3M Science. Applied to Life.™

3M Advanced Materials Division

3M™ Boron Carbide Grains and Powders

Introduction

3M has been a manufacturer of boron carbide since 1940 and today is one of the world's largest producers of boron carbide products. The manufacturing process is optimized to consistently provide high purity and high boron content in 3M™ Boron Carbide Grains and Powders. They have almost the exact theoretical ratio of boron to carbon of 4:3. 3M boron carbide is an extremely hard material with outstanding heat resistance and high chemical resistance.

3M boron carbide can be supplied either as grain mixtures or in narrow grain size ranges according to FEPA standards. Grain sizes range from 0.8 µm to over 20 mm.

Packaging

3M boron carbide is available in 50 kg packages (barrels of laminated paper).

Storage

3M boron carbide should be stored properly and in a dry place.

Applications

3M boron carbide grains and powders are suitable for various applications, including:

- Boron source
- Sintering technology
- Flux-cored wires for build-up welding
- Lapping
- Metal-matrix composites

Typical Chemistry

(Not for specification purposes)

Product Data	
B	Minimum 76.5%
C	Minimum 19.5%
B_2O_3	Maximum 0.5%
Fe	Maximum 0.1%
O	Maximum 0.8%
N	Maximum 0.8%
Si	Maximum 0.2%

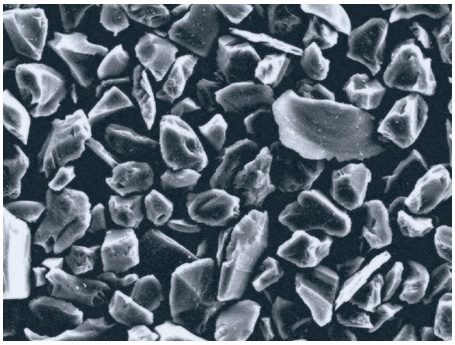
Non-Standard Grain Sizes

(Not for specification purposes)

Grain Designation	Mean Diameter
3000 F	Approximately 0.8 µm

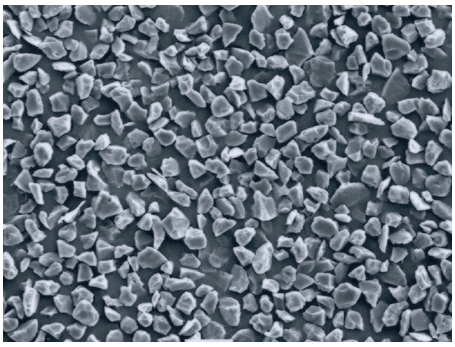
Additional grain sizes and special grades are available on request.

3M™ Boron Carbide FEPA 400



20.0 µm

3M™ Boron Carbide FEPA 800



20.0 µm

FEPA Standard Grain Sizes (Not for specification purposes)

Macrogrit

Grain Designation	Mean Diameter
F10	2360–1700 µm
F20	1180–850 µm
F40	500–355 µm
F60	300–212 µm
F80	212–160 µm
F100	150–106 µm
F150	106–63 µm
F180	90–53 µm
F220	75–45 µm

Microgrit

Grain Designation	Mean Diameter
F240	70–28 µm
F280	59–22 µm
F320	49–16.5 µm
F360	40–12 µm
F400	32–8 µm
F500	25–5 µm
F600	19–3 µm
F800	14–2 µm
F1000	10–1 µm
F1200	7–1 µm

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The management system has been certified according to DIN EN ISO 9001, DIN EN ISO 50001, DIN EN ISO 14001.

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