

Sopro Repadur 50 Repair Mortar

Sopro Repadur 50 is a fibre-reinforced, cementitious mortar for concrete replacement, reprofiling and largescale coating of concrete substrates, for use in concrete repair works complying with ZTV-ING (Special technical contract terms and guidelines for engineering structures) and concrete repair guidelines issued by DafStb (German Committee for Reinforced Concrete).

- One-component
- Mineral-based
- Fibre-reinforced
- Coat thickness: 10 – 50 mm
- CE Marked

PCC System

Sopro Repadur 50 forms part of Sopro Repadur system, a PCC concrete replacement system suitable for PCC I and PCC II applications to ZTV-ING (Special technical contract terms and guidelines for engineering structures) and for duty classes M2/PCC I and M2/PCC II to SIB (Protection and repair of concrete elements) guidelines issued by DafStb (German Committee for Reinforced Concrete).

Sopro Repadur system comprises of:

Corrosion protection: Sopro Repadur KS

Bonding layer: Sopro Repadur MH

Concrete replacement: Sopro Repadur 50

Fine filler: Sopro Repadur 5

Field of Application

The Concrete replacement/repair mortar for PCC I and PCC II applications to ZTV-ING and for duty classes M2/PCC I and M2/PCC II to concrete repair guidelines issued by DafStb. For reprofiling of damaged concrete substrates, repair of concrete elements subject to dynamic loads and largescale coating of concrete surfaces.

Properties

Sopro Sopro Repadur 50 is a premixed dry mortar comprising high-grade cement, specially graded aggregate, special additives and synthetic fibres. It is mixed with water to produce a very smooth, easily workable and sag-resistant fresh mortar. Sopro Repadur 50 meets requirements of TL/TP BE-PCC (Technical delivery conditions/technical test conditions for PCC concrete repair systems). Sopro Repadur 50 can be applied in coat thicknesses of 10 – 50 mm.

Substrate Preparation

Remove loose or insufficiently strong parts of substrate to expose rough, mineral, strong core concrete. Edges of damaged areas/surface cavities should be cut away at 30° – 60° angle and surface left rough. Roughen entire concrete substrate using suitable surface preparation method (e.g. blast cleaning with health-hazard-free abrasive or high-pressure water jetting) to remove dirt/soiling, laitance, paint/coating residue and other adhesion-impairing substances. Prepared substrate should exhibit a mean pull-off strength of min. 1.5 N/mm². Please consult SMET Technical team regarding applicability of Sopro Repadur 50 where this value is not attainable. Use light hacking tool to remove concrete and expose corroded reinforcement. Blast clean with health-hazard-free abrasive to preparation grade SA 2½ to DIN EN ISO 12944-4. Immediately after treatment, apply two full-cover coats of Sopro Repadur KS PCC corrosion-inhibiting mortar to reinforcing bars. Prior to treatment with system bonding layer (Sopro Repadur MH), prepared concrete surfaces shall be pre-wetted to saturation and then allowed to dry to slightly damp, matt appearance at time of bonding layer application.

Application

Mix 25 kg (1 bag) Sopro Repadur 50 with approx. 2.6 ltr (min. 2.5 ltr) water (105 ml water per kg powder). First pour approx. 2/3 of mixing water into clean container. While stirring, gradually add dry mortar and remaining mixing water. Thoroughly mix together constituents for approx. 3 minutes to a homogeneous, lump-free consistency. Briefly restir fresh material after approx. 2 minutes maturing time.

A slow-speed mechanical stirrer (approx. 400 rpm) with suitable attachment may be used to mix quantities up to 25 kg. Use forced-action mixer to prepare larger quantities of fresh mortar. Fresh mortar is workable for approx. 60 minutes (at +23 °C and 50 % relative humidity). Apply Sopro Repadur 50 wet-on-wet to substrate pretreated with full-cover Sopro Repadur MH PCC mortar bonding layer. Work material into bonding layer, thoroughly compact and strike off flush with adjoining surfaces.

After fresh mortar has firmed up (initial set), surface of Sopro Repadur 50 may be worked over as required using wooden or plastics float. Coat thicknesses up to 20 mm can be applied in single operation. For greater thicknesses to vertical or overhead surfaces, application of material in several coats is recommended. In such cases, following coat may be applied as soon as preceding coat has firmed up. Where material of preceding coat has already surface-dried, pretreatment with Sopro Repadur MH PCC mortar bonding layer is required prior to application of following coat.

Suitable measures must be taken to protect placed mortar against frost and premature moisture loss for a period of 5 days. Protection against premature water loss after application is essential to prevent cracking.

Use of evaporation-inhibiting curing compounds – as an alternative to standard curing methods such as dampening or covering with sheet – is only possible where no subsequent coatings are to be applied.

Tool Cleaning

Clean tools with water immediately after use; mechanical cleaning required when set.

Storage

Approx. 12 months, subject to storage on pallet in dry conditions in original unopened containers.

Disposal Considerations

13.1. Waste treatment methods. Recover if possible. In so doing, comply with the local and national regulations currently in force. 91/156/EEC, 91/689/EEC, 94/62/EC and subsequent amendments. Disposal of hardened product (EC waste code) : 17 01 01. Disposal of not hardened product (EC waste code) : 17 01 01. The suggested European waste code is just based on the composition of the product. According to the specific process or application field a different waste code may be necessary.

Safety

Classification of the substance or mixture EC regulation criteria 1272/2008 (CLP). All standard precautions for the handling of construction materials/chemical must be taken. **GHS05, GHS07**. Signal word: **Danger**. Contains Portland cement. Exhibits strong alkaline reaction upon contact with moisture/water; protection required for skin and eyes. See Sopro MSDS for further detailed safety information.

Hazard Statements:

H315 Causes skin irritation.

H318 Causes serious eye damage.

H335 May cause respiratory irritation.

Precautionary Statements:

P261 Avoid breathing dust.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER or doctor/physician.


P102 Keep out of reach of children.

P332+P313 If skin irritation occurs: Get medical advice/attention.

GISCODE (German hazardous substances classification): ZP 1 · Low-chromate to Regulation (EC) No 1907/2006, Annex XVII

Technical Information

Mixing Ratio	2.6 ltr water : 25 kg Sopro Repadur 50; 11 parts by weight water : 100 parts by weight Sopro Repadur 50 powder
Working Life	Approx. 90 minutes at +5 °C; approx. 60 minutes at +23 °C; approx. 30 minutes at +30 °C
Loadable	Full mechanical strength after approx. 12 hours
Specified times	Apply for normal temperature range of +23 °C and 50 % relative humidity; higher temperatures shorten and lower temperatures lengthen these times..
Application Temperature	From +5 °C to max. +30 °C (substrate, air, material)
Colour	Grey
Maximum aggregate diameter	3 mm
Consistency	Soft and plastic
Apparent density of fresh mortar	Approx. 2.2 kg/dm ³
Compressive strength	Approx. 30 N/mm ² after 1 day Approx. 50 N/mm ² after 7 days Approx. 60 N/mm ² after 28 days
Flexural tensile strength	Approx. 6 N/mm ² after 1 day Approx. 8 N/mm ² after 7 days Approx. 9 N/mm ² after 28 days
Shrinkage	< 0.90 mm/m
Tensile adhesion strength	> 2.0 N/mm ² to concrete after 28 days
Coverage	Approx. 2.0 kg/m ² per mm coat thickness
Packaging	25kg and 5kg bags

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	14 CPR-DE3/0852.1.deu EN 1504-3:2005 Sopro Repadur 50 (852)
PCC Hydraulic Mortar (EN 1504-3 2005 R4 PCC) for structural and non-structural repair of concrete in buildings and civil engineering works	
Reaction To Fire	Class E
Compressive Strength	Class R4
Chloride ion Content	≤ 0.05%
Adhesive Bond	≥ 2.0 Mpa
Restrained Shrinkage/expansion	NPD
Carbonation Resistance	Pass
Elastic Modulus	NPD
Thermal Compatibility - Freeze Thaw	≥ 2.0 Mpa
Skid Resistance	NPD
Coefficient of thermal expansion	NPD
Capillary Absorption	≤ 0.5kg*m ⁻² *h ^{-0.5}
Dangerous Substances	See MSDS

*NPD = No Performance Determined

