BUILDING TRUST

PRODUCT DATA SHEET

Sika MonoTop®-3130 Ultra Rapid

Fast setting cementitious concrete repair mortar with corrosion inhibitors

DESCRIPTION

Sika MonoTop®-3130 Ultra Rapid is a 1-part, cementitious, fast setting structural concrete repair mortar. It is manually applied, sulphur-resistant and fibre reinforced. It contains corrosion inhibitors that improve the resistance to steel reinforcement corrosion and is compliant to EN 1504 part 3 and part 7.

USES

Fast return to service repairs to all types of reinforced concrete structures and elements for:
- Buildings
- Civil engineering structures
- Car parking structures
- Marine structures
- Dams
- Water retaining structures
- Substructures
- Hydraulic structures

Suitable for:
- Conservation or restoration of passivation (Principle 7, method 7,1 of EN 1504-9)
- Restoration work (Principle 3, method 3,1 and 3,3 of EN 1504-9)
- Structural reinforcement (Principle 4, method 4,4 of EN 1504-9)
- Control of anodic areas (Principle 11, method 11,1 of EN 1504-9)

CHARACTERISTICS / ADVANTAGES

- Fast setting and early overcoatability (after 2 hours at +20 °C)
- Fast return to service
- Includes FerroGard® corrosion inhibitor technology
- Smooth surface finish for coating
- Good sulphate and carbonation resistance
- Easy to apply
- Freeze-Thaw resisitant
- Fire resistance class A1
- Layer thickness 5–70 mm
- Ready to mix with water
- High pH and FerroGard® corrosion inhibitor protects steel reinforcement from corrosion

APPROVALS / CERTIFICATES

- CE Marking and Declaration of Performance to EN 1504-3 - Concrete repair product for structural repair
- CE Marking and Declaration of Performance to EN 1504-7 - Reinforcement corrosion protection

PRODUCT INFORMATION

Composition	Sulphate resistant cement, fibres, selected aggregates and additives
Packaging	25 kg bag
Appearance and colour	Grey powder
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 +35 °C. Always refer to packaging.
Density	~2.15 kg/l (fresh mortar density)
Maximum grain size	D_{max}:2 mm
Soluble chloride ion content	≤ 0.01 % (EN 1015-17)
Product declaration	▪ Complies with the general requirements of EN 1504-3: Class R4 ▪ Complies with the general requirements of EN 1504-7: Reinforcement corrosion protection

TECHNICAL INFORMATION

Compressive strength

Class R4

Time	Compressive strength
2 hours	≥ 18 MPa
1 days	≥ 20 MPa
7 days	≥ 40 MPa
28 days	≥ 45 MPa

Values at +20 °C (EN 12190)

Modulus of elasticity in compression

≥ 20 GPa (EN 13412)

Tensile strength in flexure

Time	Tensile strength in flexure
1 day	≥ 4 MPa
2 days	≥ 5 MPa
7 days	≥ 7 MPa
28 days	≥ 8 MPa

Values at +20 °C (UNE-EN-196-1)

Thermal compatibility

≥ 2.0 MPa (Part 1 Freeze-Thaw) (EN 12687-1)

Reaction to fire

Class A1 (EN 13501-1)

Capillary absorption

≤ 0.5 $kg \cdot m^{-2} \cdot h^{-0.5}$ (EN 13057)

Carbonation resistance

Pass d_k ≤ control concrete (MC (0.45)) (EN 13295)

SYSTEM INFORMATION

System structure

Note: Apply concrete repair mortar 'wet on dry' onto reinforcement corrosion protection.
Note: Apply concrete repair mortar 'wet on wet' onto bonding primer or scratch coat.

Rapid System

Reinforcement corrosion protection coating

Sika MonoTop®-3130 Ultra Rapid	Fast build up
Sika MonoTop® -910N	Normal Use
SikaTop® Armatec®-110 EpoCem®	Demanding requirements

Bonding primer (optional)

Sika MonoTop®-910N	Normal Use
SikaTop® Armatec®-110 EpoCem®	Demanding requirements

Concrete repair mortar

Sika MonoTop®-3130 Ultra Rapid

Concrete protection coating primer

Sikagard®-552 W Aquaprimer

Concrete protection coating

Sikagard®-550W/555W

APPLICATION INFORMATION

Mixing ratio

4.0 to 4.2 litres of water for a 25 kg bag

Fresh mortar density

~2.15 kg/l

Consumption

~2.1 kg/m²/mm
This figure is theoretical and does not allow for any additional material due to surface porosity, surface profile, variations in level, wastage or any other variations.

Layer thickness

Horizontal: 5.0 mm min. / 70 mm max.
Vertical: 5.0 mm min. / 70 mm max.
Overhead: 5.0 mm min. / ~ 50 mm max.
Reinforcement corrosion protection: min. ~2 mm.
Note: don't use for volume application

Ambient air temperature

+5 °C min. / +30 °C max.

Substrate temperature

+5 °C min. / +30 °C max.

Pot Life

~ 10 minutes

Initial set time

~20 minutes

Final set time

~30 minutes

Waiting time to overcoating

Note: Times are approximate and will be affected by changing ambient conditions particularly temperature and relative humidity.

Quick System

Sika MonoTop®-3130 Ultra Rapid on:

Reinforcement corrosion protection coating	
Sika MonoTop®-3130 Ultra Rapid	~30 minutes (at 20°C / 60% r.H.)

Sikagard®-552 W Aquaprimer on:

Concrete repair mortar	
Sika MonoTop®-3130 Ultra Rapid	~2 hours (at 20°C/ 60% r.H.)

Sikagard®-657 W ElastoColor on:

Concrete protection coating primer	
Sikagard®-552 W Aquaprimer	~1 hour (at 20°C/ 60% r.H.)

Sikagard®-657 W ElastoColor on:	
1st layer concrete protection coating	
Sikagard®-657 W ElastoColor	~1 hour (at 20°C/ 60% r.H.)

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

- Recommendations provided in EN 1504-10
- Sika Method Statement: Concrete Repair

IMPORTANT CONSIDERATIONS

- The opentime is reduced during high temperatures.
- Use only for patch repair
- Avoid application in direct sun and/or strong winds.
- Do not add water over recommended dosage.
- Apply only to sound, prepared substrate.
- Do not add additional water during the surface finishing as this will cause discoloration and cracking.
- Protect freshly applied material from freezing.

ECOLOGY, HEALTH AND SAFETY

For any information regarding safety issues in the use, handling, storage and disposal of chemical residues, users should consult the latest version of the product Safety Data Sheet, which contains physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

EQUIPMENT

Select the most appropriate equipment required for the project:

Substrate preparation equipment
- Mechanical hand-held tools
- High / ultra-high pressure water blasting equipment

Steel reinforcement preparation equipment
- Abrasive blast cleaning equipment
- High pressure water blasting equipment
- Low pressure power washing equipment

Mixing equipment
- Mixing container
- Small quantities: low speed electric single paddle mixer (< 500 rpm) with spiral, helix, hoop, basket or impellor paddle

Application equipment

Manual application:
- Plasterers hawk
- Trowel
- Protective gloves

Finishing equipment
- Trowel (Stainless steel, steel, PVC or wooden),
- Sponge
- Protective glove

SUBSTRATE QUALITY / PRE-TREATMENT

Requirement:

Substrate preparation equipment
- Mechanical hand-held tools
- High / ultra-high-pressure water blasting equipment

Steel reinforcement equipment
- Abrasive blast cleaning equipment
- High pressure water blasting equipment
- Low pressure power washing equipment

Concrete

- The substrate must be thoroughly clean, free from dust, loose material, surface contamination and material which reduce adhesion or prevent suction or wetting by repair materials.
- Remove de-laminated, weak, damaged and deteriorated concrete and where necessary, sound concrete using appropriate equipment from the list above.
- Make sure sufficient concrete is removed from around the corroded reinforcement to allow cleaning, corrosion protection coating (where required) and compaction of the concrete repair mortar.
- Remove tying wire fragments, nails and other metal debris embedded in the concrete.
- Repair surface areas must be prepared to provide simple square or rectangular layouts to avoid shrinkage stress concentrations and cracking while the repair material cures. This can also avoid structural stress concentrations from thermal movement and loading during the service life.

Steel reinforcement

Note: Method and choice of preparation equipment must take into account the type of materials to be removed from the reinforcement bars, bar congestion, contact between bars, and proximity to the concrete substrate.

1. Remove rust, scale, mortar, concrete, dust and other loose and deleterious material which reduces bond or contributes to corrosion.
2. Prepare the surfaces to bright steel finish.
3. Where exposed reinforcement is contaminated with chloride or other material which may cause corrosion, clean the reinforcement using low pressure power washing [up to 18 MPa (2700 psi)] techniques to wash away contaminants.

MIXING

Note: Mix only as much material as can be processed (max. 25 kg)
Requirement: low speed electric single paddle mixer (< 500 rpm) with spiral, helix, hoop, basket or impellor paddle.

1. Pour the minimum recommended clean water quantity into a mixing container / equipment.
2. While stirring slowly, add the powder to the water.
3. Mix thoroughly for at least 2 minutes until a smooth consistency is reached. Adding additional water if necessary, to the maximum specified amount.

APPLICATION

Strictly follow installation procedures as defined in the Sika Method Statement Concrete Repair and adjusted to the actual site conditions.
Requirement:

- Plasterers hawk
- Trowel
- Protective gloves
- Protective glasses

Reinforcement corrosion protection coating

1. Immediately after surface preparation, apply the appropriate product to the whole exposed reinforcement circumference. Refer to the 'System structure' and individual Product Data Sheets for equipment and application details.

Bonding primer

Note: A bonding primer is normally required for structural repairs to achieve high adhesion values and for application in high temperatures.

1. Pre-wet the prepared concrete substrate with clean potable water (2 hours recommended).
2. Keep the surface wet and do not allow to dry.
3. Remove excess water from within the surface pores and cavities e.g. with a clean sponge.
4. Apply the appropriate bonding primer over the complete substrate surface to form a thin layer to fill surface pores or cavities. Refer to the 'System structure' and individual Product Data Sheets for equipment and application details.

Concrete repair mortar with bonding primer

Manual application

Apply the repair mortar instantly after mixing, onto the bonding primer ‘wet on wet’ using a protective gloved hand or trowel at the minimum and maximum layer thicknesses without the formation of voids.
Prevent sagging or slumping of ‘built up’ repair mortar layers. For subsequent layers, wait until the previous layer is hard enough to accept the next layer without any deformation.

Concrete repair mortar without bonding primer

Manual application

The final pre-wetted surface must achieve a dark matt appearance (saturated surface dry).
Apply a first thin layer of Sika MonoTop®-3130 Ultra Rapid with pressure, instantly after mixing. Apply subbsequentl layers with pressure.
Prevent sagging or slumping of ‘built up’ repair mortar layers. For subsequent layers, wait until the previous layer is hard enough to accept the next layer without any deformation.

1. Thoroughly pre-wet the prepared substrate (2 hours recommended).
2. Keep the surface wet and do not allow to dry.
3. Remove excess water from within the surface pores and cavities e.g. with a clean sponge.
4. Apply the repair mortar onto the concrete substrate using a protective gloved hand or trowel at the minimum and maximum layer thicknesses without the formation of voids. If a bonding primer is used, apply Sika MonoTop®-3130 Ultra Rapid 'wet on wet' onto the bonding primer

Surface finishing

IMPORTANT

Do not add water during the surface finishing as this can cause discolouration and cracking.

1. Allow mortar to surface harden (~5 min after application).
2. Surface finish to the required surface texture using a stainless steel, steel, PVC or wooden float

Cold weather working

Consider storing bags in a warm environment and using warm water to assist with achieving strength gain and maintaining physical properties.

Hot weather working

Consider storing bags in a cool environment and using cold water to ensure sufficient open time, to reduce cracking and maintaining physical properties.

CURING TREATMENT

- Protect fresh mortar immediately from premature drying using an appropriate curing method, e.g. curing compound, moist geotextile membrane, polythene sheet, etc.
- Curing compounds must not be used when they could adversely affect subsequently applied products and systems.

CLEANING OF EQUIPMENT

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

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.

Sika Services AG
Tüffenwies 16
8048 Zürich
Tel: +41 58 436 4040
www.sika.com