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 three plants in the United States and Canada. Production of regular-grade fused aluminum oxide had an estimated value of \$1.9 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 million. Bonded and coated abrasive products accounted for most abrasive uses of fused aluminum oxide and silicon carbide.

Salient Statistics—United States:	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011^e</u>
Production, 1 United States and Canada (crude):					
Fused aluminum oxide, regular	10,000	10,000	10,000	10,000	10,000
Silicon carbide	35,000	35,000	35,000	35,000	35,000
Imports for consumption (U.S.):					
Fused aluminum oxide	237,000	285,000	64,200	185,000	210,000
Silicon carbide	164,000	127,000	78,000	143,000	140,000
Exports (U.S.):					
Fused aluminum oxide	18,200	21,900	12,300	20,000	20,000
Silicon carbide	19,300	17,000	20,700	23,100	28,000
Consumption, apparent (U.S.):					
Fused aluminum oxide	NA	NA	NA	NA	NA
Silicon carbide	180,000	145,000	92,300	155,000	150,000
Price, value of imports, dollars per ton (U.S.):					
Fused aluminum oxide, regular	361	512	608	555	606
Fused aluminum oxide, high-purity	1,110	1,230	1,170	1,300	1,330
Silicon carbide	550	835	557	793	1,250
Net import reliance ² as a percentage					
of apparent consumption (U.S.):					
Fused aluminum oxide	NA	NA	NA	NA	NA
Silicon carbide	81	76	62	77	76

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

Import Sources (2007–10): Fused aluminum oxide, crude: China, 83%; Venezuela, 8%; Canada, 6%; and other, 3%. Fused aluminum oxide, grain: Brazil, 30%; Germany, 24%; Austria, 17%; China, 6%; and other, 23%. Silicon carbide, crude: China, 80%; Venezuela, 5%; South Africa, 5%; Netherlands, 4%; and other, 6%. Silicon carbide, grain: China, 42%; Brazil, 22%; Vietnam, 8%; Norway, 7%; and other, 21%.

Tariff: Item	Number	Normal Trade Relations 12-31-11
Fused aluminum oxide, crude White, pink, ruby artificial corundum, greater than 97.5%	2818.10.1000	Free.
fused aluminum oxide, grain Artificial corundum, not elsewhere specified or included, fused	2818.10.2010	1.3% ad val.
aluminum oxide, grain	2818.10.2090	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: None.

ABRASIVES (MANUFACTURED)

Events, Trends, and Issues: In 2011, China was the world's leading producer of both abrasive fused aluminum oxide and abrasive silicon carbide, with annual production of nearly 695,000 tons and 450,000 tons, respectively, nearly at capacity. Imports and higher operating costs continued to challenge abrasives producers in the United States and Canada. Foreign competition, particularly from China, is expected to persist and further curtail production in North America. Abrasives markets are greatly influenced by activity in the manufacturing sector in the United States. During 2011, these manufacturing sectors included the aerospace, automotive, furniture, housing, and steel industries. The U.S. abrasive markets also are influenced by economic and technological trends. As the world and the United States continued slowly recovering from the global economic recession, U.S. imports, exports, consumption, and prices of manufactured abrasives, in general, have increased since the beginning of 2009 through the present.

World Production Capacity:

	Fused aluminum oxide		Silico	Silicon carbide	
	<u>2010</u>	<u>2011</u>	<u>2010</u>	<u>2011</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	80,000	80,000	<u> 190,000</u>	<u>190,000</u>	
World total (rounded)	1,190,000	1,190,000	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, emery, or metallic abrasives, can be substituted for fused aluminum oxide and silicon carbide in various applications.

^eEstimated. NA Not available. — Zero.

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

²Defined as imports – exports + adjustments for Government and industry stock changes.