

Mineral Industry Surveys

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MANUFACTURED ABRASIVES IN THE SECOND QUARTER 2023

The U.S. Geological Survey (USGS) collects quarterly data on manufactured abrasives through its survey of producers. Manufactured abrasives included in this report are metallic abrasives, fused aluminum oxide, and silicon carbide. Where indicated, data from the United States and Canada are combined to avoid disclosing 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.

Metallic Abrasives

During the second quarter of 2023, an estimated 47,100 metric tons (t) of steel shot and grit valued at an estimated \$32.7 million was produced, and an estimated 54,400 t valued at an estimated \$33.1 million was shipped in the United States. This was compared with an estimated 43,100 t valued at \$41.8 million produced and an estimated 46,600 t valued at \$46.7 million shipped during the second quarter of 2022. At least one company produced shot and grit from reclaimed material. During the second quarter of 2023, production of other types of metallic shot and grit (primarily cut wire shot) were estimated to be 600 t valued at \$2.20 million, and shipments were estimated to be 623 t valued at \$2.76 million. This was compared to production and shipments of other types of metallic shot and grit that were each estimated to be 1,000 t valued at \$3 million in the second quarter of 2022. Total second quarter 2023 production of metallic abrasives was 47,700 t valued at \$34.9 million, for an average unit value of \$732 per metric ton. Total second quarter 2023 shipments of metallic abrasives were 55,000 t valued at \$35.9 million, for an average unit value of \$652 per metric ton (table 1).

Imports of all types of metallic abrasives during the second quarter of 2023 were 4,760 t valued at \$8.28 million, for an average unit value of \$1,740 per metric ton (table 2).

Exports of all types of metallic abrasives during the second quarter of 2023 were 5,830 t valued at \$9.38 million, for an average unit value of \$1,610 per metric ton (table 2).

Fused Aluminum Oxide

Combined production of regular-grade crude fused aluminum oxide in the United States and Canada during the second quarter of 2023 was estimated to be 5,000 t with an estimated value of \$880,000, compared with 5,000 t with an estimated value of \$800,000 during the second quarter of 2022 and the first quarter of 2023. These production quantity figures were rounded to the nearest 5,000 t (table 1).

Imports of crude fused aluminum oxide during the second quarter of 2023 were 17,000 t valued at \$111 million, for an average unit value of \$6,550 per metric ton. Imports of ground and refined fused aluminum oxide for the same period were 16,000 t valued at \$20.8 million, for an average unit value of \$1,300 per metric ton (table 2).

Exports of crude fused aluminum oxide in the second quarter of 2023 were 2,890 t valued at \$11.2 million, for an average unit value of \$3,860 per metric ton (table 2).

Silicon Carbide

Total production of abrasive-grade silicon carbide in the United States during the second quarter of 2023 was estimated to be 11,000 t with an estimated value of \$7.28 million, compared with 10,000 t with an estimated value of \$7.40 million during the second quarter of 2022 and 10,000 t with an estimated value of \$6.62 million during the first quarter of 2023. These production quantity figures were rounded to the nearest 5,000 t (table 1).

Imports of crude silicon carbide during the second quarter of 2023 were 20,800 t valued at \$21.1 million, for an average unit value of \$1,010 per metric ton. Imports of ground and refined silicon carbide for the same period were 8,540 t valued at \$32.8 million, for an average unit value of \$3,840 per metric ton (table 2).

Exports of crude silicon carbide during the second quarter of 2023 were 888 t with a value of \$1.44 million, for an average unit value of \$1,630 per metric ton. Exports of ground and refined silicon carbide for the same period were 2,010 t

valued at \$6.10 million, for an average unit value of \$3,040 per metric ton (table 2).

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TABLE 1
PRODUCTION AND SHIPMENTS OF ALUMINUM OXIDE, SILICON CARBIDE, AND METALLIC ABRASIVES¹

Source and product	2022							
	2d quarter		3d quarter		4th quarter		1st quarter–4th quarter	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	(metric tons)	(thousands)	(metric tons)	(thousands)	(metric tons)	(thousands)	(metric tons)	(thousands)
United States, production:								
Steel shot and grit ^e	43,100	\$41,800	45,700	\$36,300	44,100	\$32,800	176,000	148,000
Other shot and grit ^{e, 2}	1,000	3,000	1,000	3,000	1,000	3,000	4,000	12,000
Total ^e	44,100	44,800	46,700	39,300	45,100	35,800	180,000	160,000
United States, shipments:								
Steel shot and grit ^e	46,600	46,700	50,000	42,000	50,000	42,000	195,000	174,000
Other shot and grit ^{e, 2}	1,000	3,000	1,000	3,000	1,000	3,000	4,000	12,000
Total ^e	47,600	49,700	51,000	45,000	51,000	45,000	199,000	186,000
United States and Canada, production: ^{e, 3}								
Crude aluminum oxide, regular-grade	5,000	800	5,000	800	5,000	800	20,000	3,200
United States, production: ^{e, 3}								
Silicon carbide ⁴	10,000	7,400	10,000	6,700	10,000	6,700	40,000	28,200
Source and product	2023							
	1st quarter		2d quarter					
	Quantity	Value	Quantity	Value				
	(metric tons)	(thousands)	(metric tons)	(thousands)				
United States, production:								
Steel shot and grit ^e	42,700	\$29,800	47,100	\$32,700				
Other shot and grit ^{e, 2}	544	2,000	600	\$2,200				
Total ^e	43,300	31,800	47,700	\$34,900				
United States, shipments:								
Steel shot and grit ^e	49,400	30,100	54,400	\$33,100				
Other shot and grit ^{e, 2}	565	2,510	623	\$2,760				
Total ^e	49,900	32,600	55,000	\$35,900				
United States and Canada, production: ^{e, 3}								
Crude aluminum oxide, regular-grade	5,000	800	5,500	\$880				
United States, production: ^{e, 3}								
Silicon carbide ⁴	10,000	6,620	11,000	\$7,280				

^eEstimated.

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

²Includes cut wire shot and reclaimed shot and grit from primary producers.

³Quantities are rounded to the nearest 5,000 tons to avoid disclosing proprietary data. Values are rounded to avoid disclosing proprietary data.

⁴Includes materials for metallurgical uses and other applications.

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

Source and product	2022							
	2d quarter		3d quarter		4th quarter		1st quarter–4th quarter	
	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)
Exports:								
Metallic abrasives	5,520	\$9,850 ^r	6,570	\$10,600	6,870	\$9,680	23,900	\$39,000
Aluminum oxide, crude	4,440	14,500	2,910	11,700 ^r	2,630	10,900	14,400 ^r	52,000 ^r
Silicon carbide:								
Crude	1,130	1,600	942	2,090	899	2,910	3,950	8,100
Ground and refined	2,360	6,660 ^r	2,180	6,350 ^r	1,910 ^r	5,260 ^r	8,100 ^r	22,000 ^r
Imports for consumption:								
Metallic abrasives	5,350	12,600	4,180	9,350	4,740	9,280	20,100	42,800
Aluminum oxide:								
Crude	32,400 ^r	26,700 ^r	60,900	49,300 ^r	39,500	30,600	163,000 ^r	130,000 ^r
Ground and refined	18,400 ^r	26,100 ^r	17,500	29,100 ^r	14,800	25,100	62,000 ^r	96,700 ^r
Silicon carbide:								
Crude	31,600	33,400	45,800	49,400	29,700 ^r	34,800 ^r	128,000 ^r	137,000
Ground and refined	10,600	35,400 ^r	9,520	38,700	7,290 ^r	35,400 ^r	37,300 ^r	136,000 ^r
	2023							
Source and product	1st quarter		2d quarter					
	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)				
Exports:								
Metallic abrasives	5,650	\$8,780	5,830	\$9,380				
Aluminum oxide, crude	2,220	8,280	2,890	11,200				
Silicon carbide:								
Crude	882	1,930	888	1,440				
Ground and refined	1,630	6,000	2,010	6,100				
Imports for consumption:								
Metallic abrasives	4,570	9,370	4,760	8,280				
Aluminum oxide:								
Crude	16,800	11,400	17,000	111,000				
Ground and refined	14,700	21,600	16,000	20,800				
Silicon carbide:								
Crude	21,100	17,800	20,800	21,100				
Ground and refined	6,650	28,700	8,540	32,800				

^rRevised.

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

²Export values are free alongside ship values; import values are customs values.

Source: U.S. Census Bureau.