

COMBAT®

Boron Nitride Coatings

PRODUCT DATA SHEET

Aqueous Coatings for High Temperature Release

Combat® Boron Nitride coatings are entirely inorganic, composed of Boron Nitride powder and a high-temperature bond phase. Supplied in a liquid form suitable for brushing, they can be diluted with water to spraying and dipping consistencies and applied to a variety of porous and non-porous materials including graphite, metals and ceramics.

Unaffected or non-wet by most molten metals, slags and drosses, Combat Boron Nitride Coatings can be used up to 1372°C (2500°F) in a reducing atmosphere and up to 850°C (1562°F) in an oxidizing atmosphere, and retain many of its properties such as high temperature lubricity and corrosion resistance.

Green Tinted Coatings

Combat Boron Nitride Coatings, also available in green tint for improved visibility during application, are pH neutral, Cobalt and Chromium free. Green tinted coatings remain colorfast at aluminum melt temperatures and can be easily applied as a first coat to white cast refractory that is visible, making it easy to detect touch-up surfaces and reapplication time.

Various grades are differentiated by the type of inorganic binder used, which allows for a range of physical properties such as hardness, adherence, useful temperature range, and ease of use for a variety of applications.

COMBAT SF / GREEN SFG - A general-purpose thick concentrate coating comprised of 23% BN usually requires dilution with water to the desired consistency. Combat Sf can also be used as is depending upon the application.

COMBAT 10SF / GREEN 10SFG - 10% BN content provides thinner consistency coating, ready-to-use formulation with no additional dilution required.

COMBAT A - A high-viscosity paste with a unique aluminum phosphate binder has higher solids content than other coatings and must be diluted. Combat A offers a very strong bond with many different refractories.

COMBAT V - A thick composition that dries to a harder surface used in applications where a strong binder is needed such as coating moving parts in molten metal. Excellent for coating graphite.



Features/Benefits

- Ready to use, water based, completely inorganic coatings for easy application
- Excellent parting plane and lubricity provide outstanding release properties even at high temperatures
- Non-wet by most molten metals, salts, fluxes enables extreme resistant to molten metal corrosion and light metal drosses
- Increases corrosion resistance and lifetime of graphite and non-oxide refractory components and tools
- Green tinted coating is visible on white refractory for easy detection of reapplication

Key Applications

- Hot pressing, forging, extrusion
- Coating of launders, troughs, spoons, sieves, cups
- Super-plastic and quick-plastic forging

Target Markets

- Light metal processing
- Secondary aluminum manufacturing
- Glass manufacturing

BORON NITRIDE


SAINT-GOBAIN

COMBAT®

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COMBAT® BORON NITRIDE COATINGS

General Properties	Combat SF / SFG	Combat 10SF / 10SFG	Combat A	Combat V
% Boron Nitride	23%	10%	39%	31%
Carrier Liquid	Water	Water	Water	Water
Binder Phase	Al ₂ O ₃	Al ₂ O ₃	Aluminum Phosphate	Magnesium Silicate
pH	6.0-8.0	6.0-8.0	1.0-3.0	> 7.5
Viscosity (cps)	15,000-60,000	500-6,000	50,000-200,000	3,000-12,000
Specific Gravity (g/cc)	1.21	1	1	1
Color	White / Green	White / Green	White	White
Coverage, Ft ² /gallon	100-400	100-400	100-400	100-400
Shelf Life at RT, Months	12+	12+	12+	12+
Coating Composition				
Total % solid Phase	31% / 36%	16% / 21%	55%	33%
BN	73% / 71%	63% / 61%	72%	94%
Binder Phase	27% / 24%	37% / 34%	28%	6%
Total % Liquid Phase	69% / 64%	84% / 79%	45%	67%
Pigment	0% / <5%	0% / <5%	-	-
Use-Temperature				
Reducing/ Inert	1370°C	1370°C	1370°C	1370°C
Oxidizing	850°C	850°C	850°C	850°C

TO ORDER

To find Combat Boron Nitride coatings fit for your specific application, please contact us at bnsales@saint-gobain.com with the following information - base material to which the coating will be applied and operating conditions (temperature, atmosphere, contact with other materials, etc.)

AVAILABLE CONTAINER SIZES

Liquid coatings are available in 4-gallon cartons and 24-gallon crates. Once a container is opened, it should be used immediately. Shelf life for unopened containers at room temperature is minimum 12 months.

Follow the guideline below to calculate approximate weight for Combat Boron Nitride coatings:

Gallons - 10 pounds

Crates - 300 pounds

RELATED PRODUCTS

The unique properties of Boron Nitride found in Combat coatings have also found wide commercial use in high-performance industrial applications in Combat Boron Nitride powders and solid shapes. Please consult our website at www.bn.saint-gobain.com for more details.



Saint-Gobain Boron Nitride

168 Creekside Dr.
Amherst NY 14228

T: 1 877 691 2001 (Toll free)

T: 1 716 691 2000

F: 1 716 691 2090

email: BNSales@saint-gobain.com
bn.saint-gobain.com

bn.saint-gobain.com

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