BUILDING TRUST

PRODUCT DATA SHEET

Sikacrete-213 FMY

WET SPRAYED FIRE PROTECTION MORTAR

DESCRIPTION

Cement-based pre-bagged, dry mix fire protection mortar for wet sprayed application especially in tunnel construction. Sikacrete-213 FMY has approval for use up to 4 hours fire protection.

USES

Sikacrete-213 FMY is used for concrete, reinforced concrete, carbon fiber and steel structures exposed to fire hazards. It contains phyllosilicate aggregates, which are highly effective in resisting the heat of hydrocarbon fires. The thickness of the fire protection layer to be applied depends on the specified fire resistance. The outstanding properties of Sikacrete-213 FMY allow greatly reduced thickness of the fire protection layer required.

CHARACTERISTICS / ADVANTAGES

- Pre-bagged dry mortar mix for application by the wet spray process
- Minimal layer thickness to meet specifications
- Easy to apply
- It does not contribute to the formation of smoke or toxic fumes in fire
- Light weight, low density
- The sprayed mortar surface can be finished by trowel or wood float
- Minimal rebound

APPROVALS / STANDARDS

Complies to BS 476:Part 21:1987

PRODUCT INFORMATION

Packaging	12 kg bag on pallet of 54 bags	
Appearance / Colour	Grey powder with aggregates	
Shelf Life	12 months from date of production	
Storage Conditions	Store in undamaged and unopened, original sealed packaging in cool and dry conditions	
Density	Powder	~0.57 kg/l
	Fresh applied	~1.2 kg/l (sprayed)
	Applied after 28 days	~0.6 kg/l (sprayed)

TECHNICAL INFORMATION

Compressive Strength	~2.0 N/mm²
Thermal Conductivity	~0.23 W/m·K at +10 °C

APPLICATION INFORMATION

Consumption	~6 kg/m² for a layer thickness of 10 mm
Layer Thickness	▪ Minimum 15 mm without reinforcement ▪ Minimum 25 mm with reinforcement
Ambient Air Temperature	+5 °C min. / +35 °C max.
Substrate Temperature	+5 °C min. / +35 °C max.

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY / PRE-TREATMENT

Concrete
Concrete substrate must be clean and sound. Remove any existing coatings, oil, grease, dirt, dust, curing agents, impregnations, wax, laitance, coatings and bond-inhibiting materials from the surface by appropriate means, including high-pressure water jet. The substrate must be thoroughly pre-dampened to a saturated, surface dry (SSD) condition to prevent water loss and incomplete cement hydration when the mortar is placed.
Steel
Steel substrates must be clean, dry and stable. Remove all existing treatments, such as coatings, sealers, wax and other contaminants such as rust, dirt, grease, oils and foreign matter. A steel primer is recommended.
FRP Composites
Composite materials, such as carbon and glass fiber reinforced polymers must be cured, clean, dry and stable. Remove all carbon dust from the surface. If the epoxy resin has blushed, this must be cleaned prior to installing Sikacrete-213 FMY. Prime the FRP composite surface with Sikadur®-300 or Sikadur®-330. Broadcast binding aggregate into the wet prime coat to adhere the Sikacrete-213 FMY fire resistant mortar.

MIXING

Pour 10.9 L of potable water into a suitably sized and clean mixing container. Add 1 bag (12 kg) Sikacrete-213 FMY powder slowly while mechanically mixing, using a heavy duty, low speed drill (300–450 rpm) with a mud mixer or other suitable paddle. Mix to a uniform consistency for a minimum of 3 minutes. Mixing can also be done in a mortar mixer setup for a direct feed into wet shotcreting equipment, maintaining the same mixing requirements as when mixing with a drill. Once mixed, if a wetter consistency is required, increase the water content up to a maximum of 13.5 L.
Note: Do not overwater as excessive water will cause severe bleeding, retardation and will reduce the strength and performance of the mortar. Extending ("bulking") the mortar with additional aggregate or adding any other material into the mix is not permitted as this may impact the fire resistance of the mortar.

APPLICATION

At the time of application, the concrete substrate must be SSD (saturated surface dry) with no surface water visible. FRP Composite and steel surfaces should be dry and clean. Resin surfaces must have an acceptable contact surface to which the mortar will adhere.
Sikacrete-213 FMY is applied by the wet-spray, dense stream or wet-spray, thin stream method (for vertical/overhead surfaces). Position spray nozzle 18–24 inches (450–600 mm) perpendicular to the surface. This will minimize rebound, create a smoother finished surface and will flatten out when applied at the proper pressure. Allow Sikacrete-213 FMY to set sufficiently before finishing or scraping to the desired lines. When application requires an aesthetic or protective coating, contact Sika's Technical Services for guidance.
Application equipment should include wet-spray, screw pump systems such as an Aliva® rotor system, Putzmeister®, Bunker® spray concrete system or similar.
To achieve the optimum physical characteristics, the spray nozzle must be handled by a trained and experience operator.
Where a risk of vibration or mechanical damage to the surface exists, the use of light wire mesh reinforcement is recommended in order to prevent any debonding of the mortar layer.

CURING TREATMENT

To achieve full potential of any cement based material, curing is essential. This can be carried out with the application of a curing compound such as Antisol®-E or with other curing practices such as covering with polythene sheets or damp hessian for 3 days.

CLEANING OF TOOLS

Clean all tools and application equipment with water immediately after use. Hardened or cured material can only be removed mechanically.

LIMITATIONS

The surface of the freshly applied mortar can be finished for up to one hour after application dependent on the temperature and humidity. For optimum resistance to mechanical wear, additional sealing of the surface with Sikagard®-Wallcoat T is recommended.

BASIS OF PRODUCT DATA

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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