MONOKOTE® MK-1000/HB Product Data Sheet

Product data and application instructions

VIEW SUSTAINABILITY CERTIFICATIONS: MK-1000/HB

Product Description

MONOKOTE® MK-1000 HB is a single component, spray applied, mill-mixed fire resistive plaster. It has approval for use on structural steel members and fluted decking to provide up to four hours of fire protection, and on flat plate cellular decking for up to three hours with SPATTERKOTE® SK-3.

The product has been designed to obtain bond strengths in excess of 1,000 psf making it an attractive material for meeting the 2009 IBC building requirements for bond strength for buildings in excess of 420 feet tall. The capability of meeting the bond strength requirements with a high yielding spray applied fire resistant material makes MONOKOTE® MK- 1000 HB fire resistive plasters a cost effective option.

Features & Benefits

MONOKOTE® cementitious fireproofing offers many significant advantages to the architect, owner, applicator and building occupant. These include:

- Proven in-place performance
- Low in-place cost
- Fast, efficient application
- UL fire tested and factory inspected
- Building Code compliant
- Complete Life Cycle Assessment and Environmental Product Declaration

Delivery & Storage

- All material to be used for fireproofing shall be delivered in original unopened packages bearing the name of the manufacturer, the brand and proper UL labels for fire hazard and fire resistance classifications.
- The material shall be kept dry until ready for use. Packages of material shall be kept off of the ground, under cover and away from sweating walls and other damp surfaces. All bags that have been exposed to water before use shall be discarded. Stock of material is to be rotated and used before its expiration date.

Steel & Concrete Surfaces

- Prior to the application of MONOKOTE® MK-1000 HB fire resistive plasters, an inspection shall be made to determine that all steel surfaces are acceptable to receive fireproofing. The steel shall be free of oil, grease, rolling compounds or lubricants, loose mill scale, excess rust, noncompatible primer, lock down agent or any other substance that will impair proper adhesion. Where necessary, the cleaning of steel surfaces to receive fireproofing shall be the responsibility of the general contractor.
- The project architect shall determine if the painted/primed structural steel to receive fireproofing has been tested in accordance with ASTM E119, to provide the required fire resistance rating.
- Many Fire Resistance Designs allow the use of painted metal floor or roof-deck in place of galvanized decking. Painted decking must be UL listed in the specific fire resistance designs and must carry the UL classification marking. Consult your local GCP sales representative for details.
- Prior to application of MONOKOTE® MK-1000 HB fire resistive plasters, a bonding agent, approved by the fireproofing manufacturer, shall be applied to all concrete substrates to receive MONOKOTE® MK-1000 HB.
- Fireproofing to the underside of roof deck assemblies shall be done only after roofing application is complete and roof traffic has ceased.
- No fireproofing shall be applied prior to completion of concrete work on steel decking.
- Other trades shall not install ducts, piping, equipment, or other suspended items until the fireproofing is completed and inspected.
- Other trades shall install clips, hangers, support sleeves, and other attachments that penetrate the fireproofing, prior to application of the fireproofing.

Performance Characteristics

PHYSICAL PROPERTIES	RECOMMENDED SPECIFICATION	TYPICAL VALUES	TEST METHOD
Dry density, minimum average	18 pcf (288 kg/m^3)	18 pcf (288 kg/m^3)	ASTM E605
Global Warming Potential (GWP)[1]	Max 300 Kg (661 lbs) $kgCO_2e$	210 Kgs (462 lbs) $kgCO_2e$	ASTM Product Category Rule for SPFM
Bond strength	1,000 psf (47.9 KPa)	1,528 psf (73.1 KPa)	ASTM E736
Compression, 10% deformation	50 psi (344 KPa)	53 psi (385.0 KPa)	ASTM E761
Air erosion	Max 0.000 g/ft^2 (0.00 g/m^2)	0.000 g/ft^2 (0.00 g/m^2)	ASTM E859
Corrosion	Does not contribute to corrosion	Does not contribute to corrosion	ASTM E937
Bond impact	No cracking, spalling or delamination	No cracking, spalling or delamination	ASTM E760
Deflection	No cracking, spalling or delamination	No cracking, spalling or delamination	ASTM E759
Resistance to mold growth	No growth after 28 days	No growth after 28 days	ASTM G21
Surface burning characteristics	Flame spread = 0 Smoke developed = 0	Flame spread = 0 Smoke developed = 0	ASTM E84
Combustibility	Less than 5 MJ/m^2 total, 20 kw/m^2 peak heat release	Less than 5 MJ/m^2 total, 20 kw/m^2 peak heat release	ASTM E1354

1 Product Category Rule for SFRM defines measurable unit as 1000 kgs of product.

*Actual laboratory tested values meet or exceed GCP's recommended value. Test reports are available on request from your GCP sales representative.

Mixing

- MONOKOTE® fireproofing shall be mixed by machine in a conventional, plaster-type mixer or a continuous mixer specifically modified for cementitious fireproofing. The mixer shall be kept clean and free of all previously mixed material. The mixer speed in a conventional mixer shall be adjusted to the lowest speed which gives adequate blending of the material and a mixer density of 43–53 pcf (690–850 kg/m^3) of material.
- Using a suitable metering device and a conventional mixer, all water shall be first added to the mixer as the blades turn. Mixing shall continue until the mix is lump-free, with a creamy texture. All material is to be thoroughly wet. Target density of 48 ± 1 pcf (770 ± 16 kg/m^3) is most desirable. Overmixing MONOKOTE® will reduce pumping rate.

Application

- Application of MONOKOTE® Fireproofing can be made in the following sequence:
  - For thicknesses of approximately 1⁄2 in. (13 mm) or less, apply in one pass.
  - For thicknesses of 5⁄8 in. (16 mm) or greater, apply subsequent passes after the first coat has set.
- SPATTERKOTE® SK-3 shall be applied to all cellular steel floor units with flat plate on the bottom and to roof decking where required prior to application of MONOKOTE®. SPATTERKOTE® shall be applied in accordance with manufacturer's application instructions.
- MONOKOTE® Fireproofing material shall not be used if it contains partially set, frozen or caked material.
- The minimum average density shall be that required by the manufacturer, listed in the UL Fire Resistance Directory for each rating indicated, ICBO Evaluation Report, as required by the authority having jurisdiction, or minimum average 18 lbs/ft3 (288 kg/m3), whichever is greater.
- MONOKOTE® shall be mixed with water at the job site.
- MONOKOTE® Accelerator is to be used with MONOKOTE® Fireproofing to enhance set characteristics and product yield. The MONOKOTE® Accelerator is injected into the MONOKOTE® Fireproofing at the spray gun. MONOKOTE® Accelerator shall be mixed and used according to manufacturers recommendations.
- MONOKOTE® is applied directly to the steel, at various rates of application which will be job dependent, using standard plastering type equipment or continuous mixer/pump units. A spray gun, with a properly sized orifice and spray shield and air pressure at the nozzle of approximately 20 psi (38 KPa), will provide the correct hangability, density and appearance. NOTE: If freshly sprayed MONOKOTE® does not adhere properly, it is probably due to a too wet mix, poor thickness control, or an improperly cleaned substrate.

Temperature & Ventilation

- The substrate temperature shall be a minimum of 40°F (4.5°C) for at least 1-hour prior to the application of the MONOKOTE®. Additionally, the air and substrate temperature during application and for a minimum or 24 hours after application shall be no less than 40°F (4.5°C).
- Provisions shall be made for ventilation to properly dry the fireproofing after application. In enclosed areas lacking natural ventilation, air circulation and ventilation must be provided to achieve a minimum total fresh air exchange rate of 4 times per hour until the material is substantially dry.

Field Tests

- The architect will select an independent testing laboratory (for which the owner will pay) to sample and verify the thickness and density of the fireproofing in accordance with the the applicable building code.
- The architect will select an independent testing laboratory (for which the owner will pay) to randomly sample and verify the bond strength of the fireproofing in accordance with the provisions of ASTM E736.
- Results of the above tests will be made available to all parties at the completion of pre-designated areas which shall have been determined at a pre-job conference.

Safety

- MONOKOTE® is slippery when wet. The general contractor and applicator shall be responsible for posting appropriate cautionary “SLIPPERY WHEN WET” signs. Signs should be posted in all areas in contact with wet fireproofing material. Anti-slip surfaces should be used on all working surfaces.
- Safety Data Sheets (SDS) for MONOKOTE® MK-1000 HB fire resistive plasters are available on our web site or by calling 866-333-3SBM.

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