

Mineral Industry Surveys

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MANUFACTURED ABRASIVES IN THE FIRST 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 first 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 first and fourth quarters 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 first quarter of 2012 were 25,800 t valued at \$16.5 million, or an average of \$637 per ton. About 80% of the imports came from China, 12% from Canada, 8% from Venezuela, and the remainder from Italy and 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 2012 were 11,200 t valued at \$17.6 million, or an average of \$1,580 per ton.

U.S. exports of crude fused aluminum oxide for the first quarter of 2012 were 4,430 t. These exports were valued at \$15.8 million, or \$3,570 per ton. Canada received 48% of the exports that were shipped; Mexico, 18%; Germany, 13%; United Kingdom, 5%; Republic of Korea, 4%; Japan, 3%; and other, 9%. U.S. exports of ground fused aluminum oxide for the first quarter of 2012 were 435,000 t valued at \$186 million, or \$425 per ton. Canada received 48% of the exports that were shipped; Georgia, 26%; Iceland, 14%; China, 7%; and other, 5%.

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 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 first and fourth quarters 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 first quarter of 2012 were 27,900 t valued at \$25.0 million; imports from China were 17,200 t valued at \$17.0 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$756 per ton; the average price of Chinese crude was \$984 per ton. U.S. imports of ground and refined silicon carbide for the same period were 8,300 t valued at \$16.3 million, or an average of \$1,960 per ton. During the first quarter of 2012, China accounted for 62% of the crude material and 50% of the ground and refined material imported.

U.S. exports of crude silicon carbide during the first quarter of 2012 were reported to be 3,550 t with a value of \$4.75 million. First quarter exports of ground and refined silicon carbide were 1,480 t valued at \$5.63 million. About 97% of the crude material was shipped to, in decreasing order of quantity, Norway, Germany, Mexico, and the Republic of Korea. About 96% of the refined material was shipped to, in decreasing order of quantity, Canada, Germany, Thailand, China, Mexico, and Japan.

Metallic Abrasives

Metallic abrasives information was collected from 10 companies operating 11 U.S. plants. During the first quarter of 2012, five companies produced 44,700 t of steel shot and grit, a slight increase compared with that of the same period in 2011. At least one of the companies produced shot and grit from reclaimed material. Total first quarter 2012 production was valued at \$21.9 million, or an average of \$489 per ton. Total production in 2011 was 200,000 t valued at \$103 million.

Shipments of steel shot and grit in the first quarter of 2012 were 48,500 t valued at \$28.2 million, or an average of \$582 per

ton, compared with shipments during the first quarter of 2011, which were 47,500 t valued at \$27.9 million for an average of \$587 per ton.

During the first quarter of 2012, five companies produced 752 t of other types of metallic shot and grit (primarily cut wire shot) valued at \$1.82 million.

Imports of all types of metallic shot and grit during the first quarter of 2012 were 5,700 t valued at \$5.47 million for an average of \$961 per ton, compared with imports during the first quarter of 2011, which were 14,300 t valued at \$9.51 million for an average of \$666 per ton. Canada, the Republic of Korea, and

China were the leading suppliers, accounting for 48%, 16%, and 12% of the tonnage imported, respectively.

Exports of all types of metallic abrasives during the first quarter of 2012 were 10,700 t valued at \$13.3 million, or an average of \$1,250 per ton, compared with exports during the first quarter of 2011, which were 9,630 t valued at \$13.2 million for an average of \$1,370 per ton. Shipments to Mexico accounted for 32% of the exports; an additional 25% was shipped to the United Kingdom and 15% was shipped to Canada.

TABLE 1
MANUFACTURED ABRASIVES¹

Source and product	2011										2012	
	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	43,600	21,400	53,600	27,000	53,700	27,100	49,200	27,700	200,000	103,000	44,700	21,900
Other shot and grit ^{e, 4}	536	1,900	487	1,910	490	1,680	437	1,610	1,950	7,100	752	1,820
Total	44,100	23,300	54,100	29,000	54,200	28,800	49,600	29,300	202,000	110,000	45,400	23,700
United States, shipments:												
Steel shot and grit	47,500	27,900	53,100	27,900	53,900	28,400	49,100	29,100	204,000	113,000	48,500	28,200
Other shot and grit ^{e, 4}	529	2,150	478	2,180	473	1,970	456	1,880	1,940	8,180	757	2,190
Total	48,000	30,000	53,600	30,100	54,400	30,400	49,600	31,000	206,000	122,000	49,200	30,400

^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	2011										2012	
	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	4,910	\$16,700	5,010	\$21,400	5,710	\$21,700	4,280	\$14,900	19,900	\$74,700	4,430	\$15,800
Ground and refined	416,000	209,000	476,000	234,000	404,000	207,000	367,000	174,000	1,660,000	824,000	435,000	186,000
Silicon carbide:												
Crude	5,210	6,730	5,670	7,520	6,550	10,100	3,380	6,010	20,800	30,400	3,550	4,750
Ground and refined	1,350	6,930	1,620	8,650	2,350	7,190	1,660	5,870	6,980	28,600	1,480	5,630
Metallic abrasives	9,630	13,200	9,360	12,700	10,300	15,600	10,100	13,500	39,500	55,000	10,700	13,300
Imports for consumption:												
Aluminum oxide:												
Crude	40,000	24,700	42,300	25,100	47,200	30,000	47,500	31,100	177,000	111,000	25,800	16,500
Ground and refined	12,100	15,700	12,300	16,700	9,750	13,600	12,200	16,900	46,400	62,900	11,200	17,600
Silicon carbide:												
Crude	11,100	15,800	29,800	35,400	17,300	21,100	18,600	24,800	76,800	97,100	27,900	25,000
Ground and refined	16,300	29,300	12,900	28,400	8,620	22,500	14,300	23,900	52,200	104,000	8,300	16,300
Metallic abrasives	14,300	9,510	5,790	5,710	24,400	14,300	5,190	5,200	49,600	34,700	5,700	5,470

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

²Customs value.

Source: U.S. Census Bureau.