



# 2019 Minerals Yearbook

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**ABRASIVES, MANUFACTURED [ADVANCE RELEASE]**

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# ABRASIVES, MANUFACTURED

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In 2019, U.S. production of metallic abrasives was 177,000 metric tons (t) valued at \$114 million, and shipments of metallic abrasives were 195,000 t valued at \$142 million (table 4). Estimated production of fused aluminum oxide in the United States and Canada, combined and rounded to the nearest 5,000 t, was 10,000 t, and had an estimated value of \$1.7 million (table 2). U.S. silicon carbide production was estimated to be 35,000 t, also rounded to the nearest 5,000 t, and had an estimated value of \$26.0 million. Combined U.S. exports for all types of abrasive aluminum oxide, abrasive silicon carbide, and metallic abrasives decreased by 3% to 61,100 t in 2019 compared with 63,000 t in 2018 (table 5). U.S. imports of all types of abrasive aluminum oxide, abrasive silicon carbide, and metallic abrasives decreased by 7% to 342,000 t in 2019 compared with 369,000 t in 2018 (table 6).

Abrasives are natural or manufactured substances that are used to abrade, clean, etch, grind, polish, scour, or otherwise remove solid material by rubbing action (as in a grinding wheel) or impact (as in pressure blasting). Important physical properties for abrasives include character of fracture (cleavage), friability (tendency to break into smaller particles), grain shape and size, hardness (scratch hardness), purity (uniformity), and toughness (rigidity). Additional properties considered for application include availability, bonding characteristics, cost, and thermal stability. Manufactured abrasives are made from metals or minerals by heat or chemical treatment to enhance or create abrasive properties. Abrasives play an important role in the fashioning and finishing of many products with a wide range of applications.

Manufactured abrasives, not natural abrasives, generally dominate the high-grade abrasives market because they have superior physical properties, more uniform quality, and can be tailored to meet users' needs. Consequently, manufactured abrasives typically are characterized by premium prices relative to natural abrasive minerals. Although manufactured abrasives are usually more expensive, their durability and efficiency have proven to be more cost effective, and they are preferred in many industrial applications, such as metal finishing, cutting, and polishing. In the United States, large quantities of manufactured abrasives also are used in cutting and finishing wallboard and timber. The abrasives market is mature, and the use of various manufactured abrasive materials is well defined by application.

This chapter includes information on the following abrasives manufactured in the United States: aluminum-zirconium oxide, boron carbide, fused aluminum oxide, metallic shot and grit, and silicon carbide. In some cases, United States production data were combined with output from Canada to avoid disclosing company proprietary data and still provide useful information on the overall Canada–United States market. Trade data in this chapter are from the U.S. Census Bureau. All percentages in the chapter were calculated using unrounded data.

## Metallic Abrasives

**Production.**—In 2019, 11 companies operating 12 plants within the United States produced metallic abrasives (table 3). Data on U.S. production and shipments of metallic abrasives were based on a survey of domestic producers conducted by the U.S. Geological Survey (USGS) and were estimated for nonreporting producers based on previously reported data and industry trends.

Five companies reported production of steel shot and grit in 2019 and accounted for most of the metallic abrasives produced domestically (table 4). U.S. production of steel shot and grit in 2019 decreased slightly to 173,000 t compared with that in 2018. Estimated production of cut wire shot by U.S. producers was estimated to be 4,000 t, the same as that in 2018 (table 4). Six companies reported production of cut wire shot in 2019, most of which was cut from carbon-steel wire and stainless-steel wire. Other products reported included shot cut from aluminum, copper, and zinc wire. One company reported production of steel nuggets, a wrought carbon steel blast medium with properties like those of steel shot.

**Consumption.**—Metallic abrasives were used primarily as loose particles propelled at high velocities for blast cleaning or to improve the properties of metal surfaces. Principal consumers included foundries, machine tool industries, metalworking plants (particularly those supporting the automotive and aircraft industries), and steel manufacturers.

During 2019, shipments of steel shot and grit by U.S. producers decreased slightly to 191,000 t compared with those in 2018 (table 4). Domestic shipments of cut wire shot were estimated to be 4,000 t, the same as that in 2018. The total quantity of all forms of metallic abrasives consumed in the United States in 2019 was 192,000 t, a slight decrease from 2018. Apparent consumption for metallic abrasives was calculated as shipments plus imports minus exports.

**Prices.**—The average unit value for U.S. production of steel shot and grit in 2019 was \$601 per metric ton and the average unit value for sales of all steel shot and grit by U.S. producers was \$675 per metric ton (table 4). The estimated average unit value for U.S. production of cut wire shot in 2019 was \$2,500 per metric ton and the estimated average unit value for sales of cut wire shot by U.S. producers was \$3,250 per metric ton. The average free alongside ship (f.a.s.) unit value for metallic abrasives exported from the United States during 2019 decreased to \$1,190 per metric ton, and the average customs unit value of imports of metallic abrasives increased to \$1,310 per metric ton (tables 5, 6).

**Foreign Trade.**—During 2019, the United States exported metallic abrasives to 42 countries and imported metallic abrasives from 20 countries. U.S. exports of metallic abrasives in 2019 decreased by 7%, compared with 2018, to 31,200 t and were valued at \$37 million (table 5). Mexico (65%), Canada

(19%), and Germany and Taiwan (3%, each) were the leading recipients of United States exports of metallic abrasives. U.S. imports in 2019 decreased by 7% to 27,900 t and were valued at \$36.5 million (table 6). Most of the imports came from Canada (27%), Turkey (20%), China (13%), Thailand (12%), and Japan (7%).

In 2018, under section 301 of the Trade Act of 1974, the Office of the United States Trade Representative (USTR) determined that policies and practices of China related to technology transfer, intellectual property, and innovation were unreasonable or discriminatory and were a burden or restricted United States commerce. As such, imports of certain materials were subject to additional import duties. List 3 (products with an annual trade value of approximately \$200 billion), which included metallic abrasives, had a duty rate of 10% imposed in late September 2018 and increased to 25% in May 2019 (Office of the United States Trade Representative, 2020).

### Fused Aluminum Oxide and Aluminum-Zirconium Oxide

**Production.**—Production data for crude and high-purity fused aluminum oxide in this chapter were obtained by the USGS from producers in Canada and the United States. The data were collected from two companies that operated four plants and represented the entire Canada and United States fused aluminum oxide industry (table 1). Saint-Gobain Abrasives operated a fused aluminum oxide plant in the United States (Huntsville, AL) and Saint-Gobain Ceramic Materials Canada Inc. operated an aluminum-zirconium oxide plant in Canada (Chippewa, Ontario). Washington Mills Electro Minerals Corp. operated fused aluminum oxide plants in Canada (Niagara Falls, Ontario) and the United States (Niagara Falls, NY). Quantity data from the two countries were reported by the producers or estimated for nonreporting producers, combined to avoid disclosing company proprietary data, and rounded to the nearest 5,000 t. Estimates were based on previously reported data and industry trends.

Estimated production of crude fused aluminum oxide in 2019 was rounded to 10,000 t and had an estimated value rounded to \$1.7 million (table 2). The quantity and value were unchanged compared with those in 2018. High-purity fused aluminum oxide output was not reported to avoid disclosing company proprietary data.

During 2019, fused aluminum-zirconium oxide for abrasive applications, such as resin-bonded grinding wheels, was produced at one plant in the United States operated by Saint-Gobain Abrasives and at one plant in Canada belonging to Saint-Gobain Ceramic Materials Canada. The general production trend indicated that the market was stable and relatively unchanged from previous years. Production data from these plants were withheld to avoid disclosing company proprietary data.

**Consumption.**—Crude fused aluminum oxide has many end uses. Specific applications in 2019 included antislip additives, bonded abrasives (such as abrasive grains made to adhere to each other and then pressed or molded into abrasive tools), buffing and polishing compounds, coated abrasives (such as abrasive grains glued to a backing of paper or cloth), dry or wet blasting media, and tumbling media. Fused aluminum

oxide in micropowder form was used for industrial and electronic applications that required fine surface finishing. Fused aluminum oxide did not face any significant substitution threats because it was a very cost-effective abrasive. The total U.S. apparent consumption of crude fused aluminum oxide decreased by 3% in 2019 to 99,400 t. Apparent consumption was calculated as imports minus exports to avoid disclosing company proprietary data.

**Prices.**—According to the USGS canvass of domestic producers, the estimated unit value of crude fused aluminum oxide produced in the United States and Canada during 2019 was \$170 per metric ton at the point of production (table 2). Prices of abrasive grain produced from these materials and sold to consumers were significantly higher.

Average unit values of fused aluminum oxide exported by the United States in 2019 were based on U.S. Census Bureau data. The average f.a.s. unit value for U.S. exports of crude fused aluminum oxide during the year was \$3,040 per metric ton (table 5). Export unit values ranged from \$1,270 per metric ton (Canada) to \$12,000 per metric ton (Republic of Korea). The average import customs unit value of crude aluminum oxide for 2019 was \$716 per metric ton (table 6), with values ranging from \$708 per metric ton (China) to \$2,400 per metric ton (Germany). Ground and refined imports averaged \$1,250 per metric ton and ranged from \$830 per metric ton (Brazil) to \$1,920 per metric ton (Austria).

**Foreign Trade.**—Compared with those in 2018, crude fused aluminum oxide exports decreased by 5% in 2019 to 18,400 t and were valued at \$56.1 million (table 5). Of the exports shipped to 43 countries, the leading destinations were Canada (42%), Mexico (21%), France (14%), and Germany (8%).

During 2019, imports of crude fused aluminum oxide decreased by 3% to 118,000 t and were valued at \$84.3 million compared with those in 2018 (table 6). Some of the imported crude fused aluminum oxide was thought to be refractory-grade material, which would not have been used in abrasive applications. China accounted for 65% of the crude fused aluminum oxide imports received, Hong Kong, 31%, and all other countries or localities combined, 4%. Imports of ground and refined fused aluminum oxide decreased by 7% to 65,700 t and were valued at \$82.1 million. Brazil accounted for 22% of the ground and refined imports received; Canada, 21%; Austria, 14%; China, 13%; Germany, 9%; and Hungary, 6%.

On September 1, 2019, under the amended section 301 of the Trade Act of 1974, fused aluminum oxide and aluminum-zirconium oxide from China were subject to import duties. These commodities, included in List 4 (products with an annual trade value of approximately \$300 billion), had a duty rate of 15%, which was reduced to 7.5% on February 14, 2020 (Office of the United States Trade Representative, 2020).

**World Review.**—China was the world's leading producer of fused aluminum oxide with an estimated production capacity of 800,000 metric tons per year (t/yr); Germany ranked second with an estimated production capacity of 80,000 t/yr.

### Silicon Carbide

**Production.**—One company, Washington Mills Hennepin, Inc., in Hennepin, IL, produced abrasive-grade silicon carbide

in the United States during 2019 (table 1). This company also produced similar quantities of metallurgical-grade silicon carbide. A second company, Superior Graphite Co., in Hopkinsville, KY, produced a small quantity of silicon carbide, primarily for use in heat-resistant products rather than abrasives. U.S. silicon carbide production was estimated to be 35,000 t during 2019 and the value of production was estimated to be \$26.0 million, the same as that in 2018 (table 2). About 50% of the production data was reported by producers and the remaining 50% was estimated for nonreporting producers. Estimates were based on previously reported data and industry trends.

**Consumption.**—Abrasive-grade silicon carbide has many end uses. Specific applications in 2019 included antislip abrasives, blasting abrasives, bonded abrasives, coated abrasives, polishing and buffing compounds, tumbling media, and wire-sawing abrasives. The total quantity of silicon carbide (crude, ground, and refined) consumed in the United States in 2019 was 154,000 t, compared with 171,000 t in 2018. Apparent consumption for silicon carbide was calculated as estimated production plus imports minus exports.

**Prices.**—According to information from industry sources, the average unit value of abrasive-grade silicon carbide at the point of manufacture was \$743 per metric ton in 2019, which was unchanged compared with 2018. The average f.a.s. unit value for U.S. crude silicon carbide exports in 2019 was \$2,240 per metric ton, a 56% increase compared with 2018. The average f.a.s. unit value for U.S. ground and refined silicon carbide exports was \$1,980 per metric ton, a 32% decrease compared with 2018 (table 5).

The average customs unit value of crude silicon carbide imports in 2019 increased by 5% to \$701 per metric ton. China was the largest supplier of crude silicon carbide to the United States in 2019, providing 86,900 t of material. Crude silicon carbide imports from China had an average unit value of \$707 per metric ton, a 16% increase compared with 2018. The average customs unit value of ground and refined imports from all countries was \$1,980 per metric ton, a slight increase compared with 2018. Ground and refined imports from China had an average customs unit value of \$1,260 per metric ton, a 7% increase compared with 2018 (table 6).

**Foreign Trade.**—In 2019, the total quantity of U.S. crude silicon carbide exports decreased by 33% to 2,340 t and were valued at \$5.25 million. Of the exported crude silicon carbide material shipped to 23 countries, 45% was shipped to Norway, 26% was shipped to the United Kingdom, and 20% was shipped to Germany. Exports of ground and refined silicon carbide in 2019 increased by 38% to 9,160 t and were valued at \$18.1 million. Of the exported ground and refined silicon carbide shipped to 32 countries, 88% was shipped to Canada and 3% each to Japan and Mexico (table 5).

In 2019, the United States imported crude silicon carbide from 14 countries and imported ground and refined silicon carbide from 19 countries. Imports of crude silicon carbide decreased by 7% to 99,300 t and were valued at \$69.6 million. Imports of silicon carbide in ground or refined form decreased by 21% to 31,300 t and were valued at \$62.1 million. China accounted for 87% of the crude silicon carbide imports and the Netherlands, 9%. China accounted for 39% of the ground and refined silicon

carbide imports, Brazil, 25%, and Canada, 12%. Some of the imports from China may have included metallurgical-grade material (table 6).

**World Review.**—In 2019, China was the world's leading producer of silicon carbide. Considering all grades and end uses of silicon carbide combined, China held a greater than two-thirds share of the global market.

## Boron Carbide

Washington Mills Electro Minerals was the only commercial producer of boron carbide in the United States during 2019 (table 1). Boron carbide was used as an abrasive for lapping and ultrasonic cutting operations previously possible only with diamond dust. Boron carbide also was molded to form highly wear-resistant products, such as armor, powdered metal and ceramic forming dies, pressure-blasting nozzles, thread guides, and wire-drawing dies. Boron carbide was used in nuclear applications, such as neutron-absorbing shielding and reactor control rods (Washington Mills Electro Minerals Corp., undated). Domestic production and pricing data for boron carbide were withheld to avoid disclosing company proprietary data, and trade data were not available.

## Outlook

Abrasives markets are influenced by activity in the manufacturing sector in the United States and by general economic trends. This is particularly true of manufacturing activities in the aerospace, automotive, furniture, housing, silicon wafers, and steel industries. Although abrasives markets are linked to these end-use manufacturing sectors, growth in these sectors may not necessarily lead to an increase in abrasives consumption. The U.S. abrasives markets also are influenced by technological trends. Improved manufacturing technology has resulted in surface qualities that require fewer grinding and finishing operations that use abrasives.

The aerospace and automotive industries are likely to continue to have significant indirect influences on demand for manufactured abrasives used by metalworking operations supporting those sectors. The housing construction sector in North America is expected to continue to have an indirect influence on demand for manufactured abrasives because of the large volumes of manufactured abrasives used in cutting wallboard and finishing timber.

Less expensive imports coupled with higher domestic production costs and low domestic production capacity continue to challenge U.S. producers of fused aluminum oxide and silicon carbide to maintain market share. Competition from other countries, especially China, may lead to further decreases in domestic output. China has been a dominant force in fused aluminum oxide and silicon carbide production in recent years, which has changed the supply makeup of the manufactured abrasives market. Lower priced exports from China have displaced and are expected to continue to displace manufactured abrasives produced in Europe and North America. The traditional suppliers among the Western industrialized nations are expected to continue consolidating and contracting (Lismore, 2013).



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TABLE 1  
CRUDE ARTIFICIAL ABRASIVES MANUFACTURERS IN 2019<sup>1</sup>

Company	Plant location	Product
Saint-Gobain Abrasives	Huntsville, AL	Fused aluminum oxide (high-purity) and aluminum-zirconium oxide.
Saint-Gobain Ceramic Materials Canada Inc.	Chippewa, Ontario, Canada	Aluminum-zirconium oxide.
Superior Graphite Co.	Hopkinsville, KY	Silicon carbide.
Washington Mills Electro Minerals	Niagara Falls, NY	Fused aluminum oxide (high-purity) and boron carbide.
Do.	Niagara Falls, Ontario, Canada	Fused aluminum oxide (regular).
Washington Mills Hennepin, Inc.	Hennepin, IL	Silicon carbide.
Do. Ditto.		

<sup>1</sup>Table includes data available through June 9, 2020.

TABLE 2  
ESTIMATED PRODUCTION OF ALUMINUM OXIDE AND SILICON CARBIDE ABRASIVES  
IN THE UNITED STATES AND CANADA<sup>1,2</sup>

Product	2018		2019	
	Quantity <sup>3</sup> (metric tons)	Value (thousands)	Quantity <sup>3</sup> (metric tons)	Value (thousands)
Aluminum oxide <sup>4</sup>	10,000	\$1,700	10,000	\$1,700
Silicon carbide <sup>5</sup>	35,000	26,000 <sup>r</sup>	35,000	26,000

<sup>r</sup>Revised.

<sup>1</sup>Table includes data available through June 9, 2020. Data are rounded to no more than three significant digits.

<sup>2</sup>Owing to rounding, data do not match total quarterly U.S. Geological Survey Mineral Industry Surveys estimated data.

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

<sup>4</sup>Combined production for the United States and Canada. Regular grade material accounts for 62% of total output and high-purity material accounts for the remainder.

<sup>5</sup>U.S. production. Approximately one-half of the quantity and value consists of material for metallurgical and other nonabrasive applications.

TABLE 3  
U.S. PRODUCERS OF METALLIC ABRASIVES IN 2019<sup>1</sup>

Company	Plant location	Product [shot and (or) grit]
Abrasive Materials, LLC	Hillsdale, MI	Cut wire.
Chesapeake Specialty Products, Inc.	Baltimore, MD	Steel.
Ervin Industries, Inc.	Adrian, MI	Do.
Do.	Butler, PA	Do.
FROHN North America, Inc.	Austell, GA	Cut wire.
Metaltec Steel Abrasives Co.	Canton, MI	Steel.
MLP Specialty Metals, LLC (formerly Marwas Steel Co.)	Scottdale, PA	Cut wire.
Peerless Metal Powders & Abrasives, LLC	Detroit, MI	Steel.
Pellets LLC	Tonawanda, NY	Cut wire.
Platt Brothers & Co.	Waterbury, CT	Do.
Premier Shot Co.	Twinsburg, OH	Do.
Wheelabrator Abrasives Inc.	Bedford, VA	Steel.
Do. Ditto.		

<sup>1</sup>Table includes data available through June 9, 2020.

TABLE 4  
PRODUCTION AND SHIPMENTS OF METALLIC ABRASIVES IN THE  
UNITED STATES, BY PRODUCT<sup>1</sup>

Product	Production		Shipments <sup>2</sup>	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
2018:				
Steel shot and grit	176,000	104,000	192,000	132,000
Cut wire shot and other <sup>c</sup>	4,000	8,600	4,000	12,000
Total	180,000	113,000	196,000	144,000
2019:				
Steel shot and grit	173,000	104,000	191,000	129,000
Cut wire shot and other <sup>c</sup>	4,000	10,000	4,000	13,000
Total	177,000	114,000	195,000	142,000

<sup>c</sup>Estimated.

<sup>1</sup>Table includes data available through June 9, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes reported exports.

TABLE 5  
U.S. EXPORTS OF ALUMINUM OXIDE, SILICON CARBIDE, AND METALLIC  
ABRASIVES, BY COUNTRY OR LOCALITY AND TYPE<sup>1</sup>

Country or locality and type	2018		2019	
	Quantity (metric tons)	Value <sup>2</sup> (thousands)	Quantity (metric tons)	Value <sup>2</sup> (thousands)
Aluminum oxide, crude:				
Austria	53	\$623	--	--
Brazil	362	2,050	388	\$1,950
Canada	9,690	11,700	7,820	9,940
China	376	3,540	311	3,470
France	122	1,590	2,650	6,030
Germany	1,540	15,500	1,460	11,600
India	447	3,190	382	2,100
Japan	633	5,340	569	6,430
Korea, Republic of	443	2,970	257	3,070
Mexico	4,510	8,070	3,850	7,380
United Kingdom	289	310	75	146
Other	849	4,750	665	3,950
Total	19,300	59,600	18,400	56,100
Silicon carbide:				
Crude:				
Germany	671	1,040	477	609
Japan	1	365	3	1,730
Mexico	135	322	102	302
Norway	1,260	1,450	1,060	1,300
United Kingdom	1,180	1,460	609	725
Other	249	382	93	583
Total	3,500	5,010	2,340	5,250
Ground and refined:				
Canada	5,090	6,010	8,040	8,920
China	39 <sup>r</sup>	88 <sup>r</sup>	32	183
Germany	96	688	180	3,310
Japan	374	5,650	275	3,320
Mexico	434	1,050	242	522
Norway	--	--	5	76
Other	598	5,770	385	1,820
Total	6,630	19,300	9,160	18,100
Metallic abrasives:				
Canada	6,960	6,680	6,000	5,950
China	1,350	3,100	189	703
Germany	1,120	2,150	966	2,180
Japan	1	14	30	121
Mexico	21,800	24,500	20,100	22,500
Taiwan	112	204	1,060	646
United Kingdom	130	216	183	275
Other	2,100	5,150	2,600	4,570
Total	33,600	42,000	31,200	37,000

<sup>r</sup>Revised. -- Zero.

<sup>1</sup>Table includes data available through June 3, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Free alongside ship value.

Source: U.S. Census Bureau.

TABLE 6  
U.S. IMPORTS OF ALUMINUM OXIDE, SILICON CARBIDE, AND METALLIC  
ABRASIVES, BY COUNTRY OR LOCALITY AND TYPE<sup>1</sup>

Country or locality and type	2018		2019	
	Quantity (metric tons)	Value <sup>2</sup> (thousands)	Quantity (metric tons)	Value <sup>2</sup> (thousands)
<b>Aluminum oxide:</b>				
Crude:				
Canada	290	\$203	221	\$158
China	87,800	61,200	76,600	54,200
Germany	206	475	91	218
Italy	--	--	20	33
Hong Kong	30,400	21,000	36,100	25,600
Other	3,290	1,460	4,760	4,050
Total	122,000	84,300	118,000	84,300
Ground and refined:				
Austria	11,000	20,600	9,210	17,700
Brazil	10,600	9,880	14,600	12,100
Canada	13,900	12,200	13,500	12,100
China	10,800	13,600	8,820	10,400
France	3,290	6,810	4,120	8,020
Germany	7,770	12,600	6,200	10,700
Hungary	3,570	4,040	4,190	4,610
Italy	2,630	2,930	1,390	1,530
Other	7,030	7,940	3,730	4,880
Total	70,600	90,700	65,700	82,100
<b>Silicon carbide:</b>				
Crude:				
Brazil	36	54	162	196
China	82,900	50,400	86,900	61,500
Netherlands	75	4	9,040	3,930
Norway	605	1,970	70	665
South Africa	3,380	2,660	2,300	2,290
Other	19,900 <sup>r</sup>	16,500 <sup>r</sup>	869	1,090
Total	107,000	71,600	99,300	69,600
Ground and refined:				
Brazil	7,860	12,200	7,840	11,900
Canada	1,980	2,480	3,810	4,750
China	19,600	23,100	12,200	15,400
Germany	297	1,470	130	1,360
Japan	974	7,220	785	6,210
Norway	2,140	20,600	2,370	16,400
Russia	3,310	3,750	3,110	3,440
Vietnam	100	110	--	--
Other	3,200 <sup>r</sup>	5,770 <sup>r</sup>	1,100	2,620
Total	39,500	76,700	31,300	62,100
<b>Metallic abrasives:</b>				
Canada	7,770	7,010	7,520	6,680
China	6,040	6,290	3,500	4,130
Germany	4,060	6,210	1,590	5,800
Japan	1,730	3,920	1,910	5,090
Korea, Republic of	1,470	958	1,180	477
Sweden	164	197	--	--
Thailand	2,790	5,210	3,450	5,900
Turkey	2,360	1,910	5,450	3,840
Other	3,490 <sup>r</sup>	3,600 <sup>r</sup>	3,300	4,560
Total	29,900	35,300	27,900	36,500

<sup>r</sup>Revised. -- Zero.

<sup>1</sup>Table includes data available through June 3, 2020. 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.