

Mineral Industry Surveys

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MANUFACTURED ABRASIVES IN THE FIRST 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. 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 first 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 first and fourth quarters 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 first quarter of 2013 were 47,800 t valued at \$30.3 million, or an average of \$634 per ton. About 96% of the imports came from China and 4% from Canada, and the remainder from Germany. Imports of crude fused aluminum oxide from China may not all be abrasive-quality material.

U.S. imports of ground and refined fused aluminum oxide for the first quarter of 2013 were 37,300 t valued at \$25.2 million, or an average of \$675 per ton.

U.S. exports of crude fused aluminum oxide for the first quarter of 2013 were 4,850 t. These exports were valued at \$17.4 million, or \$3,580 per ton. Canada received 46% of the exports that were shipped; Mexico, 18%; Germany, 13%; Republic of Korea, 6%; Japan, 4%; and other, 13%. U.S. exports of ground fused aluminum oxide for the first quarter of 2013 were 460,000 t valued at \$198 million, or \$431 per ton. In decreasing order of quantity, Canada received 45% of the exports that were shipped; Iceland, 13%; Russia, 13%; Georgia, 13%; and other, 16%.

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 first 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 both the first and fourth quarters 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 first quarter of 2013 were 17,800 t valued at \$11.9 million; imports from China were 10,000 t valued at \$7.62 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$550 per ton; the average price of Chinese crude was \$760 per ton. U.S. imports of ground and refined silicon carbide for the same period were 5,490 t valued at \$12.1 million, or an average of \$2,210 per ton. During the first quarter of 2013, China accounted for 56% of the crude material and 28% of the ground and refined material imported.

U.S. exports of crude silicon carbide during the first quarter of 2013 were reported to be 3,480 t with a value of \$4.14 million. First quarter exports of ground and refined silicon carbide were 1,350 t valued at \$4.64 million. About 98% of the crude material was shipped to, in decreasing order of quantity, Norway, Mexico, and Singapore. About 90% of the refined material was shipped to, in decreasing order of quantity, Mexico, Canada, Germany, Japan, China, and Thailand.

Metallic Abrasives

Metallic abrasives information was collected from 10 companies operating 11 U.S. plants. During the first quarter of 2013, five companies produced 48,500 t of steel shot and grit, a 9% increase compared with that of the same period in 2012. At least one of the companies produced shot and grit from reclaimed material. Total first quarter 2013 production was valued at \$23.5 million, or an average of \$485 per ton. Total production in 2012 was 190,000 t valued at \$92.9 million.

Shipments of steel shot and grit in the first quarter of 2013 were 53,100 t valued at \$30.4 million, or an average of \$572 per ton, compared with shipments during the first quarter of 2012,

which were 48,500 t valued at \$28.2 million for an average of \$489 per ton.

During the first quarter of 2013, five companies produced 534 t of other types of metallic shot and grit (primarily cut wire shot) valued at \$2.09 million.

Imports of all types of metallic shot and grit during the first quarter of 2013 were 5,510 t valued at \$5.64 million for an average of \$1,020 per ton, compared with imports during the first quarter of 2012, which were 5,700 t valued at \$5.47 million for an average of \$961 per ton. Canada, Germany, China, Japan,

and the Republic of Korea were the leading suppliers, accounting for 44%, 16%, 13%, 12%, and 9% of the tonnage imported, respectively.

Exports of all types of metallic abrasives during the first quarter of 2013 were 9,270 t valued at \$13.0 million, or an average of \$1,400 per ton, compared with exports during the first quarter of 2012, which were 10,700 t valued at \$13.3 million, or an average of \$1,250 per ton. Shipments to Mexico accounted for 40% of the exports; an additional 23% was shipped to China and 20% was shipped to Canada.

TABLE 1
MANUFACTURED ABRASIVES¹

Source and product	2012										2013	
	1st quarter		2d quarter		3d quarter		4th quarter		1st quarter– 4th quarter		1st quarter	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)						
United States and Canada, production: ^{c, 2}												
Crude aluminum oxide, regular-grade	5,000	\$800	5,000	\$800	5,000	\$800	5,000	\$800	10,000	\$1,700	5,000	\$800
Silicon carbide ³	10,000	7,400	10,000	7,400	10,000	7,400	10,000	7,400	35,000	25,900	10,000	7,400
United States, production:												
Steel shot and grit	44,700	21,900	48,700	23,700	48,700	23,700	48,500	23,500	190,000	92,900	48,500	23,500
Other shot and grit ^{c, 4}	752	1,820	481	1,780	446	1,590	498	1,920	2,180	7,110	534	2,090
Total	45,400	23,700	49,100	25,500	49,100	25,300	49,000	25,400	193,000	100,000	49,100	25,600
United States, shipments:												
Steel shot and grit	48,500	28,200	53,300	30,700	53,300	30,700	53,100	30,400	208,000	120,000	53,100	30,400
Other shot and grit ^{c, 4}	757	2,190	512	2,230	530	2,250	488	2,100	2,290	8,770	515	2,310
Total	49,200	30,400	53,800	32,900	53,900	32,900	53,600	32,500	211,000	129,000	53,600	32,700

^cEstimated.

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	2012										2013	
	1st quarter		2d quarter		3d quarter		4th quarter		1st quarter– 4th quarter		1st quarter	
	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)						
Exports:												
Aluminum oxide:												
Crude	4,430	\$15,800	5,200	\$16,700	4,780	\$15,900	4,720	\$15,700	19,100	64,200	4,850	\$17,400
Ground and refined	435,000	186,000	325,000	171,000	450,000	190,000	473,000	210,000	1,680,000	756,000	460,000	198,000
Silicon carbide:												
Crude	3,550	4,750	2,690	4,320	4,750	6,140	3,810	5,370	14,800	20,600	3,480	4,140
Ground and refined	1,480	5,630	1,340	5,700	1,120	4,180	1,300	4,270	5,240	19,800	1,350	4,640
Metallic abrasives	10,700	13,300	8,960	12,200	9,840	13,200	9,550	14,800	39,000	53,400	9,270	13,000
Imports for consumption:												
Aluminum oxide:												
Crude	25,800	16,500	28,300	12,700	62,200	36,600	44,600	24,300	161,000	90,200	47,800	30,300
Ground and refined	11,200	17,600	11,600	21,000	23,100	18,500	24,100	18,800	70,000	75,900	37,300	25,200
Silicon carbide:												
Crude	27,900	25,000	9,230	17,600	21,900	16,500	3,180	2,900	62,200	62,000	17,800	11,900
Ground and refined	8,300	16,300	5,650	19,300	7,800	16,900	4,120	11,400	25,900	63,900	5,490	12,100
Metallic abrasives	5,700	5,470	17,700	5,740	5,360	5,070	5,300	5,450	34,000	21,700	5,510	5,640

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

²Customs value.

Source: U.S. Census Bureau.