



# Mineral Industry Surveys

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## MANUFACTURED ABRASIVES IN THE SECOND QUARTER 2003

The U.S. Geological Survey (USGS) collects quarterly data on manufactured abrasives through its survey of producers. Manufactured abrasives included in this report are fused aluminum oxide, silicon carbide, and metallic abrasives. Where indicated, Canadian and United States data are combined to protect proprietary information. Except where noted, the quantities cited in this report are in metric units. All unit value calculations in this report are based on unrounded data. Import and export data contained in this report are obtained from the U.S. Census Bureau.

### Fused Aluminum Oxide

During the second quarter of 2003, one fused aluminum oxide production plant was on strike the entire quarter. This left only one company with one plant operating in Canada producing fused aluminum oxide. The total production during the second quarter of 2003 was 15,000 tons of regular-grade crude fused aluminum oxide with an estimated value of \$4.3 million. This total production figure has been rounded to the nearest 5,000 tons to avoid disclosing proprietary data.

U.S. imports of crude fused aluminum oxide for the year through May 2003 were 37,300 metric tons valued at \$10.7 million, or an average of \$287 per ton. About 55% of the imports came from China, 26% from Venezuela, 18% from Canada, and 1% from other countries. Imports of crude fused aluminum oxide from China have been rising, but some of the imports may not be abrasive quality material.

U.S. imports of refined and ground fused aluminum oxide in the first five months of 2003 reached 22,700 tons valued at \$16.8 million, or an average of \$740 per ton. The top five sources of the refined and ground imports were China (50%), Germany (15%), Austria (10%), Brazil (10%), and Hungary (4%). Low-cost imports of fused aluminum oxide grain from China also have increased in recent years. The imports, however, reportedly include refractory-grade material as well as abrasive grain. U.S. exports of fused aluminum oxide through May 2003 were 4,700 tons. The exports were valued at \$13.6 million, or \$2,890 per ton. Germany received 36% of the exports that were shipped; Canada received 30% and Mexico received 10%.

The Department of Defense stores fused aluminum oxide in the National Defense Stockpile (NDS). All of the NDS aluminum oxide, however, has been authorized by law for disposal. During the second quarter of 2003, the Department of Defense reported sales of 179 tons of fused aluminum oxide abrasive grain valued at \$51,930. At the end of the quarter, NDS reported 16,000 tons of fused aluminum oxide abrasive grain with an estimated value of \$7.5 million remained in the stockpile. The NDS has sold all of the crude fused aluminum oxide in the stockpile (Janet Rollins, Defense National Stockpile Center, oral commun., 2003). No further stockpiling of crude fused aluminum oxide by the Department of Defense is anticipated. If the current disposal rate and NDS sales schedules are continued, all of the stockpiled fused aluminum oxide abrasive grain will be sold by the end of 2004.

### Silicon Carbide

Abrasive-grade silicon carbide is produced by one company in the United States. The total production during the second quarter of 2003 was 10,000 tons of abrasive-grade silicon carbide with an estimated value of \$5.5 million. This total production figure has been rounded to the nearest 5,000 tons to avoid disclosing proprietary data.

Total U.S. imports of crude silicon carbide for the year through May 2003 were 56,400 tons valued at \$19.1 million; imports from China alone were 49,900 tons valued at \$14.9 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$645 per ton; the average price of Chinese crude was \$298 per ton. U.S. imports of refined and ground silicon carbide for the same period were 13,700 tons valued at \$14 million, or an average of \$1,020 per ton. During the period, China accounted for 88% of the crude material and 48% of the refined and ground material.

U.S. exports of crude silicon carbide through May 2003 were reported to be 414 tons with a value of \$1.4 million. Exports of refined and ground silicon carbide were 5,090 tons valued at \$3.3 million. About 84% of the crude material was shipped to Mexico, Germany, Japan, and Switzerland in decreasing order. Most of the refined material went to Canada, Australia, and Mexico in decreasing order.

The NDS has sold all of the silicon carbide in the stockpile, and no further stockpiling is anticipated.

### **Metallic Abrasives**

Metallic abrasives information was collected by the USGS from 12 companies operating 14 U.S. plants. During the second quarter of 2003, six companies produced 46,500 tons of steel shot and grit, a decrease relative to the same period in 2002. At least one of the companies produced shot and grit from reclaimed material. Total second quarter production was valued at \$20.9 million, or an average of \$450 per ton. Total annual estimated output in 2003 is expected to be 201,000 tons valued at \$91.1 million; 2002 output was 217,000 tons valued at \$97.4 million.

Shipments of steel shot and grit in the second quarter were 52,400 tons valued at \$24.6 million, or an average of \$470 per ton. Shipments during the second quarter of 2002 were 56,400 tons valued at \$26.5 million for an average of \$469 per ton.

Second quarter production of other types of metallic shot and grit (primarily cut wire shot) was 267 tons valued at \$1 million. Six companies produced shot.

Imports of all types of metallic shot and grit through May 2003 were 6,410 tons valued at \$3.9 million for an average of \$611 per ton. Canada was the largest supplier, accounting for 68% of the tonnage imported.

Exports of all types of metallic abrasives through May 2003 were 9,260 tons valued at \$5.9 million, or an average of \$639 per ton. Shipments to Canada accounted for 52% of the exports; an additional 40% was shipped to Mexico.

TABLE 1  
MANUFACTURED ABRASIVES<sup>1</sup>

(Metric tons, unless otherwise specified)

Source and product	2002						2003			
	Second quarter		Third quarter		Fourth quarter		First quarter		Second quarter	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
United States and Canada, production: <sup>2</sup>										
Silicon carbide <sup>3</sup>	10,000	\$5,300	10,000	\$5,300	10,000	\$5,000	10,000	\$5,800	10,000	\$5,500
Crude aluminum oxide, regular-grade	5,000	1,400	5,000	1,400	10,000	2,600	5,000	1,400	15,000	4,300
United States, production:										
Steel shot and grit	53,700	24,000	57,400	25,900	53,400	24,300	54,000	24,600	46,500	20,900
Other shot and grit <sup>c,4</sup>	281	901	267	886	248	831	274 <sup>r</sup>	1,180 <sup>r</sup>	267	1,000
Total	54,000	24,900	57,700	26,800	53,700	25,200	54,300 <sup>r</sup>	25,800 <sup>r</sup>	46,800	21,900
United States, shipments:										
Steel shot and grit	56,400	26,500	57,900	27,000	52,800	24,700	53,900	24,900	52,400	24,600
Other shot and grit <sup>c,4</sup>	284	999	257	941	256	940	279	1,260	271	1,110
Total	56,700	27,500	58,200	27,900	53,100	25,600	54,200	26,200	52,700	25,700

<sup>c</sup>Estimated. <sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Quantities are rounded to the nearest 5,000 tons to avoid disclosing proprietary data; values are estimated.

<sup>3</sup>Includes materials for metallurgical uses and other applications.

<sup>4</sup>Includes cut wire shot and reclaimed shot and grit from primary producers.