MONOKOTE® Z-106/HY Product Data Sheet

Medium Density, Cementitious Fireproofing

VIEW SUSTAINABILITY CERTIFICATIONS: Z-106/HY

Product Description

MONOKOTE® Z-106/HY® is Portland cement based cementitious fireproofing designed to meet specific commercial and industrial fire protection requirements on structural steel members, floor/ceiling and roof/ceiling assemblies.

MONOKOTE® Z-106/HY® is hard, moisture resistant and suitable for interior areas where resistance to moisture and abrasion is needed. Formulated for use with GCP's patented Injection System, MONOKOTE® Z-106/HY® offers high-yield and improved application characteristics while providing resistance to repeated physical contact and/or high humidity.

Product Applications

MONOKOTE® Z-106/HY® can be used for interior, exposed applications where abrasion, high humidity and damage resistance are desired such as:

- Special use areas in commercial buildings
- Transportation terminals
- Convention centers
- Stairwells
- Parking garages
- Elevator shafts
- Light manufacturing areas and facilities
- Mechanical rooms
- Gymnasiums and pool areas
- Correctional facilities

Benefits

MONOKOTE® Z-106/HY® offers the following advantages to the architect, owner, applicator and building occupant.

- Durability - 100% Portland cement binder provides increased durability in interior environments where high-traffic resistance to physical abuse is required.
- Moisture resistant - Provides excellent resistance to high humidity and condensation.
- Quick set - HY formulation allows use with GCP patented Injection System for high-yield and quick set.
- Applicator friendly - Low pumping pressures allow use of small diameter hoses for increased maneuverability and greater pumping distances.
- Non-toxic - The factory-mixed blend of common Portland cement and inert materials require only the addition of water for mixing and application.
- Transparent - Complete Life Cycle Assessment and Environmental Product Declaration

Delivery and 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 Underwriters Laboratories Inc. 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 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 and Concrete Surfaces

- Prior to the application of MONOKOTE® Z-106/HY® Fireproofing, an inspection shall be made to determine that all steel and concrete surfaces are acceptable to receive fireproofing. The steel to be fireproofed shall be free of oil, grease, excess rolling compounds or lubricants, loose mill scale, excess rust, non-compatible 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.
- Prior to application of MONOKOTE® Z-106/HY®, a bonding agent approved by the fireproofing manufacturer shall be applied to all substrates to receive Z-106/HY®. There are two exceptions to this requirement;
  - no bonding agent is required when MONOKOTE® Z-106/HY® is applied uninjected to bare steel, and
  - no bonding agent is required when bond tests run in accordance to the Coatings Materials section of the Underwriters Laboratories Fire Resistance Directory Volume 1, which indicate that a bonding agent is not required for MONOKOTE® Z-106/HY® in conjunction with the specific primed or painted structural steel.
- 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.
- No fireproofing shall be applied prior to completion of concrete work on steel decking.
- Fireproofing to the underside of roof deck assemblies shall be done only after roofing application is complete and roof traffic has ceased.

Performance Characteristics

PHYSICAL PROPERTIES	RECOMMENDED SPECIFICATION	LABORATORY TESTED* VALUES	TEST METHOD
Dry density, minimum average	22 pcf (350 kg/m^3)	See note below**	ASTM E605
Global Warming Potential (GWP)[1]	Max 600 Kg (1,322 lbs) $kgCO_2e$	493 Kgs (1,086 lbs) $kgCO_2e$	ASTM Product Category Rule for SPFM
Bond strength	2,000 psf (94.5 kN/m^2)	2,691 psf (127 kN/m^2)	ASTM E736
Compression, 10% deformation	100 psi (680 KPa)	118 psi (813 KPa)	ASTM E761
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
Air erosion	Max 0.000 gr/ft^2 (0.00 gr/m^2)	0.000 gr/ft^2 (0.00 gr/m^2)	ASTM E859
High velocity air erosion	No continued erosion after 4 hours	No continued erosion after 4 hours	ASTM E859
Bond impact	No cracking, spalling or delamination	No cracking, spalling or delamination	ASTM E760
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
Corrosion	Does not contribute to corrosion	Does not contribute to corrosion	ASTM E937

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

** ASTM test methods modified where required, for high density, high performance products.

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

Mixing

- MONOKOTE® Z-106/HY® 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 38–43 pcf (610–690 kg/m^3).
- 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 38–43 pcf (610–690 kg/m^3) is most desirable. Overmixing MONOKOTE® Z-106/HY® will reduce pumping rate and will negatively affect in-place density and mechanical properties.

Application

- Application of MONOKOTE® Z-106/HY® Fireproofing can be made in the following sequence:
  - Required fire rating thickness will determine if a multipass operation is required. If the first pass can be applied at a thickness sufficient to obtain the required rating a second pass will not be required.
  - Where the full required thickness can not be applied in a single pass, subsequent passes can be applied only after the first coat has set.
- MONOKOTE® Z-106/HY® Fireproofing material shall not be used if it contains partially set, frozen or caked material.
- MONOKOTE® Z-106/HY® shall have a minimum average dry, in-place density of 22 pcf (350 kg/m^3).
- MONOKOTE® Z-106/HY® is formulated to be mixed with water at the job site.
- MONOKOTE® Accelerator may be used with MONOKOTE® Z-106/HY® to enhance set characteristics and product yield. The MONOKOTE® Accelerator is injected into the MONOKOTE® Z-106/HY® at the nozzle of the spray gun. MONOKOTE® Accelerator shall be mixed and used according to manufacturers recommendations.
- MONOKOTE® Z-106/HY® 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 (0.14 MPa), will provide the correct hangability, density and appearance.

Temperature and 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 72 hours after application shall be no less than 40°F (4.5°C).
- Provisions shall be made for ventilation to properly dry the fire proofing after application. In enclosed areas lacking natural ventilation, air circulation and ventilation must be provided to achieve a minimum total air exchange rate of 4 times per hour until 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. c.
- 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® Z-106/HY® 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.
- SDS (Safety Data Sheet) for MONOKOTE® Z-106/HY® are available on our web site or by calling 866-333-3SBM.

We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate, and is offered for consideration, investigation and verification by the user, but we do not warrant the results to be obtained. Please read all statements, recommendations, and suggestions in conjunction with our conditions of sale, which apply to all goods supplied by us. No statement, recommendation, or suggestion is intended for any use that would infringe any patent, copyright, or other third party right.

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