

PRODUCT DATA SHEET

Sika MonoTop®-4080

Structural concrete repair mortar with corrosion inhibitors, containing recycled materials

DESCRIPTION

Sika MonoTop®-4080 is a one-part, fibre-reinforced, low-shrinkage repair mortar with corrosion inhibitors. It contains recycled supplementary cementitious materials and can therefore contribute to reducing the carbon footprint of the application.

USES

Sika MonoTop®-4080 is used to repair all types of reinforced concrete structures and components for:

- Buildings
- Civil engineering structures
- Marine structures
- Dams

Sika MonoTop®-4080 is used for:

- Restoration work (Principle 3, method 3,1 and 3,3 of EN 1504-9). Repair of spalling and damaged concrete in infrastructure and superstructure works.
- Structural strengthening (Principle 4, method 4,4 pf EN 1504-9). Increasing the bearing capacity of the concrete structure by adding mortar.
- Preserving or restoring passivity (Principle 7, method 7,1 and 7,2 of EN 1504-9). Increasing cover with additional mortar and replacing contaminated or carbonated concrete
- Concrete exposure classes XC 1-4, XF 1-4, XD 1-3, XS 1-3 and XA 1-2 as described in EN 206

Sika MonoTop®-4080 is used for interior and exterior applications.

Please note:

- The Product may only be used by experienced professionals.

FEATURES

- Uses recycled raw materials
- Layer thickness 4–100 mm
- Contains corrosion inhibitors
- Does not contain quartz sand

- Easy to apply by hand or machine (wet spray technique)
- Very low shrinkage
- Low permeability
- Minimized cracking sensitivity
- Dust-reduced
- Sulphate-resistant
- Good resistance to sea water
- Resistant to Alkali-Silica-Reaction (ASR) according to SIA 262/1:2019 Annex G
- Very good resistance to freeze thaw cycles (BE II FT high according to VSS 40 464)

SUSTAINABILITY

- Contributes towards satisfying Materials and Resources (MR) Credit: Building Product Disclosure and Optimization — Material Ingredients under LEED® v4 — 1 point
- Contributes towards satisfying Materials and Resources (MR) Credit: Building Product Disclosure and Optimization — Sourcing of Raw Materials under LEED® v4 — 1 point
- Environmental Product Declaration (EPD) in accordance with EN 15804. EPD independently verified by Institut für Bauen und Umwelt e.V. (IBU)
- Sustainability Factsheet Sika MonoTop®-4080

CERTIFICATES AND TEST REPORTS

- CE marking and declaration of performance based on EN 1504-3:2005 Products and systems for the protection and repair of concrete structures — Structural and non-structural repair
- CE marking and declaration of performance based on EN 1504-7:2006 Products and systems for the protection and repair of concrete structures — Reinforcement corrosion protection
- Resistance to sea water NF P 18-837, Sika MonoTop®-4010 & Sika MonoTop®-4080
- Resistance of a concrete mixture SIA 262/1:2019, Sika MonoTop®-4080, TFB, Test Report No. 232442-02(e)

- Physical test of the frost deicing salt resistance BE II FT, VSS 40 464 english
- Reinforcement corrosion protection test, UNE-EN 15183:2007 en
- VOC Content Test Report, No. 392-2024-00109002_XG_EN_rev1

PRODUCT INFORMATION

Composition	Cement, cement replacement, selected aggregates and additives	
Packaging	Standard bag	25 kg
	Bulk bag	1000 kg by request
	Refer to the current price list for available packaging variations.	
Colour	Grey	
Shelf life	Standard bag	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 the packaging. Refer to the current Safety Data Sheet for information on safe handling and storage.	
Maximum grain size	2 mm	
Soluble chloride ion content	≤ 0.05 % (EN 1015-17)	
Appearance	Powder	

TECHNICAL INFORMATION

Compressive strength	Cured 24 h at +21 °C	19 MPa	(EN 12190)
	Cured 7 d at +21 °C	39 MPa	
	Cured 28 d at +21 °C	54 MPa	
Modulus of elasticity in compression	Cured 28 d at +21 °C	≥ 20 GPa	(EN 13412)
Flexural-strength	Conditioned 24 h at +20 °C	5 MPa	(EN 196-1)
	Conditioned 7 d at +20 °C	6 MPa	
	Conditioned 28 d at +20 °C	8 MPa	
Shrinkage	Cured at +20 °C and 65 % relative humidity at 28 days	500 µm/m	(EN 12617-4)
Restrained shrinkage / expansion	≥ 2.0 MPa		(EN 12617-4)
Tensile adhesion strength	≥ 2.0 MPa		(EN 1542)
Thermal compatibility	Part 1 - Freeze-Thaw	≥ 2.0 MPa	(EN 13687-1)
Coefficient of thermal expansion	6 × 10 ⁻⁵ 1/k		(EN 1770)
Reaction to fire	Class A1		(EN 13501-1)
Capillary absorption	≤ 0.5 kg·m ⁻² ·h ^{-0.5}		(EN 13057)
Carbonation resistance	dk ≤ control concrete MC (0.45)		(EN 13295)
Chloride diffusion coefficient	2.1 × 10 ⁻¹² m ² /s		(EN 12390-11)

APPLICATION INFORMATION

Mixing ratio	Thixotropic consistency			3.6 L to 3.7 L
Consumption	1.9 kg/m² of powder per mm of thickness Note: Consumption data is theoretical and does not allow for any additional material due to surface porosity, surface profile, variations in level, wastage or any other variations. Apply the Product to a test area to calculate the exact consumption for the specific substrate conditions and proposed application equipment.			
Yield	13.6 L of mortar per 25 kg bag Note: Consumption data is theoretical and does not allow for any additional material due to surface porosity, surface profile, variations in level, wastage or any other variations. Apply the Product to a test area to calculate the exact consumption for the specific substrate conditions and proposed application equipment.			
Layer thickness	Orientation	Minimum	Maximum	
	Vertical	4 mm	80 mm (100 mm in localised areas or sprayed applied over sound substrate)	
	Overhead	4 mm	30 mm (50 mm in localised areas or sprayed applied over sound substrate)	
Material temperature	Maximum	+30 °C		
	Minimum	+5 °C		
Ambient air temperature	Maximum	+30 °C		
	Minimum	+5 °C		
Substrate temperature	Maximum	+30 °C		
	Minimum	+5 °C		
Pot Life	At +20 °C	40 minutes		
	Pot life depends on temperature Note: Pot life will be shorter at higher temperatures. Pot life will be longer at lower temperatures.			
Fresh mortar density	2.1 kg/L		(EN 1015-6)	

SYSTEM INFORMATION

System structure	Layer	Function	Product
	Optional: Bonding primer / Reinforcement corrosion protection	Normal use	Sika MonoTop®-1010
	Optional: Bonding primer / Reinforcement corrosion protection	Demanding requirements	SikaTop® Armatec®-110 EpoCem®
	Concrete repair mortar	High strength requirements	Sika MonoTop®-4080
	Optional: Levelling mortar	Normal use	Sika MonoTop®-3020
	Optional: Levelling mortar	Demanding requirements	Sikagard®-720 EpoCem®

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

- Concrete repair site handbook
- Sika Method Statement 850 32 01 Concrete Repair

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

EQUIPMENT

Select the most appropriate equipment required for the project.

SUBSTRATE PREPARATION EQUIPMENT

- Mechanical hand-held tools for spot repairs
- High- or ultra-high-pressure water blasting equipment

STEEL REINFORCEMENT EQUIPMENT

- Abrasive blast cleaning equipment
- High-pressure water blasting equipment

MIXING EQUIPMENT

- Clean mixing containers
- Small quantities: low-speed electric single or double-paddle mixer (< 500 rpm).
- Large quantities: forced action mixer

APPLICATION EQUIPMENT

- Hand-applied: plasterer's hawk, trowel
- Wet spray: All-in-one mixing and spraying machine, or separate spraying machine and all associated ancillary equipment to suit application volumes. Suitable machines include the PFT N2V, Putzmeister S 5, Wagner PC15, and Inotec inoBEAM F50.

FINISHING EQUIPMENT

- Trowel (PVC or wooden)
- Sponge

SUBSTRATE PREPARATION

CONCRETE

1. Clean the substrate thoroughly so it is free from dust, loose material, surface contamination and material which reduces adhesion, prevents suction or wetting by the repair materials.
2. Remove delaminated, weak, damaged and deteriorated concrete and where necessary, sound concrete. Remove using mechanical hand-held tools, high or ultra-high-pressure water blasting equipment.
3. Remove sufficient concrete from around corroded reinforcement to allow cleaning, application of a corrosion protection coating (where required) and compaction of the concrete repair mortar.
4. Prepare repair surface areas in 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

1. Remove rust, scale, mortar, concrete, dust and other loose and deleterious material which reduces bond or contributes to corrosion.
2. Prepare surfaces to bright steel, Sa 2 (ISO 8501-1), using abrasive blast cleaning or high-pressure water blasting equipment.

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PRE-WETTING

Sufficient saturation of the concrete substrate prior to application enables the mortar to gain its full mechanical properties.

1. Thoroughly pre-wet the prepared concrete substrate for a minimum of 2 hours before application.
2. Keep the surface wet and do not allow to dry.
3. The final pre-wetted surface must achieve a dark matt appearance (saturated surface dry).

MIXING

1. Pour the minimum specified quantity of clean water into the mixing vessel.
2. Gradually add the powder to the water while stirring slowly.
3. Mix for at least for 3 minutes until a uniform, lump-free consistency is achieved.
4. If necessary, add small amounts of water, within the allowed range, to adjust consistency. Do not exceed the maximum water content.
5. Check the consistency after every mix.

APPLICATION

IMPORTANT

Strictly follow installation procedures

Strictly follow installation procedures as defined in Method Statements, application manuals and working instructions which must always be adjusted to the actual site conditions.

IMPORTANT

Risk of reduced strength gain and impaired physical properties in cold weather

Take the following measures in cold weather:

1. Store bags in a warm environment.
2. Use warm mixing water to assist with achieving strength gain and maintaining physical properties.

IMPORTANT

Risk of cracking and impaired physical properties in hot weather

Take the following measures in hot weather:

1. Store bags in a cool environment.
2. Use cold mixing water to assist with controlling the exothermic reaction to reduce cracking and to maintain physical properties.

IMPORTANT

Risk of cracking due to application in direct sun or strong winds

1. Do not apply the Product in direct sun, strong winds or both.

REINFORCEMENT CORROSION PROTECTION COATING

Where a reinforcement coating is required, apply to the whole exposed circumference Sika MonoTop®-1010 or SikaTop® Armatec®-110 EpoCem®. Refer to the individual Product Data Sheets.

BONDING PRIMER

On a well prepared and roughened substrate or for a sprayed application, a bonding primer is generally not required.

When a bonding primer is required to achieve the required adhesion values, use Sika MonoTop®-1010 or SikaTop® Armatec®-110 EpoCem®. Refer to the individual Product Data Sheets.

REPAIR MORTAR – MANUAL APPLICATION

1. Remove excess water from within the surface pores and cavities with a clean sponge.
2. If no bonding primer was applied, apply a thin layer of repair mortar Product over the complete substrate surface to fill surface pores or cavities.
3. Apply the repair mortar Product wet on wet, without forming voids, and observing the minimum and maximum layer thicknesses.
4. Allow each layer to slightly harden and remain wet before applying subsequent layers.

REPAIR MORTAR – WET SPRAY APPLICATION

1. Remove excess water from within the surface pores and cavities with a clean sponge.
2. Place the wet mixed repair mortar into the spraying equipment.
3. Spray the repair mortar onto the pre-wetted substrate between the minimum and maximum layer thicknesses without the formation of voids.
4. Allow each layer to slightly harden and remain wet before applying subsequent layers.

SURFACE FINISHING BY HAND

IMPORTANT

Surface cracking due to rapid moisture loss

In draughty areas, open spaces, at temperatures less than +10 °C or in very dry climates, early plastic shrinkage cracks may occur.

1. Confirm substrate moisture content, product, substrate and air temperatures prior to application.
1. Allow the mortar to surface harden.
2. Surface finish to the required surface texture using a stainless steel, steel, PVC or wooden float. Do not add water.

CURING TREATMENT

- Cure immediately after finishing using an appropriate curing method, such as curing compound, moist geotextile membrane or polythene sheet.
- Do not use curing compounds if they could adversely affect subsequently applied products and systems.
- Protect from wind, rain, frost, and direct sunlight during curing.

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the declared data for this product may vary from country to country. Please consult the local Product Data Sheet for the exact product data.

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LEGAL NOTES

Any information or suggestions for use concerning Sika's products, which we either in writing or orally have given buyers or end-users of the product, have been given in good faith based on our own experiences and based on approved praxis and the technological and scientific knowledge on the time of giving such suggestions and information, which are given without any type of guarantees, and which do not lead to any further responsibility from Sika Danmark A/S, besides what is stated in the sales agreement in question. The buyer or end-user should themselves investigate or otherwise make sure, that our products are suitable for the use in question and further make sure that the products are kept and used correct and in agreement with the published rules and considering the actual conditions in order to avoid damages or less satisfactory results. Any order is accepted and any deliverance is affected according to the general terms of sales and delivery from Sika Danmark A/S, which are considered known and accepted, and which could be handed out when asked for. Our catalogues are not up-dated automatically. The present product data sheet is only for use in Denmark. Values stated in the present product data sheet should be seen as recommended, unless stated otherwise.

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