BUILDING TRUST

PRODUCT DATA SHEET

Sika MonoTop®-612

R4 HAND PLACED / WET SPRAY REPAIR MICROCONCRETE

PRODUCT DESCRIPTION

Sika® MonoTop-612 is a cement-based, one component low permeability repair microconcrete, containing silica fume and polymer, meeting the requirements of Class R4 of BS EN 1504-3.

USES

- For repairing all types of structures
- Horizontal, vertical and overhead repairs
- Hand applied repairs
- Spray applied repairs
- For exterior and interior use
- In place of R1, R2 & R3 mortars

CHARACTERISTICS / ADVANTAGES

- Pre bagged for quality
- Compatible with Sika® FerroGard® corrosion inhibitors
- Easy to mix and apply
- Low shrinkage
- Good mechanical properties
- Adjustable consistency
- Suitable for drinking water contact

APPROVALS / STANDARDS

Resistivity: Mott MacDonald Report No. 37423/DA/001.Rev A
Conforms to the requirements of BS EN 1504-3 R4 Classification

PRODUCT INFORMATION

Chemical Base	Portland cement, polymer redispersable powder, selected aggregates and additives	
Packaging	25kg Bag	
Appearance / Colour	Grey powder	
Shelf Life	6 months.	
Storage Conditions	Store in original unopened, sealed and undamaged packaging in dry and cool conditions.	
Density	Fresh mortar density: ~ 2.10 kg/l	
Maximum Grain Size	Dmax: 3 mm	
Soluble Chloride Ion Content	< 0.007%	
Compressive Strength	1 day ~ 25 MPa 7 days ~ 40 MPa 28 days ~ 55 MPa	(EN12190)
Modulus of Elasticity in Compression	~22 GPa	(EN13412)
Tensile Strength	28 days ~ 7-9 MPa	(EN12190)

Tensile Adhesion Strength	~ 3 MPa	
Restrained Shrinkage / Expansion	~ 2.5 MPa	(EN 12617-4)
Coefficient of Thermal Expansion	Coefficient 12.0 x 10^{-6} m/m °C	(EN1770)
Reaction to Fire	Euro class A1	(EN 1504-3 cl 5.5)
Capillary Absorption	0.13 kg.m^{-2}.$h^{-0.5}$	(EN 13057)

Electrical Resistivity

(4 Point Wenner)

RH%	Resistivity (kohm.cm)
100	46
81	90
65	136
44	176

SYSTEM INFORMATION

System Structure

Sika MonoTop®-612 is part of the range of Sika mortars complying with the relevant part of European Standard EN 1504 and comprising of:

Bonding Primer / Reinforcement Corrosion Protection	
Sika MonoTop®-610	Carbonation
SikaTop® Armatec® 110 EpoCem®	Chlorides
Repair Mortars	
All Sika® MonoTop® and SikaCem® Gunite series	
Smoothing Coat / Pore Filler	
Sika MonoTop®-620	Normal use
Sikagard®-720 EpoCem®	Demanding requirements
Corrosion Inhibitor	
Sika® FerroGard®-903+	

Anti-Carbonation Protective Coatings
All Sikagard® Anti- Carbonation protective coatings

Mixing Ratio	Wet Spray Application: ~ 2.5 to 3.5 L of water for 25kg powder Hand Application: ~ 2.5 to 2.7 L of water for 25kg powder
Consumption	This depends on the substrate roughness and thickness of layer applied. As a guide, ~ 2.11 kg/m2/mm.
Layer Thickness	5.0 mm min. / 30 mm max.
Ambient Air Temperature	+5°C min. / +30°C max.
Substrate Temperature	+5°C min. / +30°C max.
Pot Life	~ 30-50 minutes (at +23°C)

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY / PRE-TREATMENT

Concrete:
The concrete shall be thoroughly clean, free from dust, loose material, surface contamination and materials which reduce bond or prevent suction or wetting by repair materials. De-laminated, weak, damaged and deteriorated concrete and where necessary sound concrete shall be removed by suitable mechanical or very high pressure waterblasting techniques.
Tying wire fragments, nails and other metal debris embedded in the concrete should be removed where possible.

The edges where concrete is removed should be cut at a minimum angle of 90º to avoid undercutting and a maximum angle of 135º to reduce the possibility of debonding with the top surface of the adjacent sound concrete and should be roughened sufficiently to provide a mechanical key between the original material and Sika® Repair material.
Ensure sufficient concrete is removed from around the full circumference of the reinforcement to allow application of the reinforcement corrosion protection coating (If required) and compaction of the repair material.

Steel Reinforcement:
Rust, scale, mortar, concrete, dust and other loose and deleterious material which reduces bond or contrib-

utes to corrosion shall be removed. Surfaces shall be prepared using abrasive blast cleaning or high pressure water-blasting techniques to a minimum standard of SA 2 (ISO 8501-1) If these types of techniques are not permissble contact Sika® Ltd for alternative options using hand preparation techniques and Galvanic Anodes.
Where exposed reinforcement is contaminated with chloride or other material which may cause corrosion, the reinforcement shall be cleaned by low pressure waterblasting before application of reinforcement corrosion protective coating.
Reference shall be made to EN1504-10 for specific requirements.

MIXING

Sika MonoTop®-612 can be mixed with a low speed (< 500 rpm) hand drill mixer or for machine application, using a force action mixer 2 to 3 bags or more at once depending the type and size of mixer. In small quantities, Sika MonoTop®-612 can also be manually mixed. Pour the recommended water in a suitable mixing container. While stirring slowly, add the powder to the water and mix thoroughly at least for 3 minutes adding additional water during the mixing time if necessary to the maximum specified amount and adjust to the required consistency.

APPLICATION

Reinforcement Corrosion Protection Coating:
Where a reinforcement coating is required the application of a repair mortar shall be applied wet on dry onto the reinforcement corrosion protection. Refer to the System Information above for compatible Sika products and refer to the relevant Product Data Sheet for more detailed information about the reinforcement corrosion product.
Bonding Primer:
On a well prepared and roughened substrate a bonding primer is generally not required for this product. When a bonding primer is required, refer to the System Information above for compatible Sika products and refer to the relevant Product Data Sheet for instructions. A small amount of Sika MonoTop®-612 can also be mixed slightly wetter than normal and used as a scratch coat to fill any deep cavities or pits in the base of the substrate. Any bonding primer shall be applied on a pre-wet substrate and subsequent application of the scratch coat /repair mortar shall be applied wet on wet onto the bonding primer.
Repair Mortar Application:
Sika MonoTop®-612 can be applied either manually using traditional techniques or mechanically using wet spray equipment. Thoroughly pre-wet the prepared substrate a recommended 2 hours before application. Keep the surface wet and do not allow to dry. Before application remove excess water e.g. with a clean sponge. The surface shall appear a dark matt appearance without glistening and surface pores and pits shall not contain water. When manually applying first make a scratch coat by firmly scraping the repair mortar over the base of the substrate surface to form a thin layer and fill any deep cavities. Ensure the whole surface to be repaired is covered by the scratch coat.

For vertical applications,build up layers from bottom to top by pressing mortar well into the repair area. The surface can be finished according to the surface texture requirements using a float. Do not over-trowel as this may lead to surface cracking.

CURING TREATMENT

Protect the fresh mortar immediately from premature drying for a minimum of 3 days using an appropriate curing method e.g. curing compound, moist geotextile membrane, polythene sheet etc.

Curing compounds shall not be used when they adversely affect subsequently applied products and systems.

Reference shall also be made to BS EN1504-10 for specific requirements.

CLEANING OF TOOLS

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

LIMITATIONS

- Refer to recommendations provided in BS EN 1504-10.
- Avoid application in direct sun and/or strong wind and/or rain.
- Do not add water over recommended dosage.
- Apply only to sound, prepared substrates.
- Do not add additional water during the surface finishing as this will cause discoloration and cracking.
- Protect freshly applied material from freezing.

VALUE BASE

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 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.

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