## **ABRASIVES (MANUFACTURED)**

(Fused aluminum oxide and silicon carbide) (Data in metric tons unless otherwise noted)

<u>Domestic Production and Use</u>: 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 \$7.30 million, and production of high-purity fused aluminum oxide was estimated to have a value of more than \$3.40 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 \$22 million. Bonded and coated abrasive products accounted for most abrasive uses of fused aluminum oxide and silicon carbide.

Salient Statistics—United States:	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	2004 <sup>e</sup>
Production, 1 United States and Canada (crude):					
Fused aluminum oxide, regular	90,000	50,000	20,000	20,000	25,000
Fused aluminum oxide, high-purity	10,000	10,000	10,000	5,000	5,000
Silicon carbide	45,000	40,000	30,000	35,000	35,000
Imports for consumption (U.S.):					
Fused aluminum oxide	227,000	203,000	187,000	164,000	213,000
Silicon carbide	190,000	133,000	165,000	169,000	197,000
Exports (U.S.):					
Fused aluminum oxide	9,020	8,950	10,300	11,800	13,600
Silicon carbide	10,000	10,500	13,600	13,200	14,900
Consumption, apparent (U.S.):					
Fused aluminum oxide	NA	NA	NA	NA	NA
Silicon carbide	NA	NA	181,000	189,000	222,000
Price, dollars per ton United States and Canada:					
Fused aluminum oxide, regular	331	302	271	279	323
Fused aluminum oxide, high-purity	566	530	494	514	555
Silicon carbide	585	603	532	529	622
Net import reliance <sup>2</sup> as a percentage					
of apparent consumption (U.S.)					
Fused aluminum oxide	NA	NA	NA	NA	NA
Silicon carbide	NA	NA	83	82	84

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

Import Sources (2000-03): Fused aluminum oxide, crude: China, 57%; Canada, 26%; Venezuela, 16%; and other, 1%. Fused aluminum oxide, grain: China, 50%; Canada, 20%; Germany, 8%; Austria, 8%; and other, 14%. Silicon carbide, crude: China, 84%; Canada, 5%; and other, 11%. Silicon carbide, grain: China, 39%; Brazil, 21%; Norway, 8%; Venezuela, 8%; and other, 24%.

Number	Normal Trade Relations 12-31-04
2818.10.1000	Free.
2818.10.2000	1.3% ad val.
2849.20.1000	Free.
2849.20.2000	0.5% ad val.
	2818.10.1000 2818.10.2000 2849.20.1000

**Depletion Allowance:** None.

<u>Government Stockpile</u>: During the first three quarters of 2004, the Department of Defense sold 1,812 tons of fused aluminum oxide abrasive grain from the National Defense Stockpile for \$606,237.

## Stockpile Status—9-30-04<sup>3</sup>

	Uncommitted	Committed	Authorized	Disposal plan	Disposals
Material	inventory	inventory	for disposal	FY 2004	FY 2004
Fused aluminum oxide, grain	8,289	2,246	8,289	5,443	7,589

## **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>2003</u>	2004 <sup>e</sup>	<u>2003</u>	2004 <sup>e</sup>	
United States and Canada	96,600	96,600	47,000	47,000	
Argentina	_	<del>-</del>	5,000	5,000	
Australia	50,000	50,000	_	_	
Austria	60,000	60,000	_	_	
Brazil	50,000	50,000	43,000	43,000	
China	600,000	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	_	<del>-</del>	45,000	45,000	
Norway	_	<del>-</del>	80,000	80,000	
Venezuela	_	<del>-</del>	30,000	30,000	
Other countries	80,000	<u>80,000</u>	<u>190,000</u>	<u>190,000</u>	
World total (rounded)	1,120,000	1,220,000	1,010,000	1,010,000	

<u>World Resources</u>: 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.

<u>Substitutes</u>: Natural and manufactured abrasives, such as garnet or metallic abrasives, can be substituted for fused aluminum oxide and silicon carbide in various applications.

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

<sup>&</sup>lt;sup>1</sup>Rounded to the nearest 5,000 tons to protect proprietary data.

<sup>&</sup>lt;sup>2</sup>Defined as imports – exports + adjustments for Government and industry stock changes.

<sup>&</sup>lt;sup>3</sup>See Appendix C for definitions.