3M Science. Applied to Life.™

3M Advanced Materials Division

3M™ Boron Nitride Cooling Filler Platelets

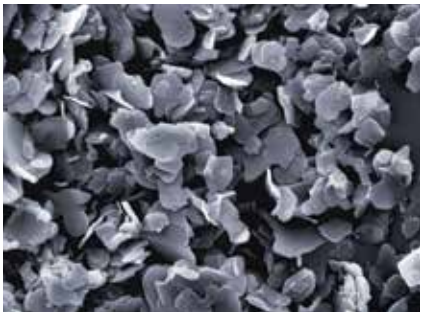
Introduction

3M Technical Ceramics offers a family of boron nitride-based powders designed to improve thermal conductivity in polymers. 3M™ Boron Nitride Cooling Filler Platelets are powders of highly crystalline single platelets for thermal management applications. With excellent heat spreading capabilities, 3M boron nitride cooling filler platelets offer a more economical alternative to mineral- and oxide-based filled compounds.

3M™ Boron Nitride

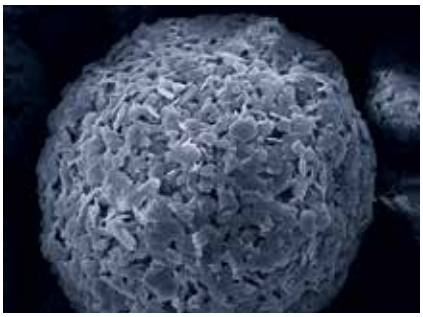
3M™ Boron Nitride is a versatile ceramic material offering thermal conductivity, temperature stability, chemical resistance and electrical insulation. Its layered structure of hexagonal plates also contributes outstanding lubricating properties.

3M boron nitride products are manufactured at fully dedicated, ISO 9001 and 14001 certified facilities. Our manufacturing processes are optimized for quality, efficiency and consistency – helping ensure reliable and repeatable product performance.



3M™ Boron Nitride Cooling Filler Platelets (SEM micrograph)

3M™ Boron Nitride Cooling Filler Platelets 015/400HR



3M™ Boron Nitride Cooling Filler Platelets 15/400

Typical Physical Properties

(Not for specification purposes)

BN	>98.5 % *
B_2O_3	<0.1 %
O	<0.7 % **
C	<0.2 % ***

* Platelets 15/400: BN ≥97.0 %

** Platelets 003: SF, Platelets 003: O ≤1.1 %

*** Platelets 15/400: C ≤2.0

Powder Characteristics

(Not for specification purposes)

Particle Size Distribution			Bulk Density, Scott (g/cm^3)	Bulk Density, DIN (g/cm^3)	Surface Area (m^2/g)	Grade
d(0.1) µm	d(0.5) µm	d(0.9) µm				
1–2	2 – 6	8 – 12.5	—	<0.15	<20	Platelets 003SF
1–2	2 – 6	10 – 22.5	<0.15	—	<20	Platelets 003
1.5 – 3	4.5 – 8	10 – 20	<0.2	—	<10	Platelets 006
1.5 – 3	5 – 8	10 – 20	<0.22	—	<15	Platelets 007HS
2 – 3.5	6 – 9.5	12 – 25	<0.22	—	<10	Platelets 0075
2 – 3.5	6 – 12	14 – 32	<0.22	—	<7	Platelets 009
2 – 4.5	8 – 14	20 – 40	<0.25	—	<5	Platelets 012
2 – 8	5 – 28	30 – 140	—	—	<3.5	Platelets O15/400 HR
65 – 120	125 – 190	200 – 300	—	0.3–0.55	<3.5	Platelets 15/400

HR = High Reflection | SF = Super Fine | HS= High Surface
For calculation purpose: Density of bulk hBN 2.25 g/cm^3

Custom Boron Nitride Materials

Our experienced specialists will work with you to develop and optimize custom boron nitride products for your application. The particle size, powder morphology and chemical composition of 3M boron nitride can be tailored to your specific requirements. We are ready to assist you with initial design and development, and our extensive and well-equipped manufacturing facilities allow us to quickly scale-up to full production. For more information, contact us at **1-800-367-8905**.

Product Storage, Handling and Safety

The substance boron nitride contained in the products 3M™ Boron Nitride Cooling Fillers (all grades) has been duly registered in conformance with REACH obligations according to EC directive 1907/2006 (see product Safety Data Sheet for registration number). The products contain less than 0.1 wt % Diboron Trioxide (substance of very high concern – SVHC, technically unavoidable impurity, see SDS). The products do not contain any other SVHC substance of the actual SVHC candidate list.

3M Technical Ceramics

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