

3M™ Boron Nitride Suspension WP

3M™ Boron Nitride Suspension WP is a waterbased boron nitride coating. The use of refractory binders ensures good adhesion at high temperatures.

Typical application

Applied to metals:

- For tools (ladles, skimmers)
- For thermocouple protection tubes
- For measuring probes

Applied to refractory materials:

- For hot top rings
- For slide and float valves
- For nozzles, stoppers and runners

Advantages

- Excellent release agent, especially in applications with non ferrous melts
- Reduction of erosion by the melt and therefore reduced carryover of ferrous contaminants into the melt
- Excellent adhesion
- Improvement of billet surface quality
- Life improvement for hot top rings as well as slide and float valves
- Extension of maintenance and lubrication intervals
- Free of additives detrimental to health

Specification

Product data	3M™ Boron Nitride Suspension WP
Color	white
Powder constituent (BN)	≤ 12 %
Liquid phase	water
pH value	6
Bonding agent	inorganic binder*
Density	1.03 – 1.06 g /cm ³
Viscosity	mean viscosity
Application temperature	1,400 °C vacuum, 900 °C in air

* must not be used on carbon surfaces and reducing atmosphere

Properties

3M™ Boron Nitride Suspension WP is particularly suitable for the coating of dense metallic, refractory and insulating materials. Due to the use of boron nitride of high chemical purity it is possible to achieve temperature resistant, stable coatings with excellent release and lubricating properties. These properties are retained even when in direct contact with molten metal and slag, especially for non ferrous applications.

The coating can therefore be seen to protect the coated surface by reducing wear and improving sliding properties. Coatings with boron nitride are temperature resistant to around 900 °C in air. The coating shows good thermal conductivity and is electrically insulating.

Health and safety

Due to its chemical composition, this product is not classified as hazardous by the relevant regulations. However, normal safety and industrial hygiene precautions in the use of chemical products should be applied.

For further information please refer to the applicable health and safety data sheet.

Processing

3M™ Boron Nitride Suspension WP can be applied by brushing, rolling, dipping or spraying. Smooth and dense materials, such as metals and glass, are best coated by spraying, which has the additional benefit of achieving the best surface finish. Porous surfaces with higher absorption characteristics, such as refractory materials, are best coated by brushing, roller or spraying. The parts to be coated should be dry and free from dust, oil and grease as well as any residues of paints and lacquers. To prevent the formation of cracks, it is recommended that a thin coating giving full coverage be applied. The drying time is temperature dependant and can be considerably shortened by heating of the components to be coated either before or after coating.

Should more than one coat be required (by brush or roller application), it is recommended that the component be preheated to ensure correct adhesion, especially of the base coat. It is essential that the coating has fully dried prior to use. It is not necessary to burn the coating. Tools and equipment can be cleaned in water. Should the BN-Suspension remain unused for a period of time, the container should be briefly shaken to counter the effects of settling. These recommendations are intended to act as a guideline only, and are given in good faith to our best knowledge and belief. Process conditions can vary depending on the application.

Storage

Containers should be kept tightly closed and, due to the water base, should be protected from frost.

Availability

3M™ Boron Nitride Suspension WP is available in polyethylene canisters of 10 kg capacity.

Larger quantities can be supplied in agreed batches.

Product is manufactured and sold by 3M Technical Ceramics, Zweigniederlassung der 3M Deutschland GmbH.

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