

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 <sub>2</sub> O <sub>3</sub>	Maximum 0.5%
Fe	Maximum 0.1%
O	Maximum 0.8%
N	Maximum 0.8%
Si	Maximum 0.2%



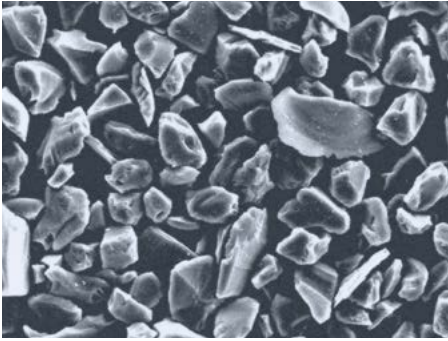
## Non-Standard Grain Sizes

(Not for specification purposes)

Grain Designation	Mean Diameter
1500 F	Approximately 5µm and finer
3000 F	Approximately 0.8µm

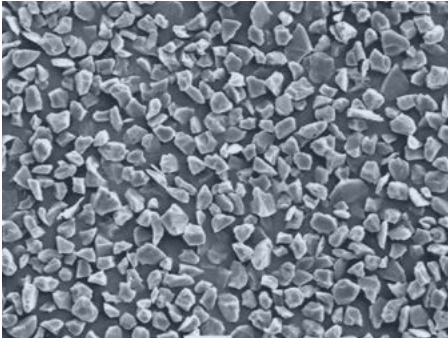
**Additional grain sizes and special grades are available on request.**

## 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		Microgrit	
Grain Designation	Mean Diameter	Grain Designation	Mean Diameter
F10	2360–1700 µm	F240	70–28 µm
F20	1180–850 µm	F280	59–22 µm
F40	500–355 µm	F320	49–16.5 µm
F60	300–212 µm	F360	40–12 µm
F80	212–160 µm	F400	32–8 µm
F100	150–106 µm	F500	25–5 µm
F150	106–63 µm	F600	19–3 µm
F180	90–53 µm	F800	14–2 µm
F220	75–45 µm	F1000	10–1 µm
		F1200	7–1 µm

**Warranty, Limited Remedy, and Disclaimer:** Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. User is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application. User is solely responsible for evaluating third party intellectual property rights and for ensuring that user's use of 3M product does not violate any third party intellectual property rights. Unless a different warranty is specifically stated in the applicable product literature or packaging insert, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OF NON-INFRINGEMENT OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

**Limitation of Liability:** Except where prohibited by law, 3M will not be liable for any loss or damages arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

**Technical Information:** Technical information, recommendations, and other statements contained in this document or provided by 3M personnel are based on tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed. Such information is intended for persons with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

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



### 3M Technical Ceramics

Zweigniederlassung der 3M Deutschland GmbH  
Max-Schaidhauf-Str. 25, 87437 Kempten, Germany

Phone +49 (0)831 5618-0  
Email [info.technical-ceramics@3M.com](mailto:info.technical-ceramics@3M.com)  
Web [www.3M.de/Technical-Ceramics](http://www.3M.de/Technical-Ceramics)

### 3M Advanced Materials Division

3M Center  
St. Paul, MN 55144 USA

Phone 1-800-367-8905  
Web [www.3M.com/advancedceramics](http://www.3M.com/advancedceramics)

3M is a trademark of 3M Company.  
Used under license by 3M subsidiaries  
and affiliates.

Please recycle. Printed in USA © 3M 2017.  
All rights reserved. Issued: 4/17 11230HB  
98-0050-0330-0 Rev. B