MONOKOTE® Z-156PC

Ultra high density, petrochemical grade cementitious fireproofing

Product Description

MONOKOTE® Z-156PC petrochemical grade cementitious fireproofing has been developed by GCP Applied Technologies to meet the harsh conditions found in petrochemical processing and refinery facilities.

MONOKOTE® Z-156PC is a Portland cement-based fireproofing requiring only the addition of water at the job site to form a consistent pumpable and trowelable slurry.

MONOKOTE® Z-156PC is supported by GCP fireproofing representatives worldwide trained in the specification and application of fireproofing products in commercial, industrial and petrochemical environments.

GCP has over 40 years experience in the fireproofing business.

Features & Benefits

- Fire tested - MONOKOTE® Z-156PC has been tested in accordance with Underwriters Laboratories Inc. UL 1709 and UL 263 (ASTM E119), investigated by UL for exterior use, jet fire tested in accordance with HSE standard OTI 95 634, and blast performance tested to a charge corresponding to 500 lbs of TNT at a standoff of 62 ft.
- Durability - MONOKOTE® Z-156PC sets and dries to an extremely hard, damage resistant coating offering resistance against physical contact and impact occurring during routine operations and maintenance at the facility. MONOKOTE® Z-156PC has been tested for bond, compressive strength, hardness and other properties in accordance with API Guidelines (Publication 2218) and ASTM in-place performance standards.
- Application versatility - MONOKOTE® Z-156PC can be mixed in standard plaster mixers. After mixing, MONOKOTE® Z-156PC may be applied by hand or with commonly available pumping and spraying equipment for high-speed efficient application.
- Economical - MONOKOTE® Z-156PC offers cost-effective fire resistance in interior environments such as control rooms and storage facilities as well as in exterior environments such as vessel skirts, pipe racks and other structural supports. Simple mixing and high-speed efficient application reduces both time on site and labor costs.

Conditions not Recommended

- Use on aluminum or other non-ferrous surfaces.
- Use as a refractory cement.

Coatings Requirement

- Steel coatings - MONOKOTE® Z-156PC neither prevents nor promotes the corrosion of steel. However, the inclusion of calcium nitrite as a corrosion inhibitor has been shown to retard the rate of corrosion due to salt and other aggressive environmental conditions.
    - All structural steel surfaces to receive fireproofing should be considered “exposed” to the environment. Where the fireproofing will be exposed to moisture or water, it is recommended that the steel be protected from corrosion with an alkali resistant, immersion grade epoxy compatible with Portland cement.
    - The National Association of Corrosion Engineers (NACE) has specific recommendations for the protection of structural steel coated with cementitious fireproofing exposed to petrochemical environments. Contact your coatings supplier for a list of recommended coatings.
- Surface coatings - Breathable coatings, such as latex paints, may be applied over MONOKOTE® Z-156PC to achieve various desired aesthetic finishes. However, coatings tend to trap moisture and may require significant maintenance.

Inspection

Prior to the application of MONOKOTE® Z-156PC, an inspection shall be made to determine that all substrates are acceptable to receive fireproofing. Substrates must be free of any substances that would impair the adhesion of the fireproofing. All substrates shall be compatible with Portland cement-based fireproofing.

It is recommended that all substrates covered by fireproofing be routinely inspected as part of an ongoing facilities maintenance program. Where materials have been removed for inspection, GCP should be consulted for proper patching procedures.

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 the ground, under cover and away from sweating walls and other damp surfaces. All material that has been exposed to water before use shall be discarded. Stock of material is to be rotated and used before its expiration date. The expiration date is 12 months after the date of manufacture, which is printed on each bag.

Mixing

MONOKOTE® Z-156PC shall be mixed by machine in a conventional paddle type or continuous mixer designed for cementitious fireproofing. The mixer shall be kept clean and free of all previously mixed material. The mixer speed shall be adjusted to the lowest speed which gives adequate blending of the material and a mixer density of 1040–1120 kg/m^3 (65–70 pcf).

Using a suitable metering device and mixer, approximately 11.5 L (3 gal) per bag shall be first added to the mixer as the blades turn. Add MONOKOTE® Z-156PC and mix until the mix is lump-free with a creamy texture. Overmixing MONOKOTE® Z-156PC will reduce pumping rate and density.

Application

- MONOKOTE® Z-156PC material shall not be used if it contains partially set, frozen or caked material.
- MONOKOTE® Z-156PC shall have a minimum average dry, inplace density of 800 kg/m^3 (50 pcf).
- MONOKOTE® Z-156PC can be sprayed directly to lathed steel substrates in one or more passes. A spray gun with a properly sized orifice with spray shield, and air pressure at the nozzle of approximately 140 kN/m^2 (20 psi) will provide the correct hangability, density and appearance.
- MONOKOTE® Z-156PC may also be first sprayed into a suitable container and then trowel applied or applied directly from the mixer. For trowel application from the mixer avoid overmixing and maintain a wet density minimum of 1090 kg/m^3 (68 pcf).

Temperature

An air and substrate temperature of 4.4 °C (40 °F) minimum shall be maintained for 24 hours prior to application, during application and for a minimum of 72 hours after application of MONOKOTE® Z-156PC. To obtain optimal strength, MONOKOTE® Z-156PC should be moist cured for a minimum of 72 hours and then be allowed to dry naturally.

Safety

MONOKOTE® Z-156PC 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 Sheets) for MONOKOTE® Z-156PC are available on our web site at www.gcpat.com or call toll free at 866-333-3SBM.

Packaging

Bag weight is 22.2 kg.

Performance Characteristics

PHYSICAL PROPERTIES	RECOMMENDED SPECIFICATIONS	TEST METHOD/NOTES**	LABORATORY TESTED VALUE*
Dry density	800 kg/m^3 (Min. 50 pcf)	ASTM E605	See note below***
Bond strength	478 kN/m^2 (Min. 10,000 psf)	ASTM E736	> 1265 kN/m^2 (> 25,536 psf)
Compressive strength at 10% deformation	5.86 MPa (850 psi)	ASTM E761	7.3 MPa (1,059 psi)
Hardness	40	ASTM D2240	91
Yield	-	Theoretical maximum	1.24 m^2 (13.3 board feet) at 25 mm per bag
Color	-	Natural Concrete Gray	-
Volatile Organic Content (off gassing) at 50 °C organic compounds C6-C28	Less than 1 PPMW (part per million by weight)	Dynamic headspace (Thermal Desorption Gas Chromatography – mass spectrometry)	Less than 1 PPMW (below detectable limits)
Leachable ammonia	Less than 50 PPB – 50 ng/mg	Leachable ion by ion chromatography	Less than 50 PPB (below detectable limits)

* Independent laboratory tested value. Report available upon request.

** ASTM International test methods modified for bond strength and compressive strength, where required, for high density, high performance products.

*** All in-place performance tests should be conducted at or below the minimum recommended specification density. Test reports here were conducted at 635 kg/m^3 (39.6 pcf).

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gcpat.com.au/solutions/products/monokote-fireproofing/monokote-z-156pc