

Boro-Block® Borosilicate Glass Block

PRODUCT DESCRIPTION

Blome Boro-Block® is a closed-cell, borosilicate foamed glass block that is based on a unique ceramic composition that exhibits outstanding chemical resistance, thermal stability and excellent insulating properties. BoroBlock® Block is one of the key components of the Blome BoroBlock® Lining System. It has excellent resistance to all acids, including limited exposure to dilute HF and dilute acid fluoride salts, many solvents and weak alkalis (pH < 12). Boro-Block® is completely closed cell and is impermeable to both liquids and gases and can resist temperatures up to 960°F (516°C). Boro-Block® provides a lightweight lining system that maintains its excellent thermal properties, such as low thermal conductivity and coefficient of thermal expansion, even in fully saturated, wet gas or liquid environments. The material's unique, hybrid formulation exhibits excellent resistance to thermal shock and high temperatures.

TYPICAL USES

Blome Boro-Block® is ideally suited for protecting the interiors of ductwork, chimneys, stacks and FGD absorber inlets/outlets servicing coal fired power plants and other facilities. It is typically applied to steel, concrete, brick and FRP substrates. The system's closed cell, glass block and elastomeric membrane provide corrosion protection *and* outstanding thermal insulation, resulting in energy conservation, even in wet, acid flue gas environments. Boro-Block®'s thermal stability makes it well suited for use in bypass/hot gas service conditions.

Boro-Block® Linings may be used as a stand-alone lining or in combination with refractories, acid brick, or acid resistant gunites and castables. In these applications, a layer of Boro-Block® behind the brick or monolithic lining can provide the necessary thermal insulation to replace several additional layers of brick or inches of monolithic linings. These dual layered linings provide a unique combination of corrosion protection and heat conservation at a minimum thickness and weight.

HANDLING CHARACTERISTICS

The block is installed in a manner similar to chemically-resistant masonry, utilizing Boro-Block® Membrane to bond the block to the substrate, to seal and form side joints between the faces of adjacent block.

SHELF LIFE

Shelf life for Boro-Block® Membrane and Primer is 12 months (minimum). The ancillary products must be kept in the original unopened containers and stored at room temperature (50-80°F). Environmentally controlled storage is suggested to ensure consistent application characteristics.

PHYSICAL PROPERTIES – Boro-Block®

Property	Boro-Block®	
	<u>U.S.</u>	<u>Metric</u>
Density	12.0-14.0 lbs/cu ft. avg.	0.190 g/cm ³
Specific Heat	0.2 BTU/lb/°F	0.2 kcal/kg/°C
Thermal Conductivity @ 100°F (38°C)	0.50 BTU in/hr /°F/ft ²	0.075 W/m ² K
Compressive Strength	200 psi	1.38 MPa, min.
Flexural Strength	100 psi	0.69 MPa
Thermal Expansion	3.1 x 10 ⁻⁶ /°F	5.5 x 10 ⁻⁶ /°C
Temperature Resistance (Block Only)	960° F	516 °C
Water Absorption Rate	<0.001 g/ft ² /hr	<0.010 g/m ² /hr
Water Absorption	1.25%/vol., 0.19%/wt. (surface wetting only)	
Water Vapor Permeability	0.0	
Composition	Cellular, borosilicate glass	
% closed cells (Cell Structure)	100% (Closed-celled)	

PHYSICAL PROPERTIES – Installed with Membrane

Property	Boro-Block® Lining System	
	<u>U.S.</u>	<u>Metric</u>
Adhesion to Steel	145 psi	1.0 MPa
Temperature Resistance (at bed joint-block interface)	230-240 ° F	110-116 °C
Lining Weight	2.54, 3.11 lb/ft ² (1.5, 2.0“)	12.4, 15.1 kg/m ² (38, 50 mm)
Water Absorption Rate	<0.001 g/ft ² /hr	<0.010 g/m ² /hr

PACKAGING, ESTIMATING AND STORAGE

Block/Carton—1.5” (38 mm)/2” (50mm)	60/44	
Dimensions	6” x 9” x 1.5”, 2”	152x229x38, 50mm
Coverage	2.67 block/sq ft	28.7 block/m ²
Coverage	22.5 sq ft/carton	2.09 m ² /carton
Coverage (BoroBlock® Membrane)	90 x 1.5” (38 mm), 82 x 2” (50 mm) Block/ 4-gallon unit*	

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*Does NOT include material loss, which can reduce membrane coverage to 60-1.5" and 54-2.0" block/unit.

BID SPECIFICATIONS

For coverage rates, system compatibility and specification information, consult Blome International technical service, O'Fallon, MO at 800-886-3455.

JOBSITE ENVIRONMENTAL CONDITIONS

Weather conditions, especially dew point, should be constantly monitored. Final blast cleaning and application of membrane system must only be performed when the temperature of steel substrates will not fall within 5°F of the dew point. Dehumidification and/or temperature control may be necessary to meet this requirement. Use a surface thermometer to frequently monitor the temperature of steel substrates during membrane installation.

BoroBlock® System is best applied while ambient temperatures are between 60°F and 90°F. BoroBlock® Membrane components and substrate temperatures must also be maintained in this range and at least 5° above the dew point. For best results, store system components at 75°F minimum, for 24 – 36 hours prior to installation. Avoid installing BoroBlock® Membrane in direct sunlight. Installations of BoroBlock® Membrane should be protected from water and weather during installation and curing.

SURFACE PREPARATION

Concrete substrates to which BoroBlock® system will be applied must have a minimum 28-day cure or have a minimum compressive strength of 3,000 psi. Minimum tensile strength of concrete must be 300 psi when tested using a Schmidt Hammer. Concrete must be dry in accordance with ASTM D 4263 Plastic Sheet Test Method. The surface must be free of all laitance, oil and curing compounds.

Steel substrates should be prepared by abrasive blasting to achieve white metal clean SSPC- SP 5. Blasted steel substrates must not be allowed to flash rust prior to installing membrane. Blasted steel surfaces must be primed with Blome Epoxy Primer 75 or Blome BoroBlock® Primer.

Regardless of the surface, the area to be coated must be clean, dry and free of all contaminants, both visible and non-visible. The surface must be free of chlorides, nitrates and sulfates and documented as such.

Surfaces must be primed with Blome Primer 75 prior to application of Membrane and Block.

SAFETY PRECAUTIONS

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Boro-Block®, Boro-Block® Membrane Resin, Activator, mixes of them, and Boro-Block® Primer present various health hazards if handled improperly. Boro-Block® Membrane Resin is combustible, will cause eye injury and irritate skin. Boro-Block® Membrane Activator is an isocyanate material and is a skin and eye sensitizer. Boro-Block® dust will cause eye and respiratory tract irritation. Wear respirator suitable for organic vapors, safety glasses with side shields, gloves and long sleeve shirts to prevent all contact with skin and eyes. After working with Boro-Block® Membrane, wash thoroughly before eating, drinking, smoking or other activities.

MIXING AND APPLICATION

Blome Boro-Block® Membrane is best mixed with a drill motor driven paddle blade or “Jiffy” PS-1 mixer. All mixing and application equipment must be clean, dry and free of any contaminants including Portland cement, other mortars or resins.

Mix Resin (Part A) for 1-2 minutes before adding Activator (Part B). Continue mixing and slowly add Activator (Part B) to Resin (Part A) and blend thoroughly for an additional 1-2 minutes. Transfer this mixture to a second pail, scraping the sides of the first pail into the second pail and remixing the unit in the second pail for another 1-2 minutes. This will minimize the likelihood of any unmixed components being installed during application. Mix only full kits - DO NOT split kits. Boro-Block® Membrane is applied with a trowel over prepared and primed substrate to a nominal thickness of 1/8”. Consult Blome International for specific instructions on installation and use of this membrane with Boro-Block®.

CLEANUP

All tools, mixing equipment, gloves and application equipment should be cleaned immediately using a citrus or biodegradable cleanser, with hot water, while material is still wet. If material begins to cure, solvent-based cleaners will be required for removal.

WARRANTY

We warrant that our goods will conform to the description contained in the order and that we have good title to all goods sold. Our material data sheets and other literature are to be considered accurate and reliable, but are used as guides only. WE GIVE NO WARRANTY OR GUARANTEE, WHETHER OF MERCHANT ABILITY OR FITNESS OF PURPOSE OR OTHERWISE, AND WE ASSUME NO LIABILITY IN CONNECTION THEREWITH. We are happy to give suggestions for applications; however, the user assumes all risks and liabilities in connection therewith regardless of any suggestion, we may give. We assume no liability for consequential or incidental damages. Our liability, in law and equity, shall be expressly limited to the replacement of non-conforming goods at our factory, or at our sole option, to repayment of the purchase price of the non-conforming goods.

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