

High resistance sulphate-resistant fluid mortar, reinforced with fibers and migratory corrosion inhibitor, for structural repair of concrete.

PROPAM® REPAR TECHNO FLUID MCI is a non-shrinkage, single component, fluid repair mortar with good adherence and very high mechanical strength, and it is reinforced with fibres and specially formulated for structurally repairing and strengthening concrete in aggressive environments. It complies with the requirements of standard EN 1504-3 class R4, EN 1504-2 and EN 1504-7.

FIELDS OF APPLICATION

- Restoring the concrete to its originally specified shape and function by means of mortar applied manually or by pouring (Principle 3 CR, method 3.1 and 3.2 acc. to EN 1504-9).
- Structural reinforcement by increasing the bearing capacity of the concrete structures by adding mortar (Principle 4 SS, method 4.4 of EN 1504-9).
- Restoring the passivation by increasing the coating with cement mortar and replacing the contaminated or carbonated concrete (Principle 7 RP, methods 7.1 and 7.2 acc. to EN 1504-9)
- Humidity control by protection (Principle 2 MC, method 2.3 acc. to EN 1504-9).
- Increase in resistivity through impregnation (Principle 8 IR, method 8.2 acc. to EN 1504-9).
- Control of the anodic areas by coating the rebar with a barrier coating (Principle 11 CA, method 11.2 acc. to EN 1504-9).
- Repairing horizontal structural elements by direct pouring or injection.
- Repairing vertical structural formwork elements by direct pouring or injection.
- Screeding structural elements to increase their bearing capacity.
- Repairing patches and regenerating concrete floor slabs.
- Bridge pillars, columns, brackets and beams.
- Repairing and reinforcing structures subject to an aggressive, industrial or marine environment.
- Repairing tunnels, chimneys, columns, cooling towers, industrial structures, buried construction, particularly in aggressive conditions.
- Water purifying plants.

PROPERTIES

- It allows implementing the structural repair with just one product and in one step.
- It contains migratory corrosion inhibitors, which increase the protection and durability of the repair.
- Sulphate resistant.
- Excellent adherence to substrates of concrete, wood, etc.
- High initial and final mechanical resistance. It can be stripped from the formwork after 24 hours.
- Fluid. It allows for an easy application by pouring or pumping.
- Non-expansive, no shrinkage and reinforced with fibres.
- Good abrasion strength.
- High impermeability to water and chlorides.
- Free of chlorides, its high pH protects against the corrosion of metal elements, such as rebars, anchorings, etc.
- High resistance to carbonation and the freezing-thawing cycles.

HOW TO USE

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Preparing the substrate:

The substrates must be firm and resistant, clean, free of any loose particles, oils, grease, dust, release agent remains, paint and superficial slurries. All degraded and not very resistant concrete is to be removed down as far as the concrete that is healthy and structurally strong, either by sand blasting or with pressurised water. The mortar's high pH allows the passivation of the rebars. With large-scale structural repairs, it is advisable to passivate the rebars with **BETOPRIM**, following the instructions detailed in their respective technical data sheets.

Normally a primer is not needed on a well-prepared surface with the appropriate roughness. In these cases, wet the substrate up to saturation point 24 hours before applying the mortar. Wet again 2 hours before applying the mortar and apply this when the surface has a matt appearance without any water present.

Possibly, in those cases where the commissioning work allows it, the bonding primer **BETOPOX® 93**, can be used to improve adherence, following the indications on its corresponding technical data sheet.

The substrate temperature must be at least 5°C and at most 30°C.

Mixing:

For small quantities, use a low revolution electric mixer.

In a suitable container, pour the necessary water, approximately 3.6 litres per sack, and then add **PROPAM® REPAR TECHNO FLUID MCI** gradually, beat for 3-4 minutes until an even mixture is obtained.

For larger quantities, use a cement mixer. Pour 3/4 of the water needed into the concrete mixer when it is running. Add the mortar and mix for 2 minutes. Stop the concrete mixer and scrape the mortar adhered to the walls. When the concrete mixer is running again, add the rest of the water and mix until an even, smooth mixture is obtained.

Application:

PROPAM® REPAR TECHNO FLUID MCI can be applied by pouring, injecting or pumping. Apply to the substrate that has been previously dampened to saturation (with water accumulating), or to the fresh bonding primer. The application time is approximately 60 minutes.

Curing:

As with any hydraulic mortar, it is important to avoid excessive drying, which can be caused by wind, direct sunlight, a high substrate or ambient temperature, low relative humidity, etc. At any event it is essential to cure the material for at least the first 48 hours using any of the traditional methods, such as using damp burlaps, polyurethane sheets, or curing agents such as **BETOFILM**.

Tool cleaning:

The tools are to be cleaned as soon as they have been used, with water only. Once hardened, it can only be removed mechanically.

COVERAGE

Approximately 19 kg per m² and cm thickness.

PACKAGING

25 kg sacks.

STORAGE

12 months, in its original closed packaging, in a cool, covered place, protected from humidity, sunlight and freezing temperatures.

INDICATIONS TO TAKE INTO CONSIDERATION

- Apply at temperatures between +5 °C and +30 °C.
- Do not add cement, sand, colouring agents or any other substance that may affect the properties of the material.
- In the event of structural screeds, the recommended work thicknesses vary between 20 and 200 mm.
- Do not add more water to the mortar once it loses its consistency, or re-mix.
- Use the specified amount of water for kneading. A larger amount of water reduces the mechanical strength and increases cracking and shrinkage.
- Protect from direct sunlight and wind during the first days.
- Do not strip the formwork until at least 24 horas (at 20 °C) after the filling.
- Paintable from 72 hours after removing the formwork.

TECHNICAL DATA

Colour	Grey
Density of mixed mortar	2.0 g/cm ³
Granulometry	0 - 2 mm
Adherence on concrete	≥ 2.2 N/mm ²
Workability time (20 °C)	60 minutes
Application temperature	+5 °C to +30 °C
Mixing water	14.5 ± 0.5 %
pH	12.9
Cracking strength (Coutinho)	> 180 days

Resistance to Corrosion Induced by Accelerated Carbonation: > 185 days.

Increases the critical concentration of chlorides compared to a normal mortar up to a value of 0.83% by weight of cement approx.

Decreases the section loss once it starts compared to a normal mortar by 76.79%

MECHANICAL STRENGTHS (N/mm²) 20 °C

	Water	1 day	3 days	7 days	28 days
Compression	14 %	15.7	34.3	41.9	52.8
	15 %	13.4	31.7	39.4	50.2
Flexural strength	14 %	4.6	5.9	6.9	7.7
	15 %	3.6	5.5	6.1	6.9

(*) The technical data indicated here are based on laboratory tests, being statistical values and not representing guaranteed minimums. May vary according to work conditions or others beyond our control.

CE MARKING

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EN 1504 - 3

**Mortar for structural repair of concrete
Class R4**

Compression strength	≥ 45 N/mm ²
Chloride ion content	≤ 0.05 %
Adhesion	≥ 2.0 N/mm ²
Carbonation resistance	Pass
Elastic modulus	≥ 20,000 N/mm ²
Thermal compatibility freeze/thaw	≥ 2.0 N/mm ²
Capillary absorption	≤ 0.5 kg.m ² .h ^{-0.5}
Emission of hazardous substances	according to 5.4
Reaction to fire	class A1



EN 1504 - 2

Coating (C) for protecting against ingress (PI), moisture control (MC) and increased resistivity by limiting the moisture content (IR)

Permeability to water	≤ 0.1 kg.m ² .h ^{-0.5}
Water vapour permeability	Sd < 5 m (Class I)
CO ₂ permeability	Sd > 50 m
Emission of hazardous substances	See SDS
Reaction to fire	Class A1



EN 1504 - 7

Coating for protecting rebars against corrosion

Protection against corrosion	Pass
Pull out resistance of concrete-coated steel (shearing adherence)	Pass
Emission of hazardous substances	According to 5.3 See SDS
Reaction to fire	Class A1

HEALTH AND SAFETY

All the information about conditions of usage, use, storage, transport and removing chemical waste is available on the product Safety Data Sheet.

The product and its packaging must be disposed of according to current legislation and it is the responsibility of the product end user.

LEGAL NOTICE

The data contained in this document are based on our experience and technical knowledge, gained during laboratory assays, and our bibliography. We will not be responsible for any other product applications not indicated in this file. The dosage and consumption data are only guidelines, based on our experience. Said data, and may alter due to atmospheric or on-site conditions. For correct dosage and usage amounts, it is necessary to conduct a trial or assay "in situ", for which the client is responsible. If you have any doubts or require additional information, please contact our Technical department. The valid technical sheet will always be the latest version that will be located in www.propamsa.es. October 2022.


www.propamsa.es

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