

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 more than \$38 million and production of high-purity fused aluminum oxide was valued at more than \$9.4 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 \$42 million. Bonded and coated abrasive products account for most abrasive uses of fused aluminum oxide and silicon carbide.

Salient Statistics—United States:	1995	1996	1997	1998	1999^e
Production, United States and Canada (crude):					
Fused aluminum oxide, regular	126,000	124,000	93,500	99,600	97,500
Fused aluminum oxide, high-purity	20,100	22,700	14,200	W	W
Silicon carbide	75,400	73,600	68,200	W	W
Imports for consumption (U.S.):					
Fused aluminum oxide	213,000	131,000	138,000	180,000	164,000
Silicon carbide	172,000	182,000	240,000	268,000	190,000
Exports (U.S.):					
Fused aluminum oxide	11,000	11,900	10,700	8,910	8,860
Silicon carbide	20,000	14,200	16,100	11,600	8,150
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:					
Fused aluminum oxide, regular	358	353	370	361	352
Fused aluminum oxide, high-purity	468	576	570	550	550
Silicon carbide	495	490	490	610	600
Net import reliance ¹ as a percent 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 (1995-98): Fused aluminum oxide crude: Canada, 68%; China, 15%; and other, 17%. Fused aluminum oxide grain: China, 51%; Canada, 14%; Austria, 13%; and other, 22%. Silicon carbide crude: China, 78%; Canada, 15%; and other, 7%. Silicon carbide grain: China, 53%; Brazil, 15%; Norway, 13%; Germany, 5%; and other, 14%.

Tariff: Item	Number	Normal Trade Relations 12/31/99
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: Not applicable.

Government Stockpile: Until early 1999, the Department of Defense stored silicon carbide in the National Defense Stockpile (NDS). In the first quarter of 1999, however, the Department of Defense sold all of the silicon carbide remaining in the stockpile. No further stockpiling of silicon carbide by the Department of Defense is anticipated. If current disposal rates and sale schedules continue, all fused aluminum oxide in the NDS will be sold by yearend 2003.

Stockpile Status—9-30-99²

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 1999	Disposals FY 1999
Fused aluminum oxide, crude	55,860	35,774	55,860	58,967	58,967
Fused aluminum oxide, grain	18,749	507	18,749	5,443	2,713
Silicon carbide, crude	—	872	—	8,165	4,191

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Events, Trends, and Issues: Imports and higher operating costs continue to challenge producers in the United States and Canada. Strong 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	
	1998	1999^e	1998	1999^e
United States and Canada	220,000	220,000	90,000	90,000
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	450,000	450,000	450,000	450,000
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>185,000</u>	<u>185,000</u>
World total (rounded)	1,100,000	1,100,000	1,000,000	1,000,000

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 substitutes for fused aluminum oxide and silicon carbide in various applications.

^eEstimated. NA Not available. W Withheld to avoid disclosing company proprietary data.

¹Defined as imports - exports + adjustments for Government and industry stock changes.

²See Appendix B for definitions.