

## 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 \$33 million, and production of high-purity fused aluminum oxide was estimated at a value of more than \$5.4 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 more than \$38 million. Bonded and coated abrasive products accounted for most abrasive uses of fused aluminum oxide and silicon carbide.

<b>Salient Statistics—United States:</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000<sup>e</sup></b>
Production, United States and Canada (crude):					
Fused aluminum oxide, regular	124,000	93,500	99,600	<sup>e</sup> 93,000	<sup>1</sup> 90,000
Fused aluminum oxide, high-purity	22,700	14,200	<sup>1</sup> 20,000	<sup>1</sup> 10,000	<sup>1</sup> 10,000
Silicon carbide	73,600	68,200	<sup>1</sup> 70,000	<sup>e</sup> 70,000	<sup>1</sup> 50,000
Imports for consumption (U.S.):					
Fused aluminum oxide	131,000	138,000	180,000	166,000	214,000
Silicon carbide	182,000	240,000	268,000	169,000	195,000
Exports (U.S.):					
Fused aluminum oxide	11,900	10,700	8,910	9,020	4,620
Silicon carbide	14,200	16,100	11,600	8,260	10,700
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	353	370	361	351	329
Fused aluminum oxide, high-purity	576	570	550	425	550
Silicon carbide	490	490	610	600	579
Net import reliance <sup>2</sup> 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 (1996-99):** Fused aluminum oxide crude: Canada, 73%; China, 24%; and other, 3%. Fused aluminum oxide grain: China, 48%; Canada, 16%; Austria, 12%; and other, 24%. Silicon carbide crude: China, 80%; Canada, 15%; and other, 5%. Silicon carbide grain: China, 51%; Brazil, 15%; Norway, 12%; Germany, 6%; and other, 16%.

<b>Tariff: Item</b>	<b>Number</b>	<b>Normal Trade Relations 12/31/00</b>
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.

**Government Stockpile:** In February 2000, the Department of Defense sold the remaining 227 tons of silicon carbide in the National Defense Stockpile (NDS). During the first half of 2000, the remaining 37,400 tons of fused crude aluminum oxide in the NDS was sold. No further stockpiling of fused crude aluminum oxide or silicon carbide by the Department of Defense is anticipated. If current disposal rates and sale schedules continue, all fused aluminum oxide abrasive grain in the NDS will be sold by yearend 2003.

### Stockpile Status—9-30-00<sup>3</sup>

<b>Material</b>	<b>Uncommitted inventory</b>	<b>Committed inventory</b>	<b>Authorized for disposal</b>	<b>Disposal plan FY 2000</b>	<b>Disposals FY 2000</b>
Fused aluminum oxide, crude	—	33,205	—	58,967	54,325
Fused aluminum oxide, grain	16,451	104	16,451	5,443	2,268
Silicon carbide, crude	—	4	—	8,165	1,225

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**Events, Trends, and Issues:** Imports and higher operating costs continued 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	
	1999	2000 <sup>e</sup>	1999	2000 <sup>e</sup>
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>190,000</u>	<u>190,000</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 substituted for fused aluminum oxide and silicon carbide in various applications.

<sup>e</sup>Estimated. NA Not available.

<sup>1</sup>Rounded to the nearest 10,000 tons to protect proprietary data.

<sup>2</sup>Defined as imports - exports + adjustments for Government and industry stock changes.

<sup>3</sup>See Appendix B for definitions.