

SAND AND GRAVEL (INDUSTRIAL)¹

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: Industrial sand and gravel valued at about \$827 million was produced by 70 companies from 144 operations in 35 States. Leading States, in order of tonnage produced, were Texas, Illinois, Wisconsin, Minnesota, Oklahoma, California, North Carolina, and Michigan. Combined production from these States represented 61% of the domestic total. About 31% of the U.S. tonnage was used as glassmaking sand, 27% as hydraulic fracturing sand and well-packing and cementing sand, 14% as foundry sand, 7% as whole-grain fillers and building products, 4% as whole-grain silica, 3% as golf course sand, 3% as ground and unground silica for chemical applications, and 11% for other uses.

Salient Statistics—United States:	2005	2006	2007	2008	2009^e
Production	30,600	28,900	30,100	30,400	27,400
Imports for consumption	711	855	511	355	83
Exports	2,910	3,830	3,000	3,100	2,800
Consumption, apparent	28,400	25,900	27,600	27,700	24,700
Price, average value, dollars per ton	24.57	26.26	27.64	30.82	30.17
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 (2005-08): Canada, 54%; Mexico, 21%; and other, 25%.

Tariff: Item	Number	Normal Trade Relations 12-31-09
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 2009 declined by 10% compared with those of 2008, owing to the economic downturn and decreased demand. However, mined output was sufficient to accommodate 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 24.7 million tons in 2009, down from that of the previous year. Imports of industrial sand and gravel in 2009 decreased to 83,000 tons from 355,000 tons in 2008. 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 2009 decreased to 2.8 million tons from 3.1 million tons in 2008.

SAND AND GRAVEL (INDUSTRIAL)

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 2009. 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 and Reserves:

	Mine production ^e		Reserves ³
	2008	2009	
United States	30,400	27,400	Large. Industrial sand and gravel deposits are widespread. Calculation of the reserves is determined mainly by the location of population centers.
Australia	5,300	5,300	
Austria	2,000	1,500	
Belgium	1,800	1,800	
Bulgaria	1,500	1,500	
Canada	1,990	2,000	
Chile	1,400	600	
Czech Republic	1,000	1,900	
France	5,000	5,000	
Gambia	1,400	1,400	
Germany	8,190	6,500	
Hungary	3,800	300	
India	1,700	1,700	
Iran	2,000	2,000	
Italy	13,800	14,000	
Japan	4,500	4,500	
Korea, Republic of	2,000	2,000	
Mexico	2,780	2,800	
Norway	1,500	1,500	
Poland	4,000	5,300	
Slovakia	2,000	2,000	
South Africa	3,650	2,900	
Spain	5,000	5,000	
Turkey	1,200	1,200	
United Kingdom	5,600	5,600	
Other countries	<u>7,500</u>	<u>6,200</u>	
World total (rounded)	121,000	112,000	

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. Reserve base estimates were discontinued in 2009; see [Introduction](#).