

**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 three plants in the United States and Canada. Production of regular-grade fused aluminum oxide had an estimated value of \$1.92 million, and production of high-purity fused aluminum oxide was estimated to have a value of more than \$4.79 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 about \$26.8 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>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007<sup>e</sup></b>
Production, <sup>1</sup> United States and Canada (crude):					
Fused aluminum oxide, regular	20,000	20,000	10,000	10,000	10,000
Fused aluminum oxide, high-purity	5,000	5,000	5,000	5,000	5,000
Silicon carbide	35,000	35,000	35,000	35,000	35,000
Imports for consumption (U.S.):					
Fused aluminum oxide	164,000	232,000	244,000	209,000	237,000
Silicon carbide	169,000	209,000	201,000	186,000	155,000
Exports (U.S.):					
Fused aluminum oxide	11,800	13,900	13,900	15,300	17,700
Silicon carbide	13,200	13,900	15,600	20,300	19,100
Consumption, apparent (U.S.):					
Fused aluminum oxide	NA	NA	NA	NA	NA
Silicon carbide	189,000	230,000	220,000	201,000	171,000
Price, dollars per ton, United States and Canada:					
Fused aluminum oxide, regular	279	323	144	152	165
Fused aluminum oxide, high-purity	514	544	656	652	671
Silicon carbide	529	614	603	693	749
Net import reliance <sup>2</sup> as a percentage of apparent consumption (U.S.):					
Fused aluminum oxide	NA	NA	NA	NA	NA
Silicon carbide	82	85	84	83	80

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

**Import Sources (2003-06):** Fused aluminum oxide, crude: China, 78%; Venezuela, 13%; Canada, 8%; and other, 1%. Fused aluminum oxide, grain: Brazil, 22%; Germany, 22%; Austria, 13%; China, 10%; and other, 33%. Silicon carbide, crude: China, 71%; Venezuela, 9%; Netherlands, 7%; Romania, 6%; and other, 7%. Silicon carbide, grain: China, 36%; Brazil, 25%; Russia, 10%; Venezuela, 8%; and other, 21%.

<b>Tariff:</b>	<b>Item</b>	<b>Number</b>	<b>Normal Trade Relations 12-31-07</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:** During fiscal year 2007, the Department of Defense sold 4,077 tons of fused aluminum oxide abrasive grain from the National Defense Stockpile for \$1.73 million.

**Stockpile Status—9-30-07<sup>3</sup>**

<b>Material</b>	<b>Uncommitted inventory</b>	<b>Committed inventory</b>	<b>Authorized for disposal</b>	<b>Disposal plan FY 2007</b>	<b>Disposals FY 2007</b>
Fused aluminum oxide, grain	3,042	350	3,042	3,042	4,077

## ABRASIVES (MANUFACTURED)

**Events, Trends, and Issues:** Imports and higher operating costs continued to challenge producers in the United States and Canada. 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	
	<u>2006</u>	<u>2007<sup>e</sup></u>	<u>2006</u>	<u>2007<sup>e</sup></u>
United States and Canada	60,400	60,400	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	700,000	700,000	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	<u>80,000</u>	<u>80,000</u>	<u>190,000</u>	<u>190,000</u>
World total (rounded)	1,190,000	1,190,000	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.

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

<sup>1</sup>Rounded to the nearest 5,000 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.](#)