

# Mineral Industry Surveys

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## MANUFACTURED ABRASIVES IN THE THIRD 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 third quarter of 2023, an estimated 45,400 metric tons (t) of steel shot and grit valued at an estimated \$33.1 million was produced, and an estimated 51,800 t valued at an estimated \$31.6 million was shipped in the United States. This was compared with an estimated 45,700 t valued at \$36.3 million produced and an estimated 50,000 t valued at \$42.0 million shipped during the third quarter of 2022 and an estimated 47,100 t valued at \$32.7 million produced and an estimated 54,400 t valued at \$33.1 million shipped during the second quarter of 2023. At least one company produced shot and grit from reclaimed material. Production of other types of metallic shot and grit (primarily cut wire shot) were each estimated to be 571 t valued at \$2.63 million, compared with 1,000 t valued at \$3.00 million in the third quarter of 2022 and 600 t valued at \$2.20 million in the second quarter of 2023. Shipments of other types of metallic shot and grit (primarily cut wire shot) were each estimated to be 593 t valued at \$2.76 million, compared with 1,000 t valued at \$3.00 million in the third quarter of 2022 and 623 t valued at \$2.76 million in the second quarter of 2023. Total third quarter 2023 production of metallic abrasives was 46,000 t valued at \$35.8 million, for an average unit value of \$778 per metric ton. Total third quarter 2023 shipments of metallic abrasives were 52,400 t valued at \$34.4 million, for an average unit value of \$655 per metric ton (table 1).

Imports of all types of metallic abrasives during the third quarter of 2023 were 4,120 t valued at \$7.38 million, for an average unit value of \$1,790 per metric ton (table 2).

Exports of all types of metallic abrasives during the third quarter of 2023 were 6,590 t valued at \$9.78 million, for an average unit value of \$1,480 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 third quarter of 2023 was estimated to be 5,000 t with an estimated value of \$800,000, which has been unchanged for several years owing to production figures being rounded to the nearest 5,000 t to avoid disclosing proprietary data (table 1).

Imports of crude fused aluminum oxide during the third quarter of 2023 were 12,000 t valued at \$8.02 million, for an average unit value of \$670 per metric ton. Imports of ground and refined fused aluminum oxide for the same period were 10,700 t valued at \$14.3 million, for an average unit value of \$1,330 per metric ton (table 2).

Exports of crude fused aluminum oxide for the third quarter of 2023 were 2,170 t valued at \$6.54 million, for an average unit value of \$3,020 per metric ton (table 2).

### Silicon Carbide

Total production of abrasive-grade silicon carbide in the United States and Canada during the third quarter of 2023 was estimated to be 11,000 t with an estimated value of \$7.00 million, compared with 10,000 t valued at \$6.70 million in the third quarter of 2022 and 11,000 t valued at \$7.28 million in the second quarter of 2023 (table 1).

Imports of crude silicon carbide during the third quarter of 2023 were 18,100 t valued at \$16.9 million, for an average unit value of \$933 per metric ton. Imports of ground and refined silicon carbide for the same period were 5,950 t valued at \$32.4 million, for an average unit value of \$5,440 per metric ton (table 2).

Exports of crude silicon carbide during the third quarter of 2023 were 865 t with a value of \$1.84 million, for an average unit value of \$2,130 per metric ton. Exports of ground and refined silicon carbide for the same period were 1,600 t valued at \$4.55 million, for an average unit value of \$2,850 per metric ton (table 2).

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TABLE 1  
PRODUCTION AND SHIPMENTS OF ALUMINUM OXIDE, SILICON CARBIDE, AND METALLIC ABRASIVES<sup>1</sup>

Source and product	2022					
	3d quarter		4th quarter		1st quarter–4th quarter	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
United States, production:						
Steel shot and grit <sup>e</sup>	45,700	\$36,300	44,100	\$32,800	176,000	148,000
Other shot and grit <sup>e, 2</sup>	1,000	3,000	1,000	3,000	4,000	12,000
Total <sup>e</sup>	46,700	39,300	45,100	35,800	180,000	160,000
United States, shipments:						
Steel shot and grit <sup>e</sup>	50,000	42,000	50,000	42,000	195,000	174,000
Other shot and grit <sup>e, 2</sup>	1,000	3,000	1,000	3,000	4,000	12,000
Total <sup>e</sup>	51,000	45,000	51,000	45,000	199,000	186,000
United States and Canada, production: <sup>e, 3</sup>						
Crude aluminum oxide, regular-grade	5,000	800	5,000	800	20,000	3,200
United States, production: <sup>e, 3</sup>						
Silicon carbide <sup>4</sup>	10,000	6,700	10,000	6,700	40,000	28,200
Source and product	2023					
	1st quarter		2d quarter		3d quarter	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
United States, production:						
Steel shot and grit <sup>e</sup>	42,700	\$29,800	47,100	\$32,700	45,400	\$33,100
Other shot and grit <sup>e, 2</sup>	544	2,000	600	\$2,200	571	\$2,630
Total <sup>e</sup>	43,300	31,800	47,700	\$34,900	46,000	\$35,800
United States, shipments:						
Steel shot and grit <sup>e</sup>	49,400	30,100	54,400	\$33,100	51,800	\$31,600
Other shot and grit <sup>e, 2</sup>	565	2,510	623	\$2,760	593	\$2,760
Total <sup>e</sup>	49,900	32,600	55,000	\$35,900	52,400	\$34,400
United States and Canada, production: <sup>e, 3</sup>						
Crude aluminum oxide, regular-grade	5,000	800	5,500	\$880	5,000	\$800
United States, production: <sup>e, 3</sup>						
Silicon carbide <sup>4</sup>	10,000	6,620	11,000	\$7,280	11,000	\$7,000

<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>Includes cut wire shot and reclaimed shot and grit from primary producers.

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

<sup>4</sup>Includes materials for metallurgical uses and other applications.

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

Source and product	2022					
	3d quarter		4th quarter		1st quarter–4th quarter	
	Quantity (metric tons)	Value <sup>2</sup> (thousands)	Quantity (metric tons)	Value <sup>2</sup> (thousands)	Quantity (metric tons)	Value <sup>2</sup> (thousands)
Exports:						
Metallic abrasives	6,570	\$10,600	6,870	\$9,680	23,900	\$39,000
Aluminum oxide, crude	2,910	11,700	2,630	10,900	14,400	52,000
Silicon carbide:						
Crude	942	2,090	899	2,910	3,950	8,100
Ground and refined	2,180	6,350	1,910	5,260	8,100	22,000
Imports for consumption:						
Metallic abrasives	4,180	9,350	4,740	9,280	20,100	42,800
Aluminum oxide:						
Crude	60,900	49,300	39,500	30,600	163,000	130,000
Ground and refined	17,500	29,100	14,800	25,100	62,000	96,700
Silicon carbide:						
Crude	45,800	49,400	29,700	34,800	128,000	137,000
Ground and refined	9,520	38,700	7,290	35,400	37,300	136,000
Source and product	2023					
	1st quarter		2d quarter		3d quarter	
	Quantity (metric tons)	Value <sup>2</sup> (thousands)	Quantity (metric tons)	Value <sup>2</sup> (thousands)	Quantity (metric tons)	Value <sup>2</sup> (thousands)
Exports:						
Metallic abrasives	5,650	\$8,780	5,830	\$9,380	6,590	\$9,780
Aluminum oxide, crude	2,220	8,280	2,890	11,200	2,170	6,540
Silicon carbide:						
Crude	882	1,930	888	1,440	865	1,840
Ground and refined	1,630	6,000	2,010	6,100	1,600	4,550
Imports for consumption:						
Metallic abrasives	4,570	9,370	4,760	8,280	4,120	7,380
Aluminum oxide:						
Crude	16,800	11,400	17,000	11,100 <sup>r</sup>	12,000	8,020
Ground and refined	14,700	21,600	16,000	20,800	10,700	14,300
Silicon carbide:						
Crude	21,100	17,800	20,800	21,100	18,100	16,900
Ground and refined	6,650	28,700	8,540	32,800	5,950	32,400

<sup>r</sup>Revised.

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

<sup>2</sup>Export values are free alongside ship values; import values are customs values.

Source: U.S. Census Bureau.