BUILDING TRUST

PRODUCT DATA SHEET

Sika MonoTop®-627 HP

High performance, 1-component, hand and spray-applied mortar for high build concrete repair works

CE

DESCRIPTION

Sika MonoTop®-627 HP is ready to use, quick setting, low shrinkage, cementitious based mortar, reinforced with special synthetic microfibers for demanding concrete repairs of high thickness application by hand or wet spray technique, meeting the requirements of class R4 of EN 1504-3.

USES

- High performance and high thickness structural repairs of concrete elements
- Applicable both manually (trowel) and by spraying
- Repairs of high durability performance (infrastructures, viaducts, concrete subjected to severe environmental exposure)
- Ideal for repair works prior Sika® Carbodur or SikaWrap® structural strengthening FRP systems
- Suitable for restoration work (Principle 3, Method 3.1 and 3.3 of EN 1504-9). Repair of spalling and damaged concrete in buildings, bridges, infrastructure and superstructure works
- Suitable for structural strengthening (Principle 4, Method 4.4 of EN 1504-9). Increasing the bearing capacity of the concrete structure by adding mortar
- Suitable for preserving or restoring passivity (Principle 7, Method 7.1 & 7.2 of 1504-9). Increasing cover with additional mortar or concrete or replacing contaminated or carbonated concrete.

FEATURES

- Class R4 according to EN 1504-3
- For application thickness of between 15 mm and 80 mm by hand application (per layer) or up to 100 mm by wet spray projection
- Quick setting with no shrinkage (substantial reduction of working times)
- High compressive strength at short time upon setting
- Exceptional adhesion to concrete and on various substrates
- Superior workability and excellent thixotropy
- Extremely high resistance against chloride and sulphates ingress, for repairs with enhanced durability
- Tested in combination with Sika® Carbodur and SikaWrap® structural strengthening FRP systems

SUSTAINABILITY

Sika MonoTop®-627 HP is covered by Model EPD "Modified mineral mortars, group 1", Declaration Number EPD-FEI-20160017-IBG1-EN

CERTIFICATES AND TEST REPORTS

Repair mortar CC for structural repair of concrete structures in buildings and civil engineering works, Class R4 according to EN1504-3:2005. Principles 3, 4 & 7, Methods 3.1, 4.4, 7.1 & 7.2 according to EN1504-9:2008. Declaration of Performance 35471520, and provided with the CE-mark.

PRODUCT INFORMATION

Composition	Portland cement, selected aggregates and additives	
Packaging	25 kg bags	
Appearance and colour	Grey powder with fibers	
Shelf life	12 months from date of production	
Storage conditions	In original, unopened, sealed and undamaged packaging, in dry conditions, at temperatures between +5°C and+35°C. Protect from moisture.	
Density	Fresh mortar density: ~ 2.15 kg/lt	(EN 1015-6)
Maximum grain size	~ 4.0 mm	
Soluble chloride ion content	≤ 0.05%	(EN 1015-17)

TECHNICAL INFORMATION

Compressive strength	**1 day**	**7 days**	**28 days**	**Requirements (R4)**	(EN 12190)
	≥ 20 MPa	≥ 40 MPa	≥ 52 MPa	≥ 45 MPa	
Modulus of elasticity in compression	**Results**		**Requirements**		(EN 13412)
	~ 27.30 GPa		≥ 20 GPa		
Flexural-strength	**1 day**	**7 days**	**28 days**		(EN 196-1)
	≥ 4 MPa	≥ 6 MPa	≥ 8 MPa		
Restrained shrinkage / expansion	≥ 2.0 MPa				(EN12617-4)
Tensile adhesion strength	≥ 2.0 MPa				(EN 1542)
Reaction to fire	A1 (Euroclass)				
Sulfate resistance	No sample disaggregation after 365 days immersed in Magnesium Sulfate solution (MgSO4 63 g/l)				(ASTM C1012)
Capillary absorption	≤ 0.5 kg /$m^{-2}h^{-0.5}$				(EN 13057)
Carbonation resistance	dk ≤ control concrete (MC (0.45))				(EN 13295)
Overhead application	≥ 2.0 MPa				(EN 13395-4)
Chloride Ion Ingress	< 0.02%* * After 6 months at 10 mm depth.				(EN 13396)

APPLICATION INFORMATION

Mixing ratio	3.3 - 3.9 lt of water per 25kg bag
Consumption	~ 1.80 kg/m^2/mm, depending on the substrate's roughness and thickness of layer applied
Layer thickness	15-80 mm by hand application; wait at least 10 minutes between coats. 15-100 mm by wet spray application
Ambient air temperature	+5°C min. / +35°C max.
Substrate temperature	+5°C min. / +35°C max.
Pot Life	~ 20 min. (+20°C)

SYSTEM INFORMATION

System structure

Sika MonoTop®-627 HP is part of Sika mortars range complying with the relevant part of European Standard EN 1504 and comprising of:

Bonding Primer / Reinforcement Corrosion Protection	**Requirements (R4)**
Sika MonoTop®-1010	Normal use (EN 1504-7)
SikaTop Armatec®-110 EpoCem®	Demanding requirements (EN 1504-7)
Repair Mortar	
Sika MonoTop®-627 HP	Class R4 concrete repair hand and & machine applied
Levelling Mortar	
Sika MonoTop®-621 Evolution	Pore sealer and levelling mortar (EN 1504-2)
Sikagard®-720 EpoCem®	Demanding requirements (EN 1504-2 & EN 1504-3)

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.

FURTHER DOCUMENTATION

For concrete repair works refer to the Sika Method of Statement for "Repairing Concrete Using Sika® Ready to use Mortars" (Ref. 8503201) for more information regarding repair system application, substrate preparation and/or refer to the recommendations provided in EN 1504-10

IMPORTANT CONSIDERATIONS

- Do not add water over the recommended dosage
- Do not add cement or other substances that could affect the properties of the mortar
- Do not add water or fresh mortar to a mortar mix which has already started setting
- Avoid application in direct sun and/or strong wind
- Apply only to sound, prepared substrate
- Protect freshly applied material from freezing and from rain
- Do not add additional water during the surface finishing as this will cause discolouration and cracking
- For overhead applications do not exceed layer thickness of 50 mm for hand application and 60mm for spray application
- Record ambient and substrate temperatures before and during application

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.

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY / PRE-TREATMENT

Concrete:
The substrate must be structurally sound, thoroughly clean and free from dust, dirt, and loose material, surface contamination such as oil or grease, cement laitance which reduce bond or prevent suction or wetting. The concrete tensile strength (pull off) shall be > 1.5MPa.
Delaminated, weak, damaged and deteriorated concrete and where necessary sound concrete - but not to the detriment of the structural integrity - shall be removed by suitable mechanical preparation techniques, such as high-pressure water cleaning or sandblasting. No vibration cleaning methods are preferable.
Roughen concrete surface to expose aggregates to 2 mm depth, in accordance with EN 1766 or CSP 5 from ICRI Guidelines. The edges of the area affected by the intervention will have to be cut perpendicular (90 degrees) up to a minimum depth of 5 mm. The concrete's tensile strength (pull off) shall be > 1.5 MPa.
Follow the directions given by the Supervising Officer or Qualified Engineer.

Steel reinforcement:
Steel surface must be clean from rust products, mill scale, mortar, concrete residues, oil, grease, dust and other loose materials which may reduce bond or may contribute to corrosion.
In case of rust, clean uniformly the whole circumference of the steel bars (where applicable) using abrasive blast cleaning techniques or high pressure waterblasting to Sa 2½ in accordance with ISO 8501-1.
Protect cleaned bars from further contamination, prior to application of the mortar.

Formwork:
Any formwork shall be capable of withstanding the load and forces imposed on it.
Formwork shall be clean and placed in position after preparation of the substrate and reinforcement.

Release agents such as Sika® Separol® series, shall be applied prior to placing into position to avoid contact with prepared substrate.
Reference should also be made to EN1504-10 for specific requirements

MIXING

Sika MonoTop®-627 HP can be mixed with a low speed (~ 500 r.p.m.) electrical hand drill mixer. Pour the water in the correct desired proportion into a suitable mixing container. While stirring slowly, add the powder gradually to the water and mix thoroughly at least for 3 minutes, adding additional water during the mixing time if necessary up to the maximum specified amount, until a homogeneous lump-free required consistency is reached. For larger mixes the mixing time could be extended (up to 5 minutes or as necessary) until the mortar is homogenously mixed with no lumps and no remaining dry powder. Mix full bags for best results. 25 kg of Sika MonoTop®-627 HP powder is mixed with 3.3 - 3.9 lt of water depending on the required consistency.

APPLICATION

Sika MonoTop®-627 HP can be applied either manually using traditional techniques, or mechanically using wet spray equipment.

Use without bonding primer

Thoroughly pre-wet the prepared substrate, recommended 2 hours before applying Sika MonoTop®-627 HP.
Keep the surface wet and do not allow drying. Before application remove excess water e.g. with a clean sponge. The surface shall appear a dark matt appearance without glistening or saturated surface dry (SSD) appearance and surface pores and pits shall not contain water.
When manually applying, first make a scratch coat by firmly scrapping the repair mortar over the substrate surface to form a thin layer and fill any pores or pits in the surface. Ensure the whole surface to be repaired is covered by the scratch coat.
Apply Sika MonoTop®-627 HP by means of a trowel for small repairs (concrete repairs, decorations, pillar edges, etc.) onto the substrate which has been dampened (as referred above), exerting a good pressure and compacting well the mortar on the substrate. Fill all voids behind reinforcement bars. Build up layers from bottom to top by pressing mortar well into the repair area.
For the covering of large surfaces the application can be executed also by wet spraying by means of standard spraying machines (e.g. Turbosol, Putzmeister). When spraying ensure the mortar covers the whole circumference of the reinforcement bars leaving no voids behind the back of the bars. In case of intervals, don't stop the spraying machine for more than 10 minutes, especially in cases of hot temperatures. In that case, proceed with clean operations of pipes and equipment.

Use in combination with bonding primer

On a well prepared and roughened substrate a bonding primer is generally not required for this product but is always recommended. Any bonding primer shall be applied on a pre-wet substrate and subsequent application of Sika MonoTop®-627 HP shall be applied wet on wet with the bonding primer.
When a bonding primer is required (especially when reinforcement rebars need treatment against corrosion), refer to the System Information for compatible Sika products and refer to the relevant Product Data Sheet for instructions.

Reinforcement Corrosion Protection:

Where a reinforcement coating is required (eg. Sika MonoTop®-1010 or SikaTop® Armatec®-110 EpoCem®) refer to System Information and to the relevant Product Data Sheet for more detailed information. In general, apply corrosion protection mortar in two layers by using a two brush or hopper gun technique on to the reinforcement (one layer of approx. 1mm thickness). Apply the first layer on the exposed reinforcement. Wait until the first layer is hard to finger nail so it cannot be wiped off when applying the second layer. Apply a second layer on the coated reinforcement and on surrounding concrete substrate that is going to be repaired. Apply Sika MonoTop®-627 HP when the second layer of reinforcement corrosion protection layer is still wet (wet on wet).

Build Up layer:

The application thickness layer must be between 1.5 and 8.0 cm for hand applications. Higher thickness must be achieved either by wet spray or built in subsequent layers by hand. The first layer shall be hardened and exothermic reaction of the material shall be completed (~ 10-15 minutes according to ambient temperature). The 1st layer shall be started to set and be at ambient temperature before applying the second layer.
Do not smooth the first layer before applying a second layer. The first layer shall be cleaned using low pressure water or compressed air before applying subsequent mortar layers.

Finishing:

The surface can be finished according to the requirements using a float or a plastering trowel while wet or with a relevant rough-cast tool as soon as the mortar has started to stiffen. Do not over work the finished surface.

CURING TREATMENT

Protect the freshly applied mortar from early dehydration and/or premature drying by using the relevant curing methods (at least for 24 hours), e.g. curing compound such as Sika® Antisol® or Sikafloor® Proseal once surface water has evaporated. Use suitable curing covers such as jute and water, plastic sheets or other suitable membranes.

CLEANING OF EQUIPMENT

Removal of fresh remnants from tools and application equipment can be carried out using water immediately after use. Hardened / cured material can only be mechanically removed.

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.

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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