MONOKOTE® Z-156PC Product Data Sheet

Ultra high density petrochemical grade cementitious fireproofing

Product Information

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 a hard, damage resistant coating offering resistance against physical contact and impact occurring during routine operations and maintenance at the facility. Z-146PC has been tested for bond, compressive strength, hard-ness 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, Z-156PC may be spray-applied with commonly available pumping and spraying equipment for high-speed efficient application. For hand application it is recommended that Z-156PC be sprayed into a suitable container and troweled into place as required.
- 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.
- Transparent - Complete Life Cycle Assessment and Environmental Product Declaration

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.

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.

Performance Characteristics

PHYSICAL PROPERTIES	RECOMMENDED SPECIFICATION	LABORATORY TESTED* VALUES	TEST METHOD **
Dry density, minimum average	Min. 50 pcf (800 kg/m^3)	See note below***	ASTM E605
Global Warming Potential (GWP)[1]	Max 750 Kg (1,653 lbs) $kgCO_2e$	610 Kgs (1,369 lbs) $kgCO_2e$	ASTM Product Category Rule for SPFM
Bond strength	Min. 10,000 psf (478 kN/m^2)	20,680 psf (990 kPa)	ASTM E736
Compression, 10% deformation	850 psi (5.86 MPa)	874 psi (6.03 MPa)	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
High velocity air erosion	No continued erosion after 4 hours	No continued erosion after 4 hours	ASTM E859
Hardness	40	91	ASTM D2240
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

* 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.

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

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 fire-proofing 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.

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 65–70 pcf (1040–1120 kg/m^3).
- Using a suitable metering device and mixer, approximately 3 gal (11 L) 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, in-place density of 50 pcf (800 kg/m^3).
- 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 20 psi (140 kN/m^2) will provide the correct hangability, density and appearance.
- MONOKOTE® Z-156PC may also be first sprayed into a suitable container and then trowel applied.
- Reinforcement - Most fire tests conducted have been carried out without lath or mesh reinforcement. For maximum long-term service durability in exterior conditions, the use of lath or mesh is recommended.

Temperature

The substrate temperature shall be a minimum of 40°F (4.5°C) f 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 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.
- Safety Data Sheet for MONOKOTE® Z-156PC is available on our web site or call toll free at 866-333-3SBM.

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