

# LAVAREP F90

## High Compressive Strength Shrinkage Free Repairing Mortar

### Description:

LAVAREP F90 is a single component, polymer modified, fiber reinforced, shrinkage compensated cement based structural mortar, used primarily for the durable repair of concrete. LAVAREP F90 is a blend of hydraulic binders, selected aggregates, fibers and special additives which when mixed with water produces a thixotropic mortar suitable for vertical and horizontal applications. LAVAREP F90 is physically and chemically compatible with the host concrete exhibiting high adhesion and compressive strength.

### Uses:

LAVAREP F90 is suitable for structural concrete repair where high load bearing is required. Typical applications would include, but not limited to the following:

- Repair mortar for structural elements in buildings, water retaining structures, bridges, decks, floors, edges of beams, pillars, tunnels, channels and concrete pavements.
- Vertical and overhead repairs
- Pre-cast concrete repairs
- Honeycombing repair in reinforced concrete elements
- Highly trafficked surfaces, particularly transition strips adjacent to mechanical bridge joints.
- Pile cap reprofiling and treatment
- Repair of expansion joints
- General Repair of degraded concrete structural elements.
- Repairs in marine environments or other situations, where concrete is in contact with chloride or sulphate solutions.
- Floor repairs in industrial areas, especially if exposed to oil or lubricants.

### Advantages:

- Single component prepacked material, only requires mixing with clean water.
- High bond strength ensuring monolithic performance of the repair
- Shrinkage compensated, reduces the risk of cracks
- High compressive strength and impact resistance

- Very high diffusion resistance to acid, gases, chloride ions
- Excellent workability and thixotropic mortar
- Recoatable and compatible with other cement products.
- Excellent bond to all concrete substrates.
- Can be applied on vertical, overhead or horizontal places without the use of formwork.

### Instructions for Use:

#### Surface Preparation:

Preparation of cementitious surfaces for repair should ensure the removal of all grease, contaminants, oil and loose material, after cleaning by mechanical tools, to avoid "feather edging", it is advisable to neatly cut the repair boundary by concrete saw to a depth of 10mm. All corroded steel should be completely exposed including the rear of the bar to enable thorough cleaning.

It is recommended to apply mechanical cleaning to reinforcing steel and particular attention should be given to the rear of the bar to ensure all corrosion products have been removed. Once the reinforcing steel has been cleaned it should be coated immediately with one coat of LAVAZINC EP- a two component epoxy zinc primer or LAVAFER – a two component cementitious corrosion inhibiting primer.

Before applying LAVAREP F90 soak the substrate with water. Allow excess water to evaporate or use sponge, and ensure a saturated surface dry condition "SSD" prior to application of repair mortar.

If the application to be done in short period of time, apply a coat of MEGABOND SBR slurry as a bonding coat before applying repair mortar.

Application of repair mortars over dry concrete surfaces without saturation with clean water "SSD" or priming with a bonding agent will result in failure of product and defect in repair.

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## Mixing:

To prepare the mortar, pour 3.0-3.2 liters of clean water into container and add slowly the LAVAREP F90 powder bag contents (25 Kg). Mix using spiral paddle fitted to slow speed heavy duty drill for 3-5 minutes till a homogeneous lump free consistency mix is achieved. Always add powder to water and not water to powder.

Avoid additional thinning water after the mixture is homogenous and ready for use.

## Application:

Apply LAVAREP F90 manually with a trowel or spatula to the saturated surface of concrete "SSD". For vertical surfaces applications, the recommend applicable layer thickness is from 10 mm up to a maximum of 50 mm. On horizontal surfaces, repair thickness can reach up to 100 mm per layer. For vertical application, if the application of a second layer is necessary to reach higher thicknesses, the first layer must be applied with proper pushing then roughened to increase bonding with the second layer.

For large repair areas, LAVAREP F90 can be sprayed by a mortar spray machine. Ensure proper mix of gauging water and apply a sample area to ensure mixture consistency and bonding prior to full application.

Curing cementitious repair products is essential. It is essential to follow good concrete curing practice and to protect the repaired area from drying winds, sun or excessive heat to avoid rapid evaporation of mix water in the applied mortar. Cover the area with wet hessian cloth covered with polyethylene sheet for two days. A coat of a recommended MATEX curing agent could be applied instead. Consult with MATEX Technical Department for further instructions.

## Standards:

- EN 1504-3, class R4
- BS 1881, Part 116, BS 6319
- UNI 6556, UNI 9532, UNI - EN 196
- ASTM C 157 – 93, C928, C1240, C109, C579, C580

## Packaging:

LAVAREP F90 is supplied in 25 kg high quality recyclable paper bags.

TECHNICAL PROPERTIES	
Appearance	Cement Grey powder
Mix Density	2.20 ± 0.05 kg/lit
Temperature of Application	From +5°C to +35°C
Potlife time of mixture	35 minutes @25°C
Thickness per coat	10 – 50 mm vertical 10 – 20 mm overhead 10 -100 horizontal
Adhesion bond to concrete (ASTM C1881, part 2)	≥2.0 N/mm <sup>2</sup>
Compressive Strength (ASTM C109)	>70 N/mm <sup>2</sup> @ 7 days >85 N/mm <sup>2</sup> @ 28 days
Flexural Strength (ASTM C580)	>10.0 N/mm <sup>2</sup> @ 28 days
Tensile Strength (BS 6319-7)	>6.0 N/mm <sup>2</sup> @ 28 days
Water Absorption	<2.0%
Rapid Chloride Permeability (ASTM 1202)	<500 coulombs

\*Values indicated may vary depending on the environment and conditions of the material. Figures given are tested according to standard laboratory conditions.

## Coverage:

LAVAREP F90 achieves coverage of 2.2 kg/square meter @ 1mm thickness.

\*Coverage rate is an approximate value, and subject to actual site conditions.

## Yield:

12.8 liters / 25 Kg. bag mix with 3.2 liters of water.

## Storage Conditions:

Store in original packing in dry conditions away from direct sunlight and high humidity levels.

## Shelf Life:

LAVAREP F90 can be utilized within 12 months of production date if stored in proper conditions in an unopened original packing.

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## Cleaning:

Clean tools with water prior to product hardening. Hardened materials can only be removed mechanically.

## Health and Safety:

- Avoid contact with eyes and skin. Wear suitable protective clothing such as coveralls, goggles, dust mask and gloves. Use barrier cream. Ensure that there is adequate ventilation. Do not breathe vapour or spray mist.

## FIRST AID:

Eyes: In the event of accidental splashes, flush with warm water and seek medical advice.

Skin: Wash skin thoroughly with soap and water

Inhalation: Remove to fresh air, keep patient rested

Ingestion: Do not induce vomiting. Seek immediate medical attention.

For further safety information, please refer to LAVAREP F90 Material Safety Data Sheet.

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