

PRODUCT DATA SHEET

Sikacrete[®]-213 F

WET SPRAYED MORTAR FOR FIRE PROTECTION

DESCRIPTION

Cement based pre-bagged, dry mix fire protection mortar for wet sprayed application especially for concrete structures in tunnel construction. Suitable for use in hot and tropical climatic conditions.

USES

Sikacrete[®]-213 F is used for concrete and reinforced concrete 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 F allow greatly reduced thickness of the fire protection layer required. Can be used on Sika[®] FRP structural strengthening systems to upgrade fire resistance.

FEATURES

- Pre-bagged dry mortar mix for wet spray applications
- Minimal layer thickness to meet specifications
- Easy to apply
- 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
- > 240 minutes fire resistance achievable
- Minimal rebound

CERTIFICATES AND TEST REPORTS

VSH (Versuchs Stollen Hagerbach AG), Switzerland, tested to:

- RWS fire curve, test Nr.: 20140035, dated 18.02.2015.
- Lachenbrand fire curve, test Nr.: 20090011, dated 12.01.2009.
- ISO 834 fire curve, test Nr.: 20070026.2, dated 13.12.2007.

PRODUCT INFORMATION

Composition	Cementitious material containing phyllosilicate aggregates
Packaging	12 kg bags
Shelf life	12 months from date of production
Storage conditions	Store in a cool, dry area in original sealed packaging and temperatures between +5°C and +30°C. Protect from direct sunlight, heat and moisture.
Appearance and colour	Grey powder
Maximum grain size	~2.0 mm
Density	Powder: ~0.37 kg/l Fresh mixed: ~1.18 kg/l 28 days after application: ~0.61 kg/l (sprayed)

TECHNICAL INFORMATION

Compressive strength	~2.0 N/mm ² (28 d)		(ASTM C109)
Freeze thaw de-icing salt resistance	In order to guarantee resistance to frost, freeze thaw cycles and de-icing salts, the surface of the mortar must be treated with Sikagard®-Wallcoat T.		
Reaction to fire	Thickness	Fire rating	(RWS fire curve)
	≥ 30 mm	2 h	

SYSTEM INFORMATION

System structure	Bonding Primer	
	-	Surface roughness ≥ 2mm
	Sika MonoTop®-610	Surface roughness < 2mm
	Reinforcement	
	Light wire mesh	Recommended in order to prevent any debonding of the mortar layer
	Example Bekaert Armanet FP, Fischer or equivalent	
	Fire Protection Mortar	
	Sikacrete®-213 F	Wet sprayed fire protection mortar
	Surface Protection	
	-	Normal requirements
Sikagard® Wallcoat range	Exposure to frost, freeze thaw cycles, de-icing salt	
	Improved resistance to mechanical wear	

APPLICATION INFORMATION

Consumption	~6 kg/m ² for a layer thickness of 10 mm		
	<p>This figure is theoretical and does not include for any additional material required due to surface porosity, surface profile, variations in level and wastage etc..</p> <p>Above consumption is calculated based on dry material density after 28 days curing, applied by spray method.</p>		
Layer thickness	<p>Max. 15 mm in one single layer without reinforcement</p> <p>Max. 25 mm in one single layer with reinforcement</p> <p>The fire protection mortar can be applied in several layers, if higher thickness required.</p>		
Ambient air temperature	+5°C min. / +30°C max.		
Mixing ratio	8 - 13 L of water per 12 kg of Sikacrete®-213 F		
Substrate temperature	+5°C min. / +30°C max.		
Waiting time to overcoating	Waiting time between coats at +23°C substrate temperature:		
	Previous coating	Minimum waiting time	Next coating
	Sikacrete®-213 F	12 h	Sikacrete®-213 F

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.

FURTHER INFORMATION

- Method Statement
- Safety Data Sheet

IMPORTANT CONSIDERATIONS

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 range is recommended. Avoid application in direct sunlight and/or strong winds.

Do not add water over recommended dosage during mixing nor during finishing.

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

SUBSTRATE QUALITY / PRE-TREATMENT

Clean, rough, free from oil and grease, no loose or friable material. The concrete surface layer has to be removed. Clean the concrete substrate by high-pressure water jetting.

The substrate must have a roughness depth of > 2 mm, otherwise Sika MonoTop®-610 is recommended as bonding agent. Refer to Sika MonoTop®-610 Product Data Sheet for further information.

Before application, pre-dampen concrete surfaces to a saturated, surface dry condition (SSD).

Before using on top of Sika® FRP, in addition to standard cleaning, all carbon dust from surface should be removed. Use Sikadur®-330 as a primer coat fully broadcasted with suitable Sikadur® Aggregates.

MIXING

Sikacrete®-213 F shall be mixed using a forced action mixer.

Pour the minimum recommended amount of clean water in the mixing container. While stirring slowly, add the powder to the water and mix thoroughly at least for 3 minutes adding additional water if necessary to the maximum specified amount and adjust to the required consistency.

APPLICATION

Sikacrete®-213 F is applied by wet spray dense-flow process.

Thoroughly pre-dampen the prepared concrete substrate. To achieve the optimum physical characteristics, the spray nozzle must be handled by a trained and experienced operator.

Application equipment: Wet spray screw pump systems.

Reinforcement: The use of light wire mesh reinforcement (Example: Bekaert Armanet FP, Fischer or equivalent) is always recommended in order to prevent any debonding of the mortar layer.

CLEANING OF EQUIPMENT

Clean all tools and application equipment with water immediately after use. Hardened / cured 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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All products are supplied under a management system certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and ISO 45001.



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