

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 four companies at eight 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 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 \$43 million. Bonded and coated abrasive products account for most abrasive uses of fused aluminum oxide and silicon carbide.

Salient Statistics—United States:	1994	1995	1996	1997	1998^e
Production, United States and Canada (crude):					
Fused aluminum oxide, regular	133,000	126,000	124,000	93,500	106,000
Fused aluminum oxide, high-purity	29,200	20,100	22,700	14,200	16,000
Silicon carbide	84,700	75,400	73,600	68,200	71,000
Imports for consumption (U.S.):					
Fused aluminum oxide	145,000	213,000	131,000	138,000	180,000
Silicon carbide	110,000	172,000	182,000	240,000	270,000
Exports (U.S.):					
Fused aluminum oxide	13,000	11,000	11,900	10,700	9,000
Silicon carbide	16,000	20,000	14,200	16,100	10,200
Consumption, apparent:					
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	361	358	353	370	328
Fused aluminum oxide, high-purity	557	468	576	570	575
Silicon carbide	531	495	490	490	496
Net import reliance ¹ as a percent of apparent consumption	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 (1994-97): Fused aluminum oxide crude: Canada, 55%; Australia, 27%; and other, 18%. Fused aluminum oxide grain: China, 46%; Canada, 19%; Austria, 16%; and other, 19%. Silicon carbide crude: China, 71%; Canada, 21%; and other, 8%. Silicon carbide grain: Norway, 30%; China, 22%; Brazil, 24%; Canada, 6%; and other, 18%.

Tariff: Item	Number	Normal Trade Relations (NTR)	Non-NTR²
		12/31/98	12/31/98
Fused aluminum oxide, crude	2818.10.1000	Free	Free.
Fused aluminum oxide, grain	2818.10.2000	1.3% ad val.	4.1% ad val.
Silicon carbide, crude	2849.20.1000	Free	Free.
Silicon carbide, grain	2849.20.2000	0.5% ad val.	1.6% ad val.

Depletion Allowance: None.

Government Stockpile:

Stockpile Status—9-30-98³

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 1998	Disposals FY 1998
Fused aluminum oxide, crude	114,539	13,376	114,539	27,216	27,216
Fused aluminum oxide, grain	21,486	1,241	21,486	5,443	4,283
Silicon carbide, crude	4,203	4,494	4,203	8,165	8,165

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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. If current disposal rates and sale schedules continue, all silicon carbide and fused aluminum oxide in the National Defense Stockpile will be sold by yearends 1999 and 2003, respectively.

World Production Capacity:

	Fused aluminum oxide capacity		Silicon carbide capacity	
	<u>1997</u>	<u>1998^e</u>	<u>1997</u>	<u>1998^e</u>
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.

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

²See Appendix B.

³See Appendix C for definitions.