

PRODUCT DATA SHEET

Sikacrete[®]-213 F

Wet sprayed fire protection mortar

DESCRIPTION

Sikacrete[®]-213 F is a 1-part, cementitious, fire protection mortar for wet spray 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 (Sika[®] Carbodur[®] & SikaWrap[®])
- Factory made lightweight rendering and plastering mortar (LW) intended for interior and exterior use in walls, ceilings, columns and partitions as per EN 998-1:2016

CHARACTERISTICS / ADVANTAGES

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

APPROVALS / STANDARDS

- 2 hours fire testing, RWS curve, VSH, Report No. 20061063.1a
 - 4 hours fire testing, Lachenbrand curve, VSH, Report No. 20090011
 - 4 hours fire resistance testing over SikaWrap[®] and CarboDur[®], NRC, Reports No. B4247.1 & B4247.2
 - CE Marking and Declaration of Performance to EN 998-1 — Factory made lightweight rendering and plastering mortar (LW) intended for interior and exterior use in walls, ceilings, columns and partitions
- Fire resistance ratings - BXUV - ANSI/UL 263 certified for United States & BXUV7 - CAN/ULC-S101 Certified for Canada, January 2020:
- BXUV.N856 — beam strengthened with CarboDur[®] plates and SikaWrap[®] fabrics
 - BXUV.N857 — beam strengthened with SikaWrap[®] fabrics
 - BXUV.X855 — column strengthened with SikaWrap[®] fabrics

PRODUCT INFORMATION

Chemical Base	Portland cement, additives and phyllosilicate aggregates
Packaging	9 kg bag Refer to current price list for packaging variations

Appearance / Colour	Grey powder	
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.	
Density	Powder	~0,5 kg/L
	Fresh applied	~1,0 kg/L (sprayed)
	Applied after 28 days	~0,6 kg/L (sprayed)
Maximum Grain Size	~3 mm	

TECHNICAL INFORMATION

Compressive Strength	~1,5 N/mm ²	(EN 1015-12)
Tensile Adhesion Strength	≥ 0,25 MPa	
Reaction to Fire	Euroclass A1	
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.	
Diffusion Resistance to Water Vapour	μ ≤ 6	
Water Absorption	W _{c0}	(EN 1015-18)
Thermal Conductivity	λ _{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 1745:2012)

SYSTEM INFORMATION

System Structure

Bonding Primer

- Sika MonoTop®-910 N or -910 ECO

Reinforcement

Structure

Tunnels*

Reinforcement type

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
Tunnels	Exposure to frost, freeze thaw cycles, de-icing salt. Improved resistance to mechanical wear (with pore sealer)	Sikagard® Wallcoat T Sikagard® Wallcoat AT Sikagard®-260 W PU
Other structures	Exposure to frost, freeze thaw cycles, de-icing salt. Improved resistance to mechanical wear (with pore sealer)	Sikagard®-675 W Elast-oColor

APPLICATION INFORMATION

Mixing Ratio	8–10 L of water per 9 kg bag
Consumption	~5–6 kg/m ² /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.
Substrate Temperature	5 °C min. / 30 °C max.

APPLICATION INSTRUCTIONS

EQUIPMENT

Select the most appropriate equipment required for the project:

Substrate preparation

- High pressure water blasting system

Mixing

- Suitable forced action mixer

Application

- Wet Spray - All in one mixing and spraying machine or separate spraying machine and all associated ancillary equipment to suit application volumes

Finishing

- Trowel (PVC or wooden)
- Sponge

- Prime the FRP composite surface with Sikadur®-300, Sikadur®-330 (for SikaWrap®) or Sikadur®-30 epoxy (for Sika® Carbodur®).
- Broadcast binding aggregate 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 mixing container / equipment.
2. While stirring slowly, add the powder to the water
3. Mix thoroughly for at least for 3 minutes adding additional water if necessary to the maximum specified amount and adjust to the required consistency to achieve a smooth consistent mix.

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 condition.

FRP Protection:

- FRP 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 F.

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 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".

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.

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 Material Safety Data Sheet (MSDS) 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. It may be necessary to adapt the above disclaimer to specific local laws and regulations. Any changes to this disclaimer may only be implemented with permission of Sika® Corporate Legal in Baar.

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