

ABRASIVES (MANUFACTURED)

(Fused aluminum oxide and silicon carbide)
(Data in metric tons, unless otherwise noted)

Domestic Production and Use: Fused aluminum oxide was produced by three companies at six plants in the United States and Canada. Production of regular-grade fused aluminum oxide was valued at about \$18.1 million, and production of high-purity fused aluminum oxide was estimated at a value of more than \$4.6 million. Silicon carbide was produced by three companies at three plants in the United States and Canada. Domestic and Canadian production of crude silicon carbide had an estimated value of more than \$28.1 million. Bonded and coated abrasive products accounted for most abrasive uses of fused aluminum oxide and silicon carbide.

Salient Statistics—United States:	1997	1998	1999	2000	2001^e
Production, United States and Canada (crude):					
Fused aluminum oxide, regular	93,500	99,600	¹ 85,000	¹ 90,000	¹ 60,000
Fused aluminum oxide, high-purity	14,200	¹ 15,000	¹ 10,000	¹ 10,000	¹ 10,000
Silicon carbide	68,200	¹ 70,000	¹ 65,000	¹ 45,000	¹ 45,000
Imports for consumption (U.S.):					
Fused aluminum oxide	138,000	180,000	166,000	227,000	227,000
Silicon carbide	240,000	268,000	169,000	190,000	133,000
Exports (U.S.):					
Fused aluminum oxide	10,700	8,910	9,020	9,020	9,900
Silicon carbide	16,100	11,600	8,560	10,000	9,880
Consumption, apparent (U.S.):					
Fused aluminum oxide	NA	NA	NA	NA	NA
Silicon carbide	NA	NA	NA	NA	NA
Price, range of value, dollars per ton, United States and Canada:					
Fused aluminum oxide, regular	370	361	351	331	302
Fused aluminum oxide, high-purity	570	550	425	566	511
Silicon carbide	490	610	600	585	624
Net import reliance ² as a percentage of apparent consumption (U.S.)	NA	NA	NA	NA	NA

Recycling: Up to 30% of fused aluminum oxide may be recycled, and about 5% of silicon carbide is recycled.

Import Sources (1997-2000): Fused aluminum oxide, crude: Canada, 63%; China, 30%; and other, 7%. Fused aluminum oxide, grain: China, 42%; Canada, 23%; Austria, 11%; and other, 24%. Silicon carbide, crude: China, 82%; Canada, 13%; and other, 5%. Silicon carbide, grain: China, 57%; Brazil, 12%; Norway, 10%; Germany, 6%; and other, 15%.

Tariff: Item	Number	Normal Trade Relations 12/31/01
Fused aluminum oxide, crude	2818.10.1000	Free.
Fused aluminum oxide, grain	2818.10.2000	1.3% ad val.
Silicon carbide, crude	2849.20.1000	Free.
Silicon carbide, grain	2849.20.2000	0.5% ad val.

Depletion Allowance: None.

ABRASIVES (MANUFACTURED)

Government Stockpile: During the first three quarters of 2001, the Department of Defense sold 79.8 tons of fused aluminum oxide grain from the National Defense Stockpile (NDS) for \$39,600. If current disposal rates and sale schedules continue, all fused aluminum oxide grain in the NDS will be sold by yearend 2003.

Stockpile Status—9-30-01³

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 2001	Disposals FY 2001
Fused aluminum oxide, crude	—	5,956	—	—	—
Fused aluminum oxide, grain	16,287	20	16,287	5,443	167

Events, Trends, and Issues: Imports and higher operating costs continued to challenge producers in the United States and Canada. In June 2001, the last Canadian silicon carbide producer closed. Now there is only one silicon carbide producer left in North America. This means that the United States will now depend on imports to meet its needs for silicon carbide. Foreign competition, particularly from China, is expected to persist and further curtail production in North America.

World Production Capacity:

	Fused aluminum oxide capacity		Silicon carbide capacity	
	<u>2000</u>	<u>2001^e</u>	<u>2000</u>	<u>2001^e</u>
United States and Canada	160,000	160,000	85,000	70,000
Argentina	—	—	5,000	5,000
Australia	50,000	50,000	—	—
Austria	60,000	60,000	—	—
Brazil	50,000	50,000	43,000	43,000
China	460,000	460,000	455,000	455,000
France	40,000	40,000	16,000	16,000
Germany	80,000	80,000	36,000	36,000
India	40,000	40,000	5,000	5,000
Japan	50,000	50,000	60,000	60,000
Mexico	—	—	30,000	30,000
Norway	—	—	80,000	80,000
Venezuela	—	—	40,000	40,000
Other countries	<u>80,000</u>	<u>80,000</u>	<u>190,000</u>	<u>190,000</u>
World total (rounded)	1,070,000	1,070,000	1,050,000	1,030,000

World Resources: Although domestic resources of raw materials for the production of fused aluminum oxide are rather limited, adequate resources are available in the Western Hemisphere. Domestic resources are more than adequate for the production of silicon carbide.

Substitutes: Natural and manufactured abrasives, such as garnet or metallic abrasives, can be substituted for fused aluminum oxide and silicon carbide in various applications.

^eEstimated. NA Not available. — Zero.

¹Rounded to the nearest 5,000 tons to protect proprietary data.

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

³See Appendix B for definitions.