

PRODUCT DATA SHEET

Sikacrete[®]-213 F IN

Wet sprayed fire protection mortar

DESCRIPTION

Sikacrete[®]-213 F IN 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[®] and 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

FEATURES

- 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

CERTIFICATES AND TEST REPORTS

- Test certificate, Non-combustible material according to ASTM E136, Spectro Analytical Labs, dated 12 Aug 2022
- Test certificate, Compressive strength (at 10 % deformation) according to ASTM E761-92, Spectro Analytical Labs, dated 01 Aug 2022

PRODUCT INFORMATION

Composition	Portland cement, additives and phyllosilicate aggregates	
Packaging	9 kg bag	
Shelf life	12 months from date of production	
Storage conditions	The product must be stored in original, unopened and undamaged packaging in dry conditions at temperatures between +5 °C and +30 °C.	
Appearance and colour	Grey powder	
Maximum grain size	~3 mm	
Density	Powder	~0.5 kg/L
	Fresh applied	~0.85 kg/L
	Applied after 28 days	~0.75 kg/L

TECHNICAL INFORMATION

Compressive strength	$\geq 3.0 \text{ N/mm}^2$	(ASTM E761)
Tensile adhesion strength	$\geq 0.25 \text{ MPa}$	
Thermal conductivity	$\lambda_{10, \text{dry, mat}} \approx 0.14 \text{ W/m}\cdot\text{K}$ (Thermal conductivity of the material at an average temperature of 10 °C in dry state, table A.12, 50 % fractile value)	(EN 1745:2012)
Water absorption	$W_c 0$	(EN 1015-18)
Diffusion resistance to water vapour	$\mu \leq 6$	
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®-340 WCT.	
Reaction to fire	Euroclass A1	

SYSTEM INFORMATION

System structure

Bonding Primer

- Sika MonoTop®-1010 IN

Reinforcement

Structure

Tunnels*

Other structures

Reinforcement type

Galvanised or stainless steel. Wire diameter 1–2 mm. Mesh size 50 mm

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 IN

Surface Protection

Structure

Tunnels and other structures

Tunnels

Other structures

Exposure

Internal and normal exposure

Exposure to frost, freeze thaw cycles, de-icing salt.
Improved resistance to mechanical wear (with pore sealer)

Exposure to frost, freeze thaw cycles, de-icing salt.
Improved resistance to mechanical wear (with pore sealer)

Surface protection

No protection required

Sikagard®-340 WCT
Sikagard® PU UR

Sikagard®-550 W IN

APPLICATION INFORMATION

Mixing ratio	5–8 L of water per 9 kg bag
Consumption	~5–6 kg/m ² per 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.	

BASIS OF PRODUCT DATA

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

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

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

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 fibre reinforced polymers, must be cured, clean, dry and stable.
- Remove all carbon dust from the surface.
- If the epoxy resin has blushed, clean it properly prior to installing Sikacrete®-213 F IN.
- Prime the FRP composite surface with Sikadur®-300 IN / Sikadur®-330 IN (for SikaWrap®) or Sikadur®-30 LP IN epoxy (for Sika® Carbodur®).
- Broadcast binding aggregate into the wet prime coat to adhere the Sikacrete®-213 F IN 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.

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 IN 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.

1. 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.

1. 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 EQUIPMENT

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 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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Product Data Sheet
Sikacrete®-213 F IN
September 2023, Version 01.01
020302100110000012

Sikacrete-213FIN-en-KR-(09-2023)-1-1.pdf

