

# Mineral Industry Surveys

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## MANUFACTURED ABRASIVES IN THE THIRD QUARTER 2013

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. 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 2013 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 2012 and second quarter of 2013. 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 2013 were 31,300 t valued at \$20.9 million, or an average of \$667 per metric ton. About 92% of the imports came from China, 7% from Canada, and 1% from other countries.

U.S. imports of ground and refined fused aluminum oxide for the third quarter of 2013 were 13,100 t valued at \$17.4 million, or an average of \$1,330 per ton.

U.S. exports of crude fused aluminum oxide for the third quarter of 2013 were 6,070 t. These exports were valued at \$16.3 million, or \$2,690 per ton. China received 32% of the exports that were shipped; Canada, 31%; Mexico, 14%; Germany, 7%; and others, 16%. U.S. exports of ground fused aluminum oxide for the third quarter of 2013 were 622,000 t valued at \$235 million, or \$378 per ton. Canada received 31% of the exports that were shipped; Egypt, 21%; Norway, 14%; Iceland, 11%; Georgia, 11%; and others, 12%.

### 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 2013 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 the third quarter of 2012 and second quarter of 2013. 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 2013 were 30,400 t valued at \$16.2 million; imports from China alone were 23,800 t valued at \$13.1 million. The average customs value of imported crude silicon carbide, excluding Chinese crude, was \$468 per ton; the average value of Chinese crude was \$551 per ton. U.S. imports of ground and refined silicon carbide for the same period were 7,950 t valued at \$15.5 million, or an average of \$1,960 per ton. During the third quarter of 2013, China accounted for 78% of the crude material and 36% of the ground and refined material imported.

U.S. exports of crude silicon carbide during the third quarter of 2013 were reported to be 3,350 t with a value of \$4.80 million. Third quarter exports of ground and refined silicon carbide were 968 t valued at \$4.29 million. About 98% of the crude material was shipped to, in decreasing order of quantity, Norway and Mexico. About 84% of the refined material was shipped to, in decreasing order of quantity, Canada, Mexico, Germany, and Japan.

### Metallic Abrasives

Metallic abrasives information was collected from 10 companies operating 11 U.S. plants. During the third quarter of 2013, five companies produced 48,500 t of steel shot and grit, a slight decrease compared with that of the same period in 2012. At least one of the companies produced shot and grit from reclaimed material. Third quarter 2013 production of steel shot and grit was valued at \$23.5 million, or an average of \$485 per ton.

During the third quarter of 2013, five companies produced 545 t of other types of metallic shot and grit (primarily cut wire shot) valued at \$2.02 million.

Shipments of steel shot and grit in the third quarter of 2013 were 53,200 t valued at \$30.4 million, or an average of \$573 per ton, compared with shipments during the third quarter of 2012, which were 53,300 t valued at \$30.7 million for an average of \$575 per ton.

Imports of all types of metallic shot and grit during the third quarter of 2013 were 6,750 t valued at \$7.15 million for an average of \$1,060 per ton, compared with imports during the third quarter of 2012, which were 5,360 t valued at \$5.07 million for an average of \$947 per ton. Canada, Germany, Japan, China, and the United Kingdom were the leading

suppliers, accounting for 40%, 20%, 10%, 8%, and 6% of the tonnage imported, respectively.

Exports of all types of metallic abrasives during the third quarter of 2013 were 8,160 t valued at \$11.7 million, or an average of \$1,440 per ton, compared with exports during the third quarter of 2012, which were 9,840 t valued at \$13.2 million, or an average of \$1,340 per ton. Shipments to Mexico accounted for 45% of the exports; an additional 23% was shipped to Canada; 18% was shipped to China; and 9% was shipped to United Kingdom.

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

Source and product	2012						2013					
	3d quarter		4th quarter		1st quarter–4th quarter		1st quarter		2d quarter		3d quarter	
	Quantity (metric tons)	Value (thousands)										
United States and Canada, production: <sup>e, 2</sup>												
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 <sup>3</sup>	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	48,700	23,700	48,500	23,500	190,000	92,900	47,200	23,200	46,400	22,500	48,500	23,500
Other shot and grit <sup>e, 4</sup>	446	1,590	498	1,920	2,180	7,110	534	2,090	591	2,160	545	2,020
Total	49,100	25,300	49,000	25,400	193,000	100,000	47,700	25,300	47,000	24,600	49,100	25,600
United States, shipments:												
Steel shot and grit	53,300	30,700	53,100	30,400	208,000	120,000	51,300	29,500	49,600	28,700	53,200	30,400
Other shot and grit <sup>e, 4</sup>	530	2,250	488	2,100	2,290	8,770	515	2,310	585	2,500	497	2,100
Total	53,900	32,900	53,600	32,500	211,000	129,000	51,800	31,800	50,100	31,200	53,700	32,500

<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.

TABLE 2  
U.S. EXPORTS AND IMPORTS FOR CONSUMPTION OF ALUMINUM OXIDE, SILICON CARBIDE, AND METALLIC ABRASIVES<sup>1</sup>

Source and product	2012						2013					
	3d quarter		4th quarter		1st quarter–4th quarter		1st quarter		2d quarter		3d quarter	
	Quantity (metric tons)	Value <sup>2</sup> (thousands)										
<b>Exports:</b>												
Aluminum oxide:												
Crude	4,780	\$15,900	4,720	\$15,700	19,100	\$64,200	4,850	\$17,400	6,890	\$16,800	6,070	\$16,300
Ground and refined	450,000	190,000	473,000	210,000	1,680,000	756,000	460,000	198,000	527,000	207,000	622,000	235,000
Silicon carbide:												
Crude	4,750	6,140	3,810	5,370	14,800	20,600	3,480	4,140	2,640	3,200	3,350	4,800
Ground and refined	1,120	4,180	1,300	4,270	5,240	19,800	1,350	4,640	1,410	4,350	968	4,290
Metallic abrasives	9,840	13,200	9,550	14,800	39,000	53,400	9,270	13,000	8,730	12,400	8,160	11,700
<b>Imports for consumption:</b>												
Aluminum oxide:												
Crude	62,200	36,600	44,600	24,300	161,000	90,200	47,800	30,300	22,900	15,200	31,300	20,900
Ground and refined	23,100	18,500	24,100	18,800	70,000	75,900	37,300	25,200	26,400	21,500	13,100	17,400
Silicon carbide:												
Crude	21,900	16,500	3,180	2,900	62,200	62,000	17,800	11,900	22,400	17,300	30,400	16,200
Ground and refined	7,800	16,900	4,120	11,400	25,900	63,900	5,490	12,100	8,430	16,900	7,950	15,500
Metallic abrasives	5,360	5,070	5,300	5,450	34,000	21,700	5,510	5,640	5,880	5,950	6,750	7,150

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

<sup>2</sup>Customs value.

Source: U.S. Census Bureau.