

## DIAMOND (INDUSTRIAL)

(Data in million carats, unless otherwise noted)

**Domestic Production and Use:** In 2001, production reached a record high for the fifth consecutive year and the United States remained the world's largest market for industrial diamond. All domestic output was synthetic grit and powder. Two firms, one in New Jersey and the other in Ohio, accounted for all of the production. Nine other firms produced polycrystalline diamond from diamond powder. Four companies recovered used industrial diamond as one of their principal operations. The following industry sectors were the major consumers of industrial diamond: computer chip production, construction, machinery manufacturing, mining services (drilling), stone cutting/polishing, and transportation systems (infrastructure and vehicles). Stone cutting and highway building and repair consumed most of the industrial stone. More than 90% of the industrial diamond market now uses synthetic industrial diamonds, whose quality can be controlled and whose properties can be customized to fit specific requirements.

<b>Salient Statistics—United States:</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001<sup>e</sup></b>
Bort, grit, and dust and powder; natural and synthetic:					
Production:					
Manufactured diamond	125	140	208	248	408
Secondary	10	10	10	10	10
Imports for consumption	254	221	208	291	299
Exports <sup>1</sup>	126	104	98	98	91
Sales from Government stockpile excesses	0.7	(2)	(2)	—	—
Consumption, apparent	264	267	328	451	626
Price, value of imports, dollars per carat	0.43	0.44	0.44	0.42	0.31
Net import reliance <sup>3</sup> as a percentage of apparent consumption	49	44	36	43	33
Stones, natural:					
Production:					
Mine	(2)	(2)	(2)	(2)	(2)
Secondary	0.5	0.5	(2)	(2)	(2)
Imports for consumption <sup>4</sup>	2.8	4.7	3.1	2.5	1.7
Exports <sup>1</sup>	0.6	0.8	0.7	1.6	1.2
Sales from Government stockpile excesses	1.2	0.8	0.6	1.0	0.5
Consumption, apparent	3.9	5.2	3.4	2.2	1.2
Price, value of imports, dollars per carat	7.69	3.92	4.61	5.31	4.47
Net import reliance <sup>3</sup> as a percentage of apparent consumption	87	90	88	86	83

**Recycling:** Lower prices and greater competition appear to be reducing the number and scale of recycling operations.

**Import Sources (1997-2000):** Bort, grit, and dust and powder; natural and synthetic: Ireland, 47%; China, 17%; Russia, 7%; and other, 29%. Stones, primarily natural: United Kingdom, 19%; Switzerland, 18%; Ireland, 13%; Belgium, 9%; and other, 41%.

<b>Tariff:</b>	<b>Item</b>	<b>Number</b>	<b>Normal Trade Relations</b>
			<b>12/31/01</b>
	Miners' diamond, carbonados	7102.21.1010	Free.
	Other	7102.21.1020	Free.
	Industrial diamond, natural advanced	7102.21.3000	Free.
	Industrial diamond, natural not advanced	7102.21.4000	Free.
	Industrial diamond, other	7102.29.0000	Free.
	Grit or dust and powder	7105.10.0000	Free.

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

## DIAMOND (INDUSTRIAL)

### Government Stockpile:

#### Stockpile Status—9-30-01<sup>5</sup>

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 2001	Disposals FY 2001
Industrial stones	1.01	0.614	1.01	1.000	0.501

**Events, Trends, and Issues:** The United States will continue to be the world's largest market for industrial diamond well into the next decade and will remain a significant producer and exporter of industrial diamond as well. The most dramatic increase in U.S. demand for industrial diamond is likely to occur in the construction sector as the \$200 billion Transportation Equity Act for the 21st Century (Public Law 105-178; enacted June 9, 1998) is further implemented. The act provides funding for building and repairing the Nation's highway system through 2003. Industrial diamond coats the cutting edge of saws used to cut cement in highway construction and repair work.

World consumption of industrial diamond during 2001 was estimated to be approximately 1.15 billion carats. World and U.S. demand for diamond grit and powder will grow during the next 5 years. Increases in demand for synthetic grit and powder are expected to be greater than for natural diamond material. Constant-dollar prices of synthetic diamond products probably will continue to decline as production technology becomes more cost effective; the decline is even more likely if competition from low-cost producers in China and Russia increases.

### World Mine Production, Reserves, and Reserve Base:<sup>6</sup>

	Mine production		Reserves <sup>7</sup>	Reserve base <sup>7</sup>
	2000	2001 <sup>e</sup>		
United States	(2)	(2)	Unknown	Unknown
Australia	14.7	15.0	90	230
Botswana	5.0	5.0	130	200
Brazil	0.6	0.6	5	15
China	0.9	0.9	10	20
Congo (Kinshasa)	14.2	14.2	150	350
Russia	11.6	11.7	40	65
South Africa	6.5	6.5	70	150
Other countries	2.1	2.1	80	200
World total (may be rounded)	55.6	56.0	580	1,200

**World Resources:** Natural diamond resources have been discovered in more than 35 countries. Nevertheless, natural diamond accounts for less than 10% 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. Synthetic diamond rather than natural diamond is used for more than 90% of industrial applications.

<sup>e</sup>Estimated. — Zero.

<sup>1</sup>Reexports no longer are combined with exports because increasing amounts of U.S. reexports obscure apparent consumption rates.

<sup>2</sup>Less than ½ unit.

<sup>3</sup>Defined as imports - exports + adjustments for Government and industry stock changes.

<sup>4</sup>May include synthetic miners' diamond.

<sup>5</sup>See Appendix B for definitions.

<sup>6</sup>Natural industrial diamond only. Note, however, that synthetic diamond production far exceeds natural industrial diamond output. Worldwide production of manufactured industrial diamond totaled at least 570 million carats in 2000; the largest producers included Ireland, Japan, Russia, and the United States.

<sup>7</sup>See Appendix C for definitions.