BUILDING TRUST

PRODUCT DATA SHEET

Sikacrete®-213 F

Wet sprayed fire protection mortar

PRODUCT DESCRIPTION

Sikacrete®-213 F is a one-part, cementitious, fire protection mortar for wet spray or hand application. Suitable for fire protecting all types of reinforced concrete buildings and civil engineering structures including tunnels. It contains phyllosilicate aggregates, which are highly effective in resisting the heat of hydrocarbon fires. The fire protection performance allows a reduced thickness of fire protection required compared to concrete. The fire protection layer thickness depends on the specified fire resistance.

USES

- Fire protection of concrete and reinforced concrete structures exposed to fire risk.
- Fire protection of concrete member reinforced with FRP (e.g. Sika® CarboDur® and SikaWrap®).
- Factory made lightweight (LW) rendering and plastering mortar intended for interior and exterior use in walls, ceilings, columns and partitions as per EN 998-1.

CHARACTERISTICS / ADVANTAGES

- Pre-bagged dry mortar mix.
- Application by the wet spray process or by hand.
- Minimal layer thickness to comply with fire regulations.
- Does not contribute to the formation of smoke or toxic fumes during a fire.
- Lightweight, low density.
- Easily surface finished by trowel or wooden float.
- >240 minutes fire resistance achievable.
- Minimal rebound.

APPROVALS / STANDARDS

- 3 hours fire testing to EN 1363-1 (RWS curve), VSH, Report No. 20200010.
- 4 hours fire testing, Lachenbrand curve, VSH, Report No. 20090011.
- 4 hours fire resistance testing over SikaWrap® and Sika® CarboDur®, NRC, Reports No. B4247.1 & B4247.2.
- CE Marking and Declaration of Performance to EN 998-1 — Factory made lightweight (LW) rendering and plastering mortar intended for interior and exterior use in walls, ceilings, columns and partitions.

PRODUCT INFORMATION

Chemical Base	Portland cement, additives and phyllosilicate aggregates
Packaging	9 kg bag Refer to current price list for packaging variations
Shelf Life	12 months from date of production if stored properly in undamaged unopened, original sealed packaging
Storage Conditions	The product must be stored in original, unopened and undamaged packaging in dry conditions at temperatures between +5 °C and +30 °C. Always refer to packaging.
Appearance / Colour	Grey powder
Maximum Grain Size	~3 mm

Density	Powder	~0,5 kg/L
	Fresh applied	~1,0 kg/L (sprayed)
	Applied after 28 days	~0,6 kg/L (sprayed)

TECHNICAL INFORMATION

Compressive Strength	~1,5 N/mm²	(EN 1015-12)
Tensile adhesion strength	≥ 0,25 MPa	
Thermal Conductivity	$\lambda_{10,\ dry,mat}$ ≈ 0,14 W/m·K Thermal conductivity of the material at an average temperature of 10 °C in dry state, table A.12 50 % fractile value	(EN 1745)
Water Absorption	W_c0	(EN 1015-18)
Diffusion Resistance to Water Vapour	μ ≤ 6	
Freeze Thaw De-Icing Salt Resistance	To be resistant to frost, freeze-thaw cycles and de-icing salts, the surface of the mortar must be treated with Sikagard® Wallcoat T.	
Reaction to Fire	Euroclass A1	

SYSTEM INFORMATION

System Structure

Bonding Primer

- Sika MonoTop®-1010.

Reinforcement

Structure	Reinforcement Type
Tunnels*	Galvanised or stainless steel. Wire diameter 1 - 2 mm. Mesh size 50 mm.
Other structures	According to the application thickness.**

* A light mesh is always recommended in order to prevent debonding of the mortar layer.
** Contact Sika Technical Services for more information.

Fire Protection Mortar

- Sikacrete®-213 F.

Surface Protection

Structure	Exposure	Surface Protection
Tunnels and other structures	Internal and normal exposure.	No protection required.
Other structures	Exposure to frost, freeze-thaw cycles, de-icing salt. Improved resistance to mechanical wear (with pore sealer).	Sikagard®-675 W GB ElastoColor.

APPLICATION INFORMATION

Consumption	~5 – 6 kg/m²/10 mm thickness This figure is theoretical and does not allow for any additional material due to surface porosity, surface profile, variations in level or wastage, etc.
Layer Thickness	Minimum: 10 mm Maximum: 40 mm (per layer)
Ambient Air Temperature	5 °C min. / 30 °C max.
Mixing Ratio	8 – 10 L of water per 9 kg bag

Substrate Temperature	5 °C min. / 30 °C max.

VALUE BASE

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

ECOLOGY, HEALTH AND SAFETY

Local safety regulations must be observed and it advisable to wear PPI when working with this product with particular attention paid to cutting and handling. Transportation Class: The product is not classified as hazardous good for transport. Disposal: The material is recyclable. Disposal must be according to local regulations. Please contact your local Sika sales organisation for more information.

APPLICATION INSTRUCTIONS

EQUIPMENT

Select the most appropriate equipment required for the project:

Substrate Preparation
- High pressure water blasting system.

Mixing
- Large quantities shall be mixed in a suitable forced action mixer. Small quanities can be mixed using a low speed electric single or double paddle mixer (<500 rpm).

Application
- Wet Spray: All-in-one mixing and spraying machine or separate spraying machine and all associated ancillary equipment to suit application volumes.
- Hand: Clean containers, plasterer's hawk and trowel.

Finishing
- Trowel (PVC or wooden).
- Sponge.

SUBSTRATE QUALITY / PRE-TREATMENT

Concrete:
Important: The substrate must have a roughness depth of >2 mm.
- Apply only to sound, prepared substrates.
- Before application, pre-dampen concrete surfaces to a saturated surface-dry (SSD) condition.

FRP Protection:
- FRP composite materials, such as carbon and glass fibre 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 F.
- Prime the FRP composite surface with Sikadur®-300, Sikadur®-330 (for SikaWrap®) or Sikadur®-30 epoxy (for Sika® CarboDur®).
- Broadcast binding aggregate (kiln dried quartz sand) into the wet prime coat to adhere the Sikacrete®-213 F fire resistant mortar.

MIXING

Important: The consistency must be checked after every mix.
1. Pour the minimum recommended clean water quantity into a suitable clean mixing container / equipment.
2. While stirring slowly, add the powder to the water.
3. Mix thoroughly for at least for 5 minutes, adding additional water if necessary to the maximum specified amount, adjusting to the required consistency to achieve a smooth consistent mix.

APPLICATION

Strictly follow installation procedures as defined in method statements, application manuals and working instructions which must always be adjusted to the actual site conditions.
Important: Avoid application in direct sun and / or strong winds.
Important: Do not add water over the recommended dosage.

Sprayed Application - Wet Spray
Note: Include light wire mesh as required.
1. Place the wet mixed Sikacrete®-213 F into the suitable wet spraying equipment and apply onto the pre-wetted substrate between the minimum and maximum layer thicknesses without the formation of voids.
2. Where layers are to be built up, to prevent sagging or slumping, each layer must be allowed to harden before applying subsequent layers “wet on wet”.

Hand Application
Note: Include light wire mesh as required.
1. Place workable amounts of the wet mixed Sikacrete®-213 F onto a plasterer's hawk and apply onto the pre-wetted substrate with a trowel between the minimum and maximum layer thicknesses without the formation of voids.
2. Where layers are to be built up, to prevent sagging or slumping, each layer must be allowed to harden before applying subsequent layers “wet on wet”.

Surface Finishing
Important: Do not add additional water during the surface finishing as this can cause discolouration and cracking.
- Carry out finishing to the required surface texture using suitable finishing tools up to one hour after application, dependent on the temperature and humidity.

CURING TREATMENT

Important: Curing compounds must not be used when they could adversely affect subsequently applied products and systems.
- Protect fresh mortar immediately from freezing and premature drying using an appropriate curing method (e.g. curing compound, moist geotextile membrane, polythene sheet, thermal blankets, etc.).

CLEANING OF TOOLS

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

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for the exact product data and uses.

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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