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 two companies at four plants in the United States and Canada. Production of regular-grade fused aluminum oxide had an estimated value of $4.1 million, and production of high-purity fused aluminum oxide was estimated at a value of more than $2.5 million. Silicon carbide was produced by two companies at two plants in the United States. Domestic production of crude silicon carbide had an estimated value of more than $16.2 million. Bonded and coated abrasive products accounted for most abrasive uses of fused aluminum oxide and silicon carbide.

Salient Statistics—United States:	**1998**	**1999**	**2000**	**2001**	**2002[e]**
Production, United States and Canada (crude):					
Fused aluminum oxide, regular	99,600	[1]85,000	[1]90,000	[1]50,000	[1]15,000
Fused aluminum oxide, high-purity[1]	15,000	10,000	10,000	10,000	5,000
Silicon carbide[1]	70,000	65,000	45,000	40,000	30,000
Imports for consumption (U.S.):					
Fused aluminum oxide	180,000	166,000	227,000	203,000	143,000
Silicon carbide	268,000	169,000	190,000	133,000	170,000
Exports (U.S.):					
Fused aluminum oxide	8,910	9,020	9,020	8,950	10,700
Silicon carbide	11,600	8,560	10,000	10,500	14,100
Consumption, apparent (U.S.):					
Fused aluminum oxide	NA	NA	NA	NA	NA
Silicon carbide	NA	NA	NA	NA	186,000
Price, range of value, dollars per ton United States and Canada:					
Fused aluminum oxide, regular	361	351	331	302	271
Fused aluminum oxide, high-purity	550	425	566	530	494
Silicon carbide	610	600	585	600	541
Net import reliance[2] as a percentage of apparent consumption (U.S.)					
Fused aluminum oxide	NA	NA	NA	NA	NA
Silicon carbide	NA	NA	NA	NA	84

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

Import Sources (1998-2001): Fused aluminum oxide, crude: Canada, 50%; China, 39%; and other, 11%. Fused aluminum oxide, grain: China, 44%; Canada, 25%; Austria, 9%; Germany, 9%; and other, 13%. Silicon carbide, crude: China, 83%; Canada, 12%; and other, 5%. Silicon carbide, grain: China, 49%; Brazil, 15%; Norway, 10%; Germany, 7%; and other, 19%.

Tariff: Item	**Number**	**Normal Trade Relations 12/31/02**
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.

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ABRASIVES (MANUFACTURED)

Government Stockpile: During the first three quarters of 2002, the Department of Defense sold 76.2 tons of fused aluminum oxide abrasive grain from the National Defense Stockpile (NDS) for $34,300.

Stockpile Status—9-30-02[3]

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 2002	Disposals FY 2002
Fused aluminum oxide, grain	16,176	11	16,176	5,443	76

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, leaving only two silicon carbide producers in the United States. This means that the United States will now depend on imports to meet most of 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	
	2001	2002[e]	2001	2002[e]
United States and Canada	145,000	145,000	42,600	42,600
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	25,000	25,000	60,000	60,000
Mexico	—	—	45,000	45,000
Norway	—	—	80,000	80,000
Venezuela	—	—	30,000	30,000
Other countries	80,000	80,000	190,000	190,000
World total (rounded)	1,030,000	1,030,000	1,010,000	1,010,000

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.

[e]Estimated. NA Not available. — Zero.

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

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

[3]See Appendix B for definitions.