

## PRODUCT DATA SHEET

# Sika MonoTop<sup>®</sup>-627

ONE COMPONENT, CEMENTITIOUS, HIGH SULPHATE RESISTANT, CLASS R4, CONCRETE REPAIR MORTAR FOR HIGH THICKNESS APPLICATION.



## DESCRIPTION

Sika MonoTop<sup>®</sup>-627 is a sprayable, one component, thixotropic, fiber reinforced, low-shrinkage, high sulphate resistant, cementitious mortar for high thickness and large surface repair.

## USES

- Suitable for restoration work (Principle 3, method 3.1 & 3.3 of EN 1504-9:2008). Repair of spalling and damaged concrete in buildings, bridges, infrastructure and superstructure works.
- Suitable for structural strengthening (Principle 4, Method 4.4 of 1504-9:2008).
- Suitable for preserving or restoring passivity (Principle 7, Method 7.1 & 7.2 of 1504-9:2008). Increasing cover with additional mortar or concrete or replacing contaminated or carbonated concrete.
- Specifically designed for protective repair of concrete cover, strengthening cover and concrete patching works. Sika MonoTop<sup>®</sup>-627 can be directly applied on the substrate without formwork either manually using traditional techniques, or mechanically using spray equipment.
- Repair of concrete surface subjected to mechanical stress (impacts and wear).
- Repair of viaducts and civil engineering constructions
- Repair of water retaining structures

## CHARACTERISTICS / ADVANTAGES

- 1-layer high thickness application (manually applied: 8 cm; by machine: 10 cm).
- High sulphate resistance and impervious to chloride ion
- Elastic modulus, thermal expansion coefficient, water vapour permeability and thermal resistance similar to concrete
- High adhesion on concrete substrate
- Sound and waterproof
- Easy and quick to apply and finish, it doesn't require formworks. Suitable for both manual application and machine application
- Rapid compressive strength development
- Tested for overhead applications

## SUSTAINABILITY

- Conformity with LEED v4 MRc 2 (Option 1): Building Product Disclosure and Optimization – Environmental Product Declarations
- Conformity with LEED v4 MRc 4 (Option 2): Building Product Disclosure and Optimization - Material Ingredients

## APPROVALS / CERTIFICATES

- Sika MonoTop<sup>®</sup>-627 fulfills the performance requirements related to class R4 of EN 1504-3 and provided with the CE-mark.
- Approved according to special specifications conditions of Autostrade del Brennero SpA.

## PRODUCT INFORMATION

<b>Composition</b>	Portland cement based CC mortar, selected aggregates, fibres and specific additives.		
<b>Packaging</b>	25 kg bags		
<b>Appearance / Colour</b>	Cement grey		
<b>Shelf life</b>	12 months from date of production		
<b>Storage conditions</b>	The product must be stored properly in undamaged original sealed packaging, in dry and cool conditions.		
<b>Density</b>	Mixture: ~2.09 Kg/l		
<b>Maximum Grain Size</b>	D <sub>max</sub> = ~ 4 mm		
<b>Soluble Chloride Ion Content</b>	≤ 0.01%		(EN 1015-17)

## TECHNICAL INFORMATION

<b>Compressive Strength</b>	Class R4			(EN 1504-3)	
	~ 60 MPa			(EN 12190)	
	<u>1 day</u>	<u>7 days</u>	<u>28 days</u>	(UNI 196-1)	
	~ 20 MPa	~ 45 MPa	~ 60 MPa		
<b>Modulus of Elasticity in Compression</b>	~ 25 GPa			(EN 13412)	
<b>Tensile Strength in Flexure</b>	<u>1 day</u>	<u>7 days</u>	<u>28 days</u>	(EN 196-1)	
	~ 4.5 MPa	~ 7 MPa	~ 8 MPa		
<b>Tensile Adhesion Strength</b>	~ 2.30 MPa			(EN 1542)	
	Tensile Adhesion Strength on concrete:				
	<u>1 day</u>	<u>3 days</u>	<u>7 days</u>	<u>28 days</u>	(Method Autobrennero)
	~ 3.00 MPa	~ 4.00 MPa	~ 4.65 MPa	~ 8.80 MPa	
<b>Overhead Application</b>	~ 2.04 MPa			(EN 13395-4)	
<b>Thermal Compatibility</b>	Freeze and Thaw (50 cycles)				
	~ 2.2 MPa			(EN 13687-1)	
<b>Coefficient of Thermal Expansion</b>	1.2 x 10 <sup>-5</sup> 1/°C			(UNI 6061)	
<b>Reaction to Fire</b>	Euroclass A1			(EN 13501-1)	
<b>Freeze Thaw De-icing Salt Resistance</b>	ΔM30 ~ 0.18			(SIA 162/1 test no.9)	
<b>Sulfate Resistance</b>	No sample disaggregation after 365 days immersed in Magnesium Sulfate solution (MgSO <sub>4</sub> 63 g/l)			(ASTM C1012)	
<b>Capillary Absorption</b>	~ 0.11 Kg m <sup>2</sup> h <sup>-0.5</sup>			(EN 13057)	
<b>Chloride Ion Ingress</b>	< 0.02%*			(EN 13396)	
	* This value was gotten after 6 months at 10 mm depth.				
<b>Carbonation Resistance</b>	Pass			(EN13295)	

## APPLICATION INFORMATION

<b>Mixing Ratio</b>	~ 3.75 ± 0.25 l of water per 25 kg bag, the amount of water depends on desired workability		
<b>Consumption</b>	~ 18.3 Kg / m <sup>2</sup> per cm of thickness		
<b>Yield</b>	~ 13.6 l of fresh mortar per 25 kg bag		
<b>Layer Thickness</b>	Manually applied	min. 15 mm	max. 80 mm
	By machine	min. 15 mm	max. 100 mm
<b>Consistency</b>	~ 170 mm		(UNI EN 1015-3)
<b>Ambient Air Temperature</b>	+5°C min. / +30°C max.		
<b>Substrate Temperature</b>	+5°C min. / +30°C max.		
<b>Pot Life</b>	~ 20 min after mixing at +20°C and r.h. 65%		

## APPLICATION INSTRUCTIONS

### SUBSTRATE QUALITY / PRE-TREATMENT

#### *Concrete:*

The substrate must be structurally sound and free from dust, dirt, loose material, surface contamination as oil or grease, cement laitance. The concrete "Pull off" (tensile) strength must be > 1.5 MPa. The substrate should be prepared by suitable mechanical preparation techniques, such as high water pressure or grit blasting. Non impact/vibrating cleaning methods are preferred. Aggregates should be clearly visible on the surface of the prepared area. Finish the repair area with sharp edge (90° degree angle) with minimum depth of 5 mm. The surface must be dampened up to saturation, avoid standing water.

#### *Steel reinforcement:*

Steel surface must be clean from rust products, oil, grease, dust and other loose materials which may reduce bond or may contribute to corrosion. Surfaces must be prepared using approved abrasive blast cleaning techniques, to a minimum standard of SA 2½. When the reinforcement is contaminated by chlorides or other materials which may cause corrosion, the reinforcement shall be cleaned by low pressure water-blasting.

### MIXING

Sika MonoTop®-627 can be mixed with a low speed (~ 500 r.p.m.) electric stirrer. For small quantities, the mortar can also be manually mixed. Pour the correct amount of water into a suitable mixing container. While stirring slowly, add the powder to the water. Mix thoroughly at least for 3 minutes, until the homogeneous lump-free required consistency is reached. Mix whole bags only. Avoid partial mixing, which could affect particle size distribution of the product.

### APPLICATION

Sika MonoTop®-627 can be applied either manually using traditional techniques, or mechanically using wet spray equipment. Apply Sika MonoTop®-627 using a trowel onto the substrate dampened up to saturation,

applying a good pressure and compacting well the sub-grade. The application can be carried on using standard spraying mortar machines (e.g. Turbosol, Putzmeister) to coat large surfaces. Do not stop the spray machine more than 10 min, especially during warm season. Clean the machine after use.

A good surface finishing can be achieved using a plastering trowel or timber float, as soon as the mortar has started to stiffen.

### CURING TREATMENT

Protect the fresh mortar from early dehydration using the relevant curing methods. In case of windy and dry condition, apply the specific curing and sealing compound Antisol S. This product is compatible with Sikagard® painting systems.

### CLEANING OF EQUIPMENT

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

## IMPORTANT CONSIDERATIONS

- In order to avoid cracks, keep the surface of the product dampened for a few hours after application. Rapid evaporation of mixing water lead to cracking, especially when the product is exposed to wind and sun.
- Do not add water over recommended dosage.
- Do not add cement or other substances that could affect mortar properties.
- Do not add water or fresh mortar to the mortar mix which has already started setting.
- Avoid application in direct sun and/or strong wind;
- Apply only on sound and prepared concrete;
- Protect freshly applied material against frost and rain.
- Sika MonoTop®-627 has a Modulus of Elasticity similar to concrete and it is fully adhered to the substrate, so settling and thermal expansion of the substrate may lead to reflective cracking. The substrate must be sound and homogeneous.

## 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.

### Sika Italia S.p.A.

Via Luigi Einaudi, 6  
20068 Peschiera Borromeo (MI)  
Phone: +39 02 54778 111  
Fax: +39 02 54778 119  
info@sika.it  
www.sika.it

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