

## MANUFACTURED ABRASIVES

(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 nine plants in the United States and Canada. Production of regular-grade fused aluminum oxide was valued at about \$35 million and production of high-purity fused aluminum oxide was valued at about \$8 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 \$35 million. Bonded and coated abrasive products account for most abrasive uses of fused aluminum oxide and silicon carbide.

<b>Salient Statistics—United States:</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997<sup>e</sup></b>
Production, United States and Canada (crude):					
Fused aluminum oxide, regular	132,000	133,000	126,000	127,000	100,000
Fused aluminum oxide, high-purity	21,300	29,200	20,100	17,000	14,000
Silicon carbide	74,900	84,700	75,400	73,600	72,000
Imports for consumption:					
Fused aluminum oxide	158,000	145,000	213,000	131,000	115,000
Silicon carbide	115,000	110,000	172,000	182,000	226,000
Exports:					
Fused aluminum oxide	11,000	13,000	11,000	11,900	12,000
Silicon carbide	17,000	16,000	20,000	14,200	20,000
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	362	361	358	353	371
Fused aluminum oxide, high-purity	621	557	468	576	572
Silicon carbide	540	531	495	490	490
Stocks, producer	NA	NA	NA	NA	NA
Employment, mine and mill, number	NA	NA	NA	160	160
Net import reliance <sup>1</sup> 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 (1993-96):** Fused aluminum oxide crude: Canada, 54%; Australia, 30%; and other, 16%. Fused aluminum oxide grain: China, 39%; Canada, 24%; Austria, 20%; and other, 17%. Silicon carbide crude: China, 65%; Canada, 27%; and other, 8%. Silicon carbide grain: Norway, 38%; Brazil, 29%; Canada, 7%; and other, 26%.

<b>Tariff: Item</b>	<b>Number</b>	<b>Most favored nation (MFN) 12/31/97</b>	<b>Non-MFN<sup>2</sup> 12/31/97</b>
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—9-30-97<sup>3</sup>

<b>Material</b>	<b>Uncommitted inventory</b>	<b>Committed inventory</b>	<b>Authorized for disposal</b>	<b>Disposal plan FY 1997</b>	<b>Disposals FY 1997</b>
Fused aluminum oxide, crude	142,318	—	142,318	27,273	27,273
Fused aluminum oxide, grain	25,840	—	25,840	54,555	4,435
Silicon carbide, crude	12,469	4,092	12,469	8,182	8,455

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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, may persist and further curtail production in North America.

### **World Production Capacity:**

	<b>Fused aluminum oxide capacity</b>		<b>Silicon carbide capacity</b>	
	<b>1996</b>	<b>1997<sup>e</sup></b>	<b>1996</b>	<b>1997<sup>e</sup></b>
United States and Canada	220,000	220,000	90,000	90,000
Argentina	—	—	5,000	5,000
Australia	75,000	50,000	—	—
Austria	60,000	60,000	—	—
Brazil	100,000	100,000	43,000	43,000
China	450,000	500,000	450,000	450,000
France	45,000	45,000	16,000	16,000
Germany	150,000	150,000	36,000	36,000
India	20,000	20,000	5,000	5,000
Japan	55,000	55,000	90,000	90,000
Mexico	—	—	60,000	60,000
Norway	—	—	80,000	80,000
Venezuela	—	—	40,000	40,000
Other countries	<u>125,000</u>	<u>100,000</u>	<u>185,000</u>	<u>185,000</u>
World total (rounded)	1,300,000	1,300,000	1,100,000	1,100,000

**World Resources:** Although domestic resources of raw materials for production of fused aluminum oxide may be 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.

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

<sup>1</sup>Defined as imports - exports + adjustments for Government and industry stock changes.

<sup>2</sup>See Appendix B.

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