

# ShaliFix<sup>®</sup> FRM 40

Polymer Modified Fiber Reinforced Sprayable Mortar



## Description

**ShaliFix<sup>®</sup> FRM 40** (formerly known as ShaliFix FRM) is a single component, polymer modified, fiber reinforced, ready mix dry powder requiring addition of clean water to produce a highly consistent thixotropic fiber reinforced sprayable mortar for structural and load bearing repairs.

## Characteristics - Physical

Appearance	Grey Powder	Application temperature, °C	
Density, gm / cc	2.25 ± 0.10	• Substrate	5 to 40
Water / Powder ratio	0.18	• Material	5 to 30
Mixing water, 30 kg bag, L	4.8 - 5.4	Recommended thickness, mm	12 - 50

## Characteristics – Technical

Property	Method	Result
Compressive strength, 1 day, MPa	ASTM C109	20
28 days, MPa		40
Tensile Strength @ 28 days MPa	ASTM C 1583	> 3
Flexural strength, 28 days, MPa	ASTM C 580	> 5
Shrinkage, %	ASTM C 157	< 0.001

## Application

**ShaliFix<sup>®</sup> FRM 40** is suitable for single layer hi-build for both hand as well as spray application for variety of repair applications including overhead repairs, like,

- Surface repair of the RC elements before polymer coating applications.
- Other reinforced concrete.
- Marine concrete structures.
- Underground structures.
- Mass infill to large areas.
- Repair of,
  - Surface stripping and eroded surface.
  - Irregular profiles.
  - Fire-damaged concrete.
  - Pillars, columns, girders.
- Protection of the concrete against sulphate /chloride attacks.
- Structural and non-structural repairs of high strength concrete elements.

## Advantages

- High strength and Perfect bonding to concrete / steel.
- Easy to use, single layer hi-build application ideal for vertical / horizontal structural repairs.
- Resistant to sulphate / chloride / oil.
- Thixotropic and hence can be used for overhead application.
- Cost effective as it has very low rebound.
- Shrinkage control feature enables completion of repair properly in the very first application.
- Suitable for extremely low permeability condition to prolong effective working life.
- No primer is required, good adhesion to host concrete.

## Application Methodology

### ➤ Surface Preparation

- Remove all loose traces of concrete or mortar, dust grease oil, etc.
- Remove damaged or contaminated concrete to obtain a keyed aggregate exposed surface.
- Non-impact vibrating cleaning method, e.g., grit or high-pressure water blasting are recommended. Cut the edges of the repair vertically.

- Clean all exposed reinforcement.
  - Ensure back of rebar is also clean.
  - Where reinforcing bars are corroded, cut back the concrete to at least 20 mm behind the reinforcing bars. Grit blast to remove corrosion products from around reinforcing bars and coat with **ShaliPrime® Zn R / ShaliPrime® Zn Ph** to protect rebars from corrosion.
  - Replace the affected part of rebar if the diameter after grit blasting is found reduced by more than 20% of the original diameter
- **Material Preparation**
- Add **ShaliFix® FRM 40** into a clean mixing bucket containing clean water @ 4.8 - 5.4 L per bag of **ShaliFix® FRM 40** and continuously mix with a mechanical mixer until a lump free, thixotropic consistency is achieved.
  - Mix for about 2 - 3 minutes until a lump free, thixotropic consistency is achieved.
  - Allow mortar to settle for a minute to allow entrapped air to escape.
  - Remix for 30 seconds before application.
- **Application of Material**
- Preferably apply prepared **ShaliFix® FRM 40** when the ambient temperature in the range of 10 to 40°C.
  - Ensure that,
    - Prepared substrate is pre-soaked before applying **ShaliFix® FRM 40**.
    - Surface is saturated surface dry, but without standing water.
  - Apply **ShaliFix® FRM 40** by spray or trowel. Apply mix product directly to the prepared damp substrate, or wet on wet onto the primed surface.
  - A thin scrape coat or contact layer before building up to the required thickness, wet-on-wet, will improve adhesion especially in case of hand application.
  - Apply to the desired layer thickness of 12 to 50 mm and level using a screeding bar, trowel or wooden board. Apply **ShaliFix® FRM 40** in thicker layers in smaller patches or where additional reinforcement is present.
  - Smoothing with a trowel or finishing by float or sponge can be done as soon as the mortar begins to stiffen.
  - Do not apply **ShaliFix® FRM 40** in standing water.
  - Open areas should be protected from the rain, wind, etc. aggressive weather conditions during the first 24 hours after finishing repair.
  - The dry spray technique mixes the water and mortar at the nozzle as it exits. This ensures material can be advanced through long stretches of hose, whilst only dry powder is in the pump or hose. Therefore, pauses in spraying do not have to be accompanied by laborious emptying and cleaning of the equipment.
  - Do not use **ShaliFix® FRM 40** where liquids in contact have pH under 5.5.

### Cleaning & Maintenance

- Clean all tools immediately after use with water.
- Do not allow the material to harden.

### Health & Safety

- Avoid contact with skin / eyes and avoid swallowing.
- Ensure adequate ventilation and avoid inhalation of vapour.
- Wear suitable protective clothing, gloves and eye protection.
- In case of skin contact, rinse with plenty of clean water, then cleanse with soap and water. Do not use solvent to clean the contacted area.
- In case of eye contact, wash with plenty of clean water and seek medical advice.
- If swallowed, seek medical attention immediately. Do not induce vomiting.

### Packing

Available in 30 kg pack.

### Storage

Store in a cool dry place, under shed, away from heat.

### Shelf Life

12 months in original unopened sealed condition.



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