



NAT highlights

- Regular surface quality thanks to blocky grit shape
- High lot-to-lot consistency thanks to precision grading and tight tolerances
- High reproducibility in the application
- Graduated micro-grain sizes allow precise adjustment to your specification

Natural diamond powder, precision size range

Microdiamant NAT

NAT micron diamond powder derives from natural industrial diamond which is processed to precision micron sizes. Specialized milling and cleaning processes yield sharp-edged, free-cutting particles. NAT diamond is available as diamond powder and as ready-to-use diamond suspension.

Blocky particle shape

NAT diamond has the same monocrystalline structure as synthetic diamond, but without the traces of metal catalysts which are inherent to synthetic diamond. Natural diamond features distinct cleavage planes. This results in blocky and irregular shaped, free-cutting particles. For bonded diamond tools, the fracturing mechanism of the diamond provides a self-sharpening of the tool which increases its service life.

Precision size range

A narrow particle size distribution maximizes the amount of particles of the same size while fine and coarse particles are minimized. Combined with a clearly defined upper size limit, this feature allows for both high process reproducibility and superior results in surface quality.

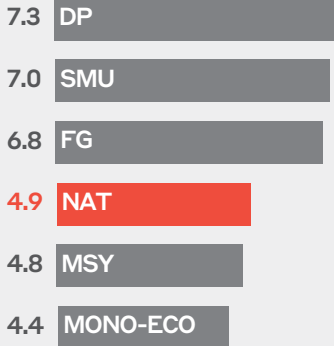
Narrow tolerance

The narrow tolerances in particle size distribution guarantee consistent lot-to-lot performance.

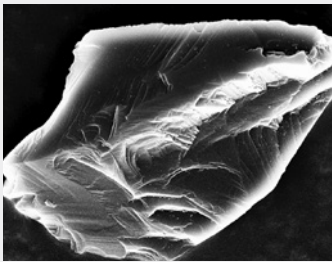
Purity

Proprietary cleaning processes guarantee high standards of product purity. NAT diamond is free of metal catalysts. The low electrical conductivity makes NAT diamond suitable for the production of electroplated diamond tools.

Performance index



Particle structure of natural diamond



Natural diamond grit



Pureon offers a wide range of customized solutions. More information can be found on www.pureon.com/products/overview

Order information

Order code NAT 4 – 6 micron
 Packing 100, 1'000 or 5'000 carats.
 Unless specified, orders will be sent in bulk packing units.
 Units Carat [ct], 1 ct = 0.2 grams
 Micrometer [µm, Micron]
 1 micrometer = 0.001 millimeter

Synthesis

Natural diamond NAT diamond is processed from mined industrial quality natural diamond. Diamond is formed in depths of several hundreds of kilometers underground in conditions of high pressure and high temperature. Volcanic activity eventually forces the diamond to the earth's surface. NAT diamond particles are of a monocrystalline structure featuring cleavage planes oriented parallel to the optical axis.

Application recommendations

NAT diamond is suitable for the production of electroplated diamond tools such as grinding wheels, drills and saws. In loose particle form, NAT diamond is used for polishing of diamond wire dies made of natural diamond and PCD.

Precision size range

Grit size micron	Median (D50) micron	Median tolerance micron	Upper limit (D99) micron
NAT 0 – 0.25	0.125	0.105 – 0.145	0.33
NAT 0 – 0.5	0.21	0.18 – 0.24	0.53
NAT 0.25 – 0.5	0.35	0.31 – 0.39	0.70
NAT 0.25 – 0.75	0.50	0.45 – 0.55	0.90
NAT 0.5 – 1	0.71	0.65 – 0.77	1.30
NAT 0.75 – 1.25	1.00	0.95 – 1.05	1.70
NAT 1 – 1.5	1.19	1.13 – 1.25	2.00
NAT 1 – 2	1.42	1.35 – 1.49	2.30
NAT 1.25 – 2.25	1.69	1.61 – 1.77	2.60
NAT 1.5 – 2.5	2.00	1.90 – 2.10	3.00
NAT 1.5 – 3	2.39	2.27 – 2.51	3.50
NAT 2.25 – 3.5	2.84	2.70 – 2.98	4.10
NAT 2.5 – 4	3.37	3.20 – 3.54	4.90
NAT 3 – 5	4.02	3.82 – 4.22	5.80
NAT 4 – 6	4.87	4.63 – 5.11	6.80
NAT 4.5 – 7	5.7	5.42 – 5.98	7.90
NAT 5.5 – 8	6.8	6.46 – 7.14	9.20
NAT 6 – 10	8.1	7.70 – 8.50	10.9
NAT 8 – 12	9.6	9.12 – 10.08	12.9
NAT 10 – 16	12.5	11.9 – 13.1	17.9
NAT 10 – 20	15.0	14.2 – 15.8	21.5
NAT 15 – 25	20.0	19.0 – 21.0	26.5
NAT 20 – 30	25.0	23.7 – 26.3	32.5
NAT 20 – 40	30.0	28.5 – 31.5	41.5
NAT 30 – 40	35.0	33.2 – 36.8	46.0
NAT 35 – 45	40.0	38.0 – 42.0	51.0
NAT 40 – 60	47.0	44.6 – 49.4	62.0

Other diamond types / sizes available.

Contact

[Sales@pureon.com](mailto:sales@pureon.com)
sales@pureon.com
www.pureon.com/sales-contacts

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