

Mineral Industry Surveys

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MANUFACTURED ABRASIVES IN THE THIRD QUARTER 2012

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 2012 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 2011 and second quarter of 2012. 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 2012 were 62,200 t valued at \$36.6 million, or an average of \$589 per ton. About 85% of the imports came from China, 10% from Venezuela, 5% from Canada, and less than 1% from other countries.

U.S. imports of ground and refined fused aluminum oxide for the third quarter of 2012 were 23,100 t valued at \$18.5 million, or an average of \$801 per ton.

U.S. exports of crude fused aluminum oxide for the third quarter of 2012 were 4,780 t. These exports were valued at \$15.9 million, or \$3,340 per ton. Canada received 52% of the exports that were shipped; Mexico, 16%; Germany, 8%; Republic of Korea, 6%; Japan, 5%; Brazil and United Kingdom, 3% each; and others, 7%. U.S. exports of ground fused aluminum oxide for the third quarter of 2012 were 450,000 t valued at \$190 million, or \$421 per ton. Canada received 42% of the exports that were shipped; Georgia, 19%; Iceland, 14%; Bahrain and Russia, 7% each; Netherlands, 6%; Mexico, 2%; and others, 3%.

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 2012 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 2011 and second quarter of 2012. 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 2012 were 21,900 t valued at \$16.5 million; imports from China alone were 12,700 t valued at \$11.1 million. The average customs value of imported crude silicon carbide, excluding Chinese crude, was \$586 per ton; the average value of Chinese crude was \$872 per ton. U.S. imports of ground and refined silicon carbide for the same period were 7,800 t valued at \$16.9 million, or an average of \$2,170 per ton. During the third quarter of 2012, China accounted for 62% of the crude material and 45% of the ground and refined material imported.

U.S. exports of crude silicon carbide during the third quarter of 2012 were reported to be 4,750 t with a value of \$6.14 million. Third quarter exports of ground and refined silicon carbide were 1,120 t valued at \$4.18 million. About 99% of the crude material was shipped to, in decreasing order of quantity, Norway, Germany, Mexico, Netherlands, Thailand, Japan, and France. About 96% of the refined material was shipped to, in decreasing order of quantity, Canada, Germany, Thailand, Mexico, Japan, South Africa, China, Costa Rica, Belgium, Singapore, Italy, and Venezuela.

Metallic Abrasives

Metallic abrasives information was collected from 10 companies operating 11 U.S. plants. During the third quarter of 2012, five companies produced 48,700 t of steel shot and grit, a 9% decrease compared with that of the same period in 2011. At least one of the companies produced shot and grit from reclaimed material. Total third quarter 2012 production was valued at \$23.8 million, or an average of \$488 per ton. Total production in 2011 was 200,000 t valued at \$103 million.

Shipments of steel shot and grit in the third quarter of 2012 were 53,300 t valued at \$30.7 million, or an average of \$576 per ton, compared with shipments during the third quarter of 2011, which were 53,900 t valued at \$28.4 million for an average of \$526 per ton.

During the third quarter of 2012, five companies produced 446 t of other types of metallic shot and grit (primarily cut wire shot) valued at \$1.59 million.

Imports of all types of metallic shot and grit during the third quarter of 2012 were 5,360 t valued at \$5.07 million for an average of \$947 per ton, compared with imports during the third quarter of 2011, which were 24,400 t valued at \$14.3 million for

an average of \$587 per ton. Canada, Korea, Germany, Japan, and China were the leading suppliers, accounting for 50%, 15%, 11%, 9%, and 8% of the tonnage imported, respectively.

Exports of all types of metallic abrasives during the third quarter of 2012 were 9,840 t valued at \$13.2 million, or an average of \$1,340 per ton, compared with exports during the third quarter of 2011, which were 10,300 t valued at \$15.6 million, or an average of \$1,510 per ton. Shipments to Mexico accounted for 42% of the exports; an additional 22% was shipped to Canada; 14% was shipped to United Kingdom; and 13% was shipped to China.

TABLE 1
MANUFACTURED ABRASIVES¹

Source and product	2011						2012					
	3d quarter		4th quarter		Year		1st quarter		2d quarter		3d quarter	
	Quantity (metric tons)	Value (thousands)										
United States and Canada, production: ^{e, 2}												
Crude aluminum oxide, regular-grade	5,000	\$800	5,000	\$800	10,000	\$1,700	5,000	\$800	5,000	\$800	5,000	\$800
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
United States, production:												
Steel shot and grit	53,700	27,100	49,200	27,700	200,000	103,000	44,700	21,900	41,000	20,000	51,400	26,600
Other shot and grit ^{e, 4}	490	1,680	437	1,610	1,950	7,100	752	1,820	516	1,740	490	1,680
Total	54,200	28,800	49,600	29,300	202,000	110,000	45,400	23,700	41,500	21,700	51,900	28,200
United States, shipments:												
Steel shot and grit	53,900	28,400	49,100	29,100	204,000	113,000	48,500	28,200	46,400	27,200	43,900	27,500
Other shot and grit ^{e, 4}	473	1,970	456	1,880	1,940	8,180	757	2,190	510	2,040	473	1,970
Total	54,400	30,400	49,600	31,000	206,000	122,000	49,200	30,400	46,900	29,300	44,400	29,500

^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	2011						2012					
	3d quarter		4th quarter		Year		1st quarter		2d quarter		3d quarter	
	Quantity (metric tons)	Value ² (thousands)										
Exports:												
Aluminum oxide:												
Crude	5,710	\$21,700	4,280	\$14,900	19,900	\$74,700	4,430	\$15,800	5,200	\$16,700	4,780	\$15,900
Ground and refined	404,000	207,000	367,000	174,000	1,660,000	824,000	435,000	186,000	325,000	171,000	450,000	190,000
Silicon carbide:												
Crude	6,550	10,100	3,380	6,010	20,800	30,400	3,550	4,750	2,690	4,320	4,750	6,140
Ground and refined	2,350	7,190	1,660	5,870	6,980	28,600	1,480	5,630	1,340	5,700	1,120	4,180
Metallic abrasives	10,300	15,600	10,100	13,500	39,500	55,000	10,700	13,300	8,960	12,200	9,840	13,200
Imports for consumption:												
Aluminum oxide:												
Crude	47,200	30,000	47,500	31,100	177,000	111,000	25,800	16,500	28,300	12,700	62,200	36,600
Ground and refined	9,750	13,600	12,200	16,900	46,400	62,900	11,200	17,600	11,600	21,000	23,100	18,500
Silicon carbide:												
Crude	17,300	21,100	18,600	24,800	76,800	97,100	27,900	25,000	9,230	17,600	21,900	16,500
Ground and refined	8,620	22,500	14,300	23,900	52,200	104,000	8,300	16,300	5,650	19,300	7,800	16,900
Metallic abrasives	24,400	14,300	5,190	5,200	49,600	34,700	5,700	5,470	17,700	5,740	5,360	5,070

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

²Customs value.

Source: U.S. Census Bureau.