

# Mineral Industry Surveys

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## MANUFACTURED ABRASIVES IN THE FOURTH QUARTER 2007

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.

### Fused Aluminum Oxide

The United States and Canadian combined production during the fourth quarter of 2007 was estimated to be 5,000 metric tons (t) of regular-grade crude fused aluminum oxide with an estimated value of \$800,000. Two companies, operating one plant in Canada and two in the United States, produced fused aluminum oxide. This total production figure has been rounded to the nearest 5,000 t to avoid disclosing proprietary data.

According to the U.S. Census Bureau, U.S. imports of crude fused aluminum oxide for 2007 were 193,000 t valued at \$69.6 million, or an average of \$361 per ton. About 84% of the imports came from China and 16% from Venezuela, Canada, Guyana, Russia, Germany, Hungary, Italy, the United Kingdom, France, and Austria, combined. Imports of crude fused aluminum oxide from China may not all be abrasive-quality material.

U.S. imports of refined and ground fused aluminum oxide for 2007 were 44,000 t valued at \$48.8 million, or an average of \$1,110 per ton.

U.S. exports of fused aluminum oxide for 2007 were 18,200 t. The exports were valued at \$47.2 million, or \$2,597 per ton. Canada received 31% of the exports that were shipped; Germany, 24%; Mexico, 14%; Japan, 8%; and others 23%.

The U.S. Department of Defense stores fused aluminum oxide in the National Defense Stockpile (NDS), but all of the NDS aluminum oxide has been authorized by law for disposal. The Department of Defense sold all of fused aluminum oxide abrasive grain that remained in the stockpile during the third quarter of 2007. The NDS had sold all of the crude fused aluminum oxide in the stockpile previously (Janet Rollins,

Defense National Stockpile Center, oral commun., November 6, 2007). No further stockpiling of crude fused aluminum oxide by the Department of Defense is anticipated.

### Silicon Carbide

Abrasive-grade silicon carbide is produced by one company in the United States. The total production of abrasive-grade silicon carbide during the fourth quarter of 2007 was estimated to be 10,000 t, with an estimated value of \$7.4 million. This total production figure has been rounded to the nearest 5,000 t to avoid disclosing proprietary data.

Total U.S. imports of crude silicon carbide for 2007 were 121,000 t valued at \$66.6 million; imports from China alone were 106,000 t valued at \$59.1 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$511 per ton; the average price of Chinese crude was \$555 per ton. U.S. imports of refined and ground silicon carbide for the same period were 43,000 t valued at \$68.4 million, or an average of \$1,592 per ton. During 2007, China accounted for 88% of the crude material and 40% of the refined and ground material.

U.S. exports of crude silicon carbide for 2007 were reported to be 10,300 t with a value of \$18.7 million. Exports of refined and ground silicon carbide were 9,020 t valued at \$21.5 million. About 98% of the crude material was shipped to, in decreasing order of quantity, Norway, Japan, and Mexico. About 96% of the refined material went to, in decreasing order of quantity, Canada, Mexico, Japan, Germany, and the United Kingdom.

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

### Metallic Abrasives

Metallic abrasives information was collected from 12 companies operating 13 U.S. plants. During the fourth quarter of 2007, five companies produced 50,200 t of steel shot and grit, a 9% increase compared with that of the same period in 2006. At least one of the companies produced shot and grit from reclaimed material. Total fourth quarter 2007 production was valued at \$23.0 million, or an average of \$459 per ton. Total

production in 2007 was 201,000 t valued at \$87.9 million, about the same as production the previous year, which was 201,000 t valued at \$92.7 million.

Shipments of steel shot and grit in the fourth quarter of 2007 were 53,900 t valued at \$25.2 million, or an average of \$468 per ton, compared with shipments during the fourth quarter of 2006, which were 52,000 t valued at \$25.4 million for an average of \$487 per ton.

During the fourth quarter, seven companies produced 413 t of other types of metallic shot and grit (primarily cut wire shot) valued at \$1.81 million.

Imports of all types of metallic shot and grit for 2007 were 22,400 t valued at \$17.4 million for an average of \$773 per ton. Canada was the largest supplier, accounting for 62% of the tonnage imported.

Exports of all types of metallic abrasives for 2007 were 26,800 t valued at \$40.1 million, or an average of \$1,500 per ton. Shipments to Canada accounted for 31% of the exports; an additional 29% was shipped to China and 26% was shipped to Mexico.

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

(Metric tons, unless otherwise specified)

Source and product	2006		2007							
	Fourth quarter		First quarter		Second quarter		Third quarter		Fourth 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	\$7,400	10,000	\$7,600	10,000	\$7,400	10,000	\$7,400	10,000	\$7,400
Crude aluminum oxide, regular-grade	5,000	800	5,000	800	5,000	800	5,000	800	5,000	800
United States, production:										
Steel shot and grit	45,800	22,100	51,300	21,300	49,100	20,400	50,400	23,100	50,200	23,000
Other shot and grit <sup>e,4</sup>	624	2,600	688	2,870	667	2,830	416	1,830	413	1,810
Total	46,500	24,700	51,900	24,200	49,700	23,300	50,800	25,000	50,600	24,800
United States, shipments:										
Steel shot and grit	52,000	25,400	56,000	24,600	53,400	23,700	53,700	26,400	53,900	25,200
Other shot and grit <sup>e,4</sup>	579	2,470	619	2,750	652	3,000	435	2,050	416	1,940
Total	52,600	27,800	56,600	27,400	54,100	26,700	54,200	28,400	54,300	27,200

<sup>e</sup>Estimated.

<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.