MONOKOTE® Z-146

High density, cementitious fireproofing

Product Description

MONOKOTE®Z-146 high density cementitious fireproofing has been developed by GCP Applied Technologies to meet specialty, commercial and industrial fireproofing requirements.

Monokote Z-146 is a Portland cement-based, factory-mixed material requiring only the addition of water on the jobsite for application. It is spray applied directly to structural steel (beams and columns), providing up to 4 hours of fire resistance. Its physical characteristics are excellent for areas exposed to environmental or climatic conditions.

Monokote Z-146 may be used in areas where high durability is required such as parking garages. This product is ideal for use in clean room environments where issues such as particle emissions and off gassing are critical to the interior environment within the building.

Features & Benefits

Monokote Z-146 offers the following advantages to architects, engineers, and applicators:

- **Factory pre-mixed** - Ready to use. No job site proportioning required. Simply add water in a standard paddle-type plaster mixer and apply with conventional plastering equipment.
- **Non-toxic** - The factory-mixed blend of common Portland cement and other inert materials requires only the addition of water for mixing and application.
- **Attractive finishes** - Monokote Z-146 may be sprayed or hand troweled after spraying to achieve a lightly textured appearance.
- **Equipment versatility** - Monokote Z-146 can be mixed in standard plaster mixer. After mixing, Monokote Z-146 may be spray-applied with commonly available pumping and spraying equipment.
- **Moisture resistant** - The Portland cement base affords excellent fire protection characteristics in areas subjected to high humidity.
- **Durable** - Hardness and durability help resist accidental physical damage.
- **Weatherable** - Able to withstand freeze/thaw, wind, rain and other climatic conditions.

Uses

Monokote Z-146 may be used in parking garages, exterior areas, mechanical rooms and other areas where a highly durable product is required.

Delivery & Storage

All material to be used for fireproofing should 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 should be kept dry until ready for use. Keep packages of material 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 should be discarded. Stock of material is to be rotated and used before its expiration date.

Steel & Concrete Surfaces

Prior to the application of Monokote Z-146, an inspection should be made to determine that all steel surfaces are acceptable to receive fireproofing. The steel to be fireproofed should be free of oil, grease, excess 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 will be the responsibility of the general contractor.

Prior to application of Monokote Z-146, a bonding agent, approved by the fireproofing manufacturer, should be applied to all concrete substrates to receive Monokote Z-146.

The project architect will determine if the painted/primed steel to receive fireproofing has been tested in accordance with ASTM E119, to provide the required fire resistance rating.

Performance Characteristics

PHYSICAL PROPERTIES	RECOMMENDED* SPECIFICATIONS	TEST METHOD/NOTES**
Dry density	Min. 40 pcf (640 kg/m^3)	ASTM E605
Bond strength	Min. 10,000 psf (478 kN/m^2)	ASTM E736
Compressive strength @ 10% deformation	500 psi (3.45 KPa)	ASTM E761
Hardness	40	ASTM D2240
Yield	—	Theoretical maximum
Color	—	Natural concrete gray
Volatile Organic Content (off gassing) at 122 °F (50 °C)organic compounds C6-C28	Less than 1 PPMW part per million by weight	t Dynamic headspace (Thermal desorbtion gas chromatography—mass spectrometry)
Leachable ammonia	Less than 50 PPB, 50 nanograms/mg	Leachable ion by ion chromatography

* Independent test values exceed recommended specification limits. Report available upon request

** ASTM International test methods modified for Bond Strength and Compressive Strength, where required, for high density, high performance products.

Mixing

- Monokote Z-146 should be mixed by machine in a conventional, plaster-type mixer or a continuous mixer specifically modified for cementitious fireproofing. The mixer should be kept clean and free of all previously mixed material. Adjust the mixer speed in a conventional mixer to the lowest speed which gives adequate blending of the material and a mixer density of 50 to 60 pcf (800 to 961 kg/m3) of material.
- Using a suitable metering device and a conventional mixer, add all water to the mixer as the blades turn. Mixing should continue until the mix is lump-free, with a creamy texture. All material is to be thoroughly wet. Overmixing Monokote Z-146 will reduce pumping rate and will negatively affect in-place density and mechanical properties.

Application

- Monokote Z-146 material should not be used if it contains partially set, frozen or caked material.
- Monokote Z-146 should have a minimum average dry, in-place density of 40 lbs/ft3 (640 kg/m3).
- Monokote Z-146 is formulated to be mixed with water at the job site.
- Monokote Z-146 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 (0.138 MPa), will provide the correct hangability, density and appearance.

Note: If freshly sprayed Monokote Z-146 does not adhere properly, it is most likely due to a too wet mix, poor thickness control, or an improperly cleaned substrate.

Temperature

An air and substrate temperature of 40 °F (4.5 °C) minimum should be maintained for 24 hours prior to application, during application and for a minimum of 72 hours after application of Monokote Z-146.

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 provisions of ASTM E605-77, Standard Test Method for Thickness and Density of Sprayed Fire-Resistive Material Applied to Structural Members or Uniform Building Code Standard No. 43–8, Thickness and Density Determination for Spray Applied Fireproofing.

Note: No recognized field bond strength test procedure exists for sprayed fireproofing materials with bond strengths greater than 1,000 psf (4,882 kg/m^2) such as Monokote Z-146. Where bond strength specifications exceed 1,000 psf (4,882 kg/m^2) it is recommended that independent laboratory test data based upon a modified version of ASTM E736 be submitted to verify specification compliance.

Safety

Monokote Z-146 is slippery when wet. Signs reading “SLIPPERY WHEN WET” 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-146 are available on our web site at www.gcpat.com or call toll free at 866-333-3SBM.

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