be concerned with safety and health regulations and environmental restrictions in 2008. Local shortages were expected to continue to increase owing to local zoning regulations and land development alternatives. These situations are expected to cause future sand and gravel operations to be located farther from high-population centers.

World Mine Production, Reserves, and Reserve Base:

	Mine production ^e		Reserves and reserve base ³
	2007	2008	
United States	30,000	30,000	Large. Industrial sand and gravel deposits are widespread. Calculation of the reserves and reserve base is determined mainly by the location of population centers.
Australia	5,300	5,300	
Austria	6,800	6,800	
Belgium	1,800	1,800	
Brazil	1,500	1,500	
Canada	1,900	1,900	
Chile	1,200	1,200	
Czech Republic	1,000	1,000	
France	5,000	5,000	
Gambia	1,400	1,400	
Germany	7,700	8,400	
Hungary	3,800	3,800	
India	1,600	1,600	
Iran	2,000	2,000	
Italy	14,000	14,000	
Japan	4,300	4,300	
Korea, Republic of	2,200	2,200	
Mexico	2,700	2,700	
Norway	1,500	1,500	
Poland	4,000	4,000	
Romania	1,500	1,500	
Slovakia	2,000	2,000	
Slovenia	200	200	
South Africa	3,300	3,300	
Spain	5,000	5,000	
Turkey	1,200	1,200	
United Kingdom	5,600	5,600	
Other countries	7,300	7,300	
World total (rounded)	126,000	127,000	

World Resources: Sand and gravel resources of the world are large. 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 sources of industrial silica sand, occur throughout the world.

Substitutes: Alternative materials that can be used for glassmaking and for foundry and molding sands are chromite, olivine, staurolite, and zircon sands.

^eEstimated. E Net exporter.

¹See also Sand and Gravel (Construction).

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

³See Appendix C for definitions.