



Highlights

- High toughness of polycrystalline diamond
- Micro-structured rough particle surface
- Self-sharpening

Polycrystalline synthetic diamond powder, standard size range

Microdiamant FG

FG micron diamond powder is preferred in applications where high performance and reproducibility are required. FG micron diamond powder is available as diamond powder and as ready-to-use diamond suspension.

Product specifications

High particle strength

The high toughness of polycrystalline diamond tolerates three times higher operating pressures than monocrystalline diamond. This allows for significantly higher material removal rates compared to other diamond types.

Rough particle surface

The micro-structured, rough particle surface provides numerous contact points between diamond particles and the workpiece. This feature ensures high material removal rates even in processes with low specific pressure, such as polishing processes on soft cloths or pads.

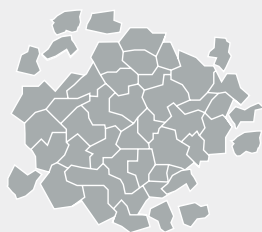
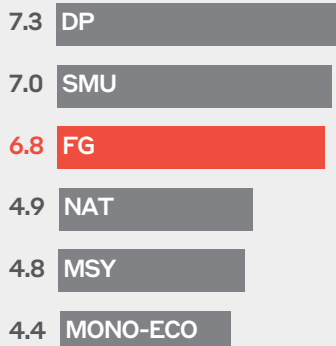
Self-sharpening

During the lapping process, the applied pressure causes single crystallite grains to break away from the particle. Fracturing exposes new, sharp cutting edges. This self-sharpening of the particle allows for continuously high abrasion rates.

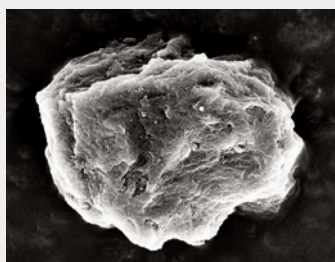
Standard size range

The standard size range makes this product suitable for applications that focus primarily on cost. The controlled upper-limit ensures a uniform, scratch-free surface quality.

Performance index



Polycrystalline structure enables self-sharpening



Polycrystalline diamond grain



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

Order example

Order code FG 1.5-3 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

The ultra-short process duration of the explosion synthesis creates diamond particles with a polycrystalline structure, meaning that each diamond grain consists of innumerable primary crystals of around twenty nanometers in size. The rough particle surface and the high compressive strength result from the characteristic polycrystalline particle structure without cleavage planes. Specific grinding and cleaning processes guarantee a regular, blocky grain shape and high product purity.

Applications

FG micron diamond powder is ideal for lapping applications requiring a high stock removal and a controlled surface finish. Typical applications include lapping and polishing of sapphire, synthetic gemstones, ceramics, tungsten carbide, soft and hard metals.

Precision size range

Grit size micron	Median (D50) micron	Median tolerance micron	Upper limit (D99) micron
FG 0.25 (0 – 0.5)	0.30	0.25 – 0.35	0.69
FG 0.5 (0 – 1)	0.55	0.46 – 0.64	1.10
FG 1 (0 – 2)	1.10	0.99 – 1.21	2.20
FG 1.5 (1 – 2.5)	1.60	1.44 – 1.76	2.90
FG 2 (1 – 3)	2.00	1.82 – 2.18	3.50
FG 3 (2 – 4)	3.10	2.82 – 3.38	5.00
FG 4 (2 – 6)	4.20	3.82 – 4.58	6.70
FG 5 (3 – 7)	5.30	4.82 – 5.78	8.00
FG 6 (4 – 8)	6.30	5.73 – 6.87	9.50
FG 9 (6 – 12)	10.00	9.10 – 10.9	14.50
FG 12 (8 – 16)	14.00	12.74 – 15.26	20.30
FG 15 (12 – 22)	17.50	15.93 – 19.08	25.40
FG 30 (20 – 40)	32.00	29.12 – 34.88	46.40

Other diamond types / sizes available.

Contact

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