

## DIAMOND (INDUSTRIAL)<sup>1</sup>

(Data in million carats unless otherwise noted)

**Domestic Production and Use:** In 2019, total domestic primary production of manufactured industrial diamond bort, grit, and dust and powder was estimated to be 190 million carats with a value of \$86 million. There was no domestic production of stone. One firm in Ohio and one firm in Pennsylvania accounted for all of the production. At least nine firms produced polycrystalline diamond from diamond powder. At least two companies recovered used industrial diamond as one of their principal operations. The major consuming sectors of industrial diamond are computer chip production; construction; drilling for minerals, natural gas, and oil; machinery manufacturing; stone cutting and polishing; and transportation (infrastructure and vehicles). Highway building, milling, and repair and stone cutting consumed most of the industrial diamond stone. About 99% of U.S. industrial diamond apparent consumption was synthetic industrial diamond because its quality can be controlled and its properties can be customized.

<b>Salient Statistics—United States:</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019<sup>e</sup></b>
Bort, grit, and dust and powder; natural and synthetic:					
Production:					
Manufactured diamond <sup>e</sup>	40	42	41	184	190
Secondary	63	66	11	33	38
Imports for consumption	275	216	362	548	350
Exports	140	134	161	159	120
Consumption, apparent <sup>2</sup>	238	190	253	606	460
Price, value of imports, dollars per carat	0.20	0.23	0.16	0.12	0.13
Net import reliance <sup>3</sup> as a percentage of apparent consumption	57	43	79	64	50
Stones, natural and synthetic:					
Production:					
Manufactured diamond <sup>e</sup>	79	83	87	—	—
Secondary	0.19	0.36	0.39	0.13	0.12
Imports for consumption	1.31	1.37	1.23	0.95	0.84
Exports	—	—	—	—	—
Sales from Government stockpile excesses	—	—	—	—	—
Consumption, apparent <sup>2</sup>	80.7	84.9	89.0	1.1	1.0
Price, value of imports, dollars per carat	17.50	13.60	12.90	7.60	7.20
Net import reliance <sup>3</sup> as a percentage of apparent consumption	2	2	1	88	88

**Recycling:** In 2019, the amount of diamond bort, grit, and dust and powder recycled was estimated to be 38 million carats with an estimated value of \$790,000. It was estimated that 120,000 carats of diamond stone was recycled with an estimated value of \$190,000.

**Import Sources (2015–18):** Bort, grit, and dust and powder; natural and synthetic: China, 77%; Ireland, 8%; Republic of Korea, 5%; Russia, 4%; and other, 6%. Stones, primarily natural: India, 32%; South Africa, 31%; Botswana, 17%; Australia, 9%; and other, 11%.

<b>Tariff: Item</b>	<b>Number</b>	<b>Normal Trade Relations 12–31–19</b>
Industrial Miners' diamonds, carbonados	7102.21.1010	Free.
Industrial Miners' diamonds, other	7102.21.1020	Free.
Industrial diamonds, simply sawn, cleaved, or bruted	7102.21.3000	Free.
Industrial diamonds, not worked	7102.21.4000	Free.
Grit or dust and powder of natural diamonds, 80 mesh or finer	7105.10.0011	Free.
Grit or dust and powder of natural diamonds, over 80 mesh	7105.10.0015	Free.
Grit or dust and powder of synthetic diamonds, coated with metal	7105.10.0020	Free.
Grit or dust and powder of synthetic diamonds, not coated with metal, 80 mesh or finer	7105.10.0030	Free.
Grit or dust and powder of synthetic diamonds, not coated with metal, over 80 mesh	7105.10.0050	Free.

## DIAMOND (INDUSTRIAL)

**Depletion Allowance:** 14% (Domestic and foreign).

**Government Stockpile:** None.

**Events, Trends, and Issues:** In 2019, China was the world's leading producer of synthetic industrial diamond, with annual production exceeding 14.6 billion carats. The United States is likely to continue to be one of the world's leading markets for industrial diamond into the next decade and is expected to remain a significant producer and exporter of synthetic industrial diamond as well. U.S. demand for industrial diamond is likely to be strong in the construction sector as the United States continues building, milling, and repairing the Nation's highway system. Industrial diamond coats the cutting edge of saws used to cut concrete in highway construction and repair work.

In 2018 and 2019, U.S. synthetic-industrial-diamond producers did not manufacture any diamond stone. This resulted in the large decrease in apparent consumption and the large increase in industrial diamond stone import reliance seen in the salient statistics table. Domestic and global demand for synthetic diamond grit and powder is expected to remain greater than that for natural diamond material.

Synthetic diamond production far exceeds natural industrial diamond output. Worldwide production of manufactured industrial diamond totaled at least 14.6 billion carats in 2019; the leading producers included China, France, Ireland, Japan, Russia, South Africa, Sweden, and the United States.

Global rough diamond production decreased by 14% during the first two quarters of 2019 driven by reductions in Botswana and South Africa. Globally, most natural industrial diamond is produced as a byproduct of mining gem-quality diamond.

**World Natural Industrial Diamond Mine Production and Reserves:**<sup>4</sup> Reserves for Australia and South Africa were revised based on Government and company information.

	Mine production		Reserves <sup>5</sup>
	2018	2019 <sup>e</sup>	
United States	—	—	NA
Australia	14	13	<sup>6</sup> 40
Botswana	7	6	90
Congo (Kinshasa)	12	12	150
Russia	19	19	650
South Africa	2	2	54
Zimbabwe	3	3	NA
Other countries	<u>1</u>	<u>1</u>	<u>120</u>
World total (rounded)	58	56	1,100

**World Resources:** Natural diamond deposits have been discovered in more than 35 countries. Natural diamond accounts for about 1% of all industrial diamond used; synthetic diamond accounts for the remainder. At least 15 countries have the technology to produce synthetic diamond.

**Substitutes:** Materials that can compete with industrial diamond in some applications include manufactured abrasives, such as cubic boron nitride, fused aluminum oxide, and silicon carbide. Globally, synthetic diamond, rather than natural diamond, is used for about 99% of industrial applications.

<sup>e</sup>Estimated. NA Not available. — Zero.

<sup>1</sup>See Gemstones for information on gem-quality diamond.

<sup>2</sup>Defined as manufactured diamond production + secondary diamond production + imports – exports.

<sup>3</sup>Defined as imports – exports.

<sup>4</sup>Natural industrial diamond only.

<sup>5</sup>See Appendix C for resource and reserve definitions and information concerning data sources.

<sup>6</sup>For Australia, Joint Ore Reserves Committee-compliant reserves were 39 million carats.