

SAND AND GRAVEL (INDUSTRIAL)¹

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: Industrial sand and gravel valued at about \$777 million was produced by 68 companies from 124 operations in 34 States. Leading States, in order of tonnage produced, were Illinois, Wisconsin, Texas, Oklahoma, Louisiana, Minnesota, Michigan, and California. Combined production from these States represented 59% of the domestic total. About 31% of the U.S. tonnage was used as glassmaking sand, 25% as hydraulic fracturing sand and well-packing and cementing sand, 13% as foundry sand, 8% as whole-grain silica, 7% as whole-grain fillers and building products, 4% as golf course sand, 3% as ground and unground silica for chemical applications, and 9% for other uses.

Salient Statistics—United States:	2006	2007	2008	2009	2010^e
Production	28,900	30,100	30,400	25,000	26,500
Imports for consumption	855	511	355	95	110
Exports	3,830	3,000	3,100	2,150	2,600
Consumption, apparent	25,900	27,600	27,700	23,000	24,000
Price, average value, dollars per ton	26.26	27.64	30.82	31.20	29.17
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 (2006–09): Canada, 74%; Mexico, 13%; and other, 13%.

Tariff: Item	Number	Normal Trade Relations 12-31-10
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 2010 increased by 6% compared with those of 2009. 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 about 24 million tons in 2010, up slightly from that of the previous year. Imports of industrial sand and gravel in 2010 increased to about 110,000 tons from 95,000 tons in 2009. 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 2010 increased to 2.6 million tons from 2.15 million tons in 2009.

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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 2010. 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
	2009	2010	
United States	25,000	26,500	Large. Industrial sand and gravel deposits are widespread.
Australia	5,200	5,200	
Austria	1,500	1,500	
Belgium	1,800	1,800	
Bulgaria	650	650	
Canada	1,300	1,300	
Chile	1,400	1,400	
Czech Republic	1,364	1,370	
Egypt	1,750	1,750	
Finland	2,240	2,240	
France	5,000	5,000	
Gambia	1,100	1,100	
Germany	6,450	6,500	
Hungary	290	290	
India	1,700	1,700	
Iran	1,500	1,500	
Italy	13,800	14,000	
Japan	3,500	3,500	
Korea, Republic of	455	450	
Mexico	2,770	2,800	
Norway	1,500	1,500	
Poland	4,385	4,350	
Slovakia	620	620	
South Africa	2,310	2,300	
Spain	5,000	5,000	
Turkey	1,250	1,300	
United Kingdom	5,600	5,600	
Other countries	<u>6,600</u>	<u>6,600</u>	
World total (rounded)	106,000	108,000	

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.

³[See Appendix C for resource/reserve definitions and information concerning data sources.](#)