

Mineral Industry Surveys

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MANUFACTURED ABRASIVES IN THE THIRD QUARTER 2011

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 third quarter of 2011 was estimated to be 5,000 metric tons (t) of regular-grade crude fused aluminum oxide with an estimated value of \$800,000, which was essentially unchanged in quantity and value from that of both the third quarter of 2010 and second quarter of 2011. One company, operating one plant in Canada and one in the United States, produced fused aluminum oxide. These production figures have 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 during the third quarter of 2011 were 47,200 t valued at \$30.0 million, or an average of \$635 per ton. About 72% of the imports came from China, 23% from Venezuela, 4% from Canada, and 1% from other countries.

U.S. imports of ground and refined fused aluminum oxide for the third quarter of 2011 were 9,750 t valued at \$13.6 million, or an average of \$1,400 per ton.

U.S. exports of crude fused aluminum oxide for the third quarter of 2011 were 5,710 t. These exports were valued at \$21.7 million, or \$3,790 per ton. Canada received 46% of the exports that were shipped; Mexico, 16%; Germany, 14%; Korea, 6%; United Kingdom, 4%; Japan, 4%; and others, 10%. U.S. exports of ground fused aluminum oxide for the third quarter of 2011 were 404,000 t valued at \$207 million, or \$514 per ton. Canada received 58% of the exports that were shipped; Iceland, 23%; Netherlands, 7%; Georgia, 6%; Mexico, 2%; and others, 4%.

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 third quarter of 2011 was estimated to be 10,000 t, with an estimated value of \$7.4 million, which was essentially unchanged in quantity and value from that of both the third quarter of 2010 and second quarter of 2011. These production figures have been rounded to the nearest 5,000 t to avoid disclosing proprietary data.

Total U.S. imports of crude silicon carbide during the third quarter of 2011 were 17,300 t valued at \$21.1 million; imports from China alone were 6,980 t valued at \$9.01 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$1,170 per ton; the average price of Chinese crude was \$1,290 per ton. U.S. imports of ground and refined silicon carbide for the same period were 8,620 t valued at \$22.5 million, or an average of \$2,610 per ton. During the third quarter of 2011, China accounted for 40% of the crude material and 40% of the ground and refined material imported.

U.S. exports of crude silicon carbide during the third quarter of 2011 were reported to be 6,550 t with a value of \$10.1 million. Third quarter exports of ground and refined silicon carbide were 2,350 t valued at \$7.19 million. About 99% of the crude material was shipped to, in decreasing order of quantity, Norway, Germany, Thailand, Korea, Italy, and Mexico. About 96% of the refined material was shipped to, in decreasing order of quantity, Germany, Canada, Thailand, Mexico, China, Brazil, and Japan.

Metallic Abrasives

Metallic abrasives information was collected from 10 companies operating 11 U.S. plants. During the third quarter of 2011, five companies produced 53,700 t of steel shot and grit, a 31% increase compared with that of the same period in 2010, because of the continued recovery from the economic recession. At least one of the companies produced shot and grit from reclaimed material. Total third quarter 2011 production was valued at \$27.1 million, or an average of \$505 per ton. Total

production in 2010 was 166,000 t valued at \$81.3 million. Total production in 2009 was 137,000 t valued at \$64.9 million.

Shipments of steel shot and grit in the third quarter of 2011 were 53,900 t valued at \$28.4 million, or an average of \$526 per ton, compared with shipments during the third quarter of 2010, which were 46,400 t valued at \$27.2 million for an average of \$587 per ton.

During the third quarter of 2011, five companies produced 490 t of other types of metallic shot and grit (primarily cut wire shot) valued at \$1.68 million.

Imports of all types of metallic shot and grit during the third quarter of 2011 were 24,400 t valued at \$14.3 million for an average of \$587 per ton, compared with imports during the third

quarter of 2010, which were 13,300 t valued at \$7.15 million for an average of \$537 per ton. Sweden, Canada, Korea, Germany, China, and Japan were the leading suppliers, accounting for 78%, 10%, 4%, 2%, 2%, and 2% of the tonnage imported, respectively.

Exports of all types of metallic abrasives during the third quarter of 2011 were 10,300 t valued at \$15.6 million, or an average of \$1,510 per ton, compared with exports during the third quarter of 2010, which were 9,090 t valued at \$13.0 million, or an average of \$1,430 per ton. Shipments to Mexico accounted for 43% of the exports; an additional 26% was shipped to China and 20% was shipped to Canada.

TABLE 1
MANUFACTURED ABRASIVES¹

Source and product	2010						2011					
	Third quarter		Fourth quarter		Year		First quarter		Second quarter		Third quarter	
	Quantity (metric tons)	Value (thousands)										
United States and Canada, production: ^{e, 2}												
Silicon carbide ³	10,000	\$7,400	10,000	\$7,400	35,000	\$25,900	10,000	\$7,400	10,000	\$7,400	10,000	\$7,400
Crude aluminum oxide, regular-grade	5,000	800	5,000	800	10,000	1,700	5,000	800	5,000	800	5,000	800
United States, production:												
Steel shot and grit	41,000	20,000	44,300	21,700	166,000	81,300	43,600	21,400	53,600	27,000	52,300	26,700
Other shot and grit ^{e, 4}	516	1,740	563	2,050	2,120	7,770	536	1,900	487	1,910	486	1,680
Total	41,500	21,700	44,900	23,800	169,000	89,100	44,100	23,300	54,100	29,000	52,800	28,400
United States, shipments:												
Steel shot and grit	46,400	27,200	49,300	28,700	185,000	109,000	47,500	27,900	53,100	27,900	50,100	26,400
Other shot and grit ^{e, 4}	510	2,040	536	2,230	1,990	8,420	529	2,150	478	2,180	473	1,970
Total	46,900	29,300	49,800	31,000	187,000	117,000	48,000	30,000	53,600	30,100	50,600	28,400

^eEstimated.

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

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

³Includes materials for metallurgical uses and other applications.

⁴Includes cut wire shot and reclaimed shot and grit from primary producers.

TABLE 2
U.S. EXPORTS AND IMPORTS FOR CONSUMPTION OF ALUMINUM OXIDE, SILICON CARBIDE, AND METALLIC ABRASIVES¹

Source and product	2010						2011					
	Third quarter		Fourth quarter		Year		First quarter		Second quarter		Third quarter	
	Quantity (metric tons)	Value ² (thousands)										
Exports:												
Aluminum oxide:												
Crude	5,700	\$19,400	4,740	\$15,500	20,000	\$67,900	4,910	\$16,700	5,010	\$21,400	5,710	\$21,700
Ground and refined	319,000	143,000	324,000	155,000	1,450,000	647,000	416,000	209,000	476,000	234,000	404,000	207,000
Silicon carbide:												
Crude	2,980	4,500	5,430	7,930	18,200	26,600	5,210	6,730	5,670	7,520	6,550	10,100
Ground and refined	1,260	8,170	1,280	9,080	4,920	29,400	1,350	6,930	1,620	8,650	2,350	7,190
Metallic abrasives	9,090	13,000	8,220	11,300	30,800	41,300	9,630	13,200	9,360	12,700	10,300	15,600
Imports for consumption:												
Aluminum oxide:												
Crude	30,000	16,900	43,700	24,600	141,000	78,100	40,000	24,700	42,300	25,100	4,720	30,000
Ground and refined	11,800	14,900	15,000	18,100	44,600	58,000	12,100	15,700	12,300	16,700	9,750	13,600
Silicon carbide:												
Crude	27,700	25,100	25,300	25,400	99,300	78,700	11,100	15,800	29,800	35,400	17,300	21,100
Ground and refined	9,940	20,600	10,500	23,100	43,400	85,900	16,300	29,300	12,900	28,400	8,620	22,500
Metallic abrasives	13,300	7,150	14,100	9,150	43,400	25,300	14,300	9,510	5,790	5,710	24,400	14,300

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

²Customs value.

Source: U.S. Census Bureau.