



Repair Pro Dr. Fixit Micro Concrete

FLOWABLE MORTAR FOR REPAIRS TO DAMAGED REINFORCED CONCRETE STRUCTURE CONFORMING TO THE REQUIREMENTS OF EN 1504-3 CLASS R4

Description

Dr. Fixit Micro Concrete is a ready to use dual shrinkage compensated dry powder, requiring only the addition of clean water to produce a free flowing dimensionally stable micro concrete. **Dr. Fixit Micro Concrete** is ideal for the reinstatement of large, structural sections of concrete as well as for many smaller locations where difficulties of access make hand or trowel-applied mortars impractical.

Areas of Application

- Repair of damaged / spalled concrete structures such as columns, beams, floors and where access is restricted and compaction is not possible.
- For jacketing of RCC columns, slabs / beams to increase load-bearing capacity.
- Pile head repairs.
- Repairs to marine structures in fenders, partition walls etc.
- Bridge deck slabs, joint nosing, expansion joints, etc.
- Cooling towers large spans of spalled concrete.

Features & Benefits

- Pre-bagged to overcome site-batched variations only the site addition of clean water is required
- Unique dual expansion system offers an extremely high level of control of plastic and long-term drying shrinkage
- Complies to the requirements for the performance characteristics of class R4 mortar of EN 1504-part 3
- Excellent adhesion to both old concrete (≥ 2 MPa) in accordance to EN1504 - 3
- Excellent bond to concrete substrates without independent primer
- Very low permeability provides excellent protection against carbon dioxide and chlorides
- Can be applied 100 mm thickness in a single layer
- Exceptional flow allows pumping or pouring into restricted locations
- Self-compacting nature eliminates honeycombing and displaces air without vibration
- Fast and easy placing, reduced time for repairs.

Method of Application

1 SURFACE PREPARATION

- Concrete surface should be sound, stable, clean and free from laitance, paint, oil, grease, and any residual mould release agents and curing compounds. The Metal surfaces should be free from any rust, scaling, cleaning can be carried out with suitable methods like by using wire brush, water jetting, mopping, etc.
- Defective concrete surfaces must be cut back to a sound base. Smooth surfaces should be mechanically roughened. Corroded reinforcing steel should be exposed around its full circumference and cleaned using Dr. Fixit Rust Remover to remove all loose scale and corrosion deposits. It is important to clean the steel to a bright condition.
- One coat of - Dr. Fixit Zinc-Rich primer a single component zinc based epoxy coating should be applied on the reinforcing steel. If any discontinuity in the applied film is noticed, one more coat has to be applied.

2 FOAMWORK

- The forms must be of good quality, several hours prior to placing, the concrete substrates should be saturated with clean water. Immediately prior to placing, any free water should be removed. The shuttering has to be proper without any gaps or loose materials to ensure nil leakages during placing Dr. Fixit Micro Concrete usages.



3 MIXING

- Mix Dr. Fixit Micro Concrete in a forced action pan mixer, or with a helical paddle attached to a low speed (300-600 rpm) mixer for 3 to 5 minutes until a flowable consistency is achieved.
- Charge 85-90 % of clean & potable mixing water (3.25 to 3.50 liters per 25 kg bag) to a PAN Mixer. Start addition of Micro Concrete powder slowly under continuous mixing. Keep mixing for 2 minutes. Add balance quantity 10 - 15% of mixing water & again mix for another 2-3 minutes to form a homogeneous, free flowing, uniform & lump-free mix. If temperature more than 40 degree Celsius then use chilled water for mix.

4 APPLICATION

- Saw cut the edges of repair area to minimum 15 mm to avoid feather edging. The prepared surface should be sprayed with water to achieve SSD condition before erecting shuttering. The minimum temperatures must be maintained during application and for at least 24 hours thereafter for optimum curing of the product. The formwork should be removed after 1-3 days. Use Dr. Fixit Deshuttering Oil for ease of strip-off of formwork.

Notes:

- For repair beyond 100 mm it may be necessary to mix the Dr. Fixit Micro Concrete with properly graded 5mm to 12 mm sized washed, saturated surface-dry (SSD), graded low absorption, high density aggregates. The quantity of aggregate required may vary depending on the nature and configuration of the repair location. However it can added max 50% by weight of micro concrete.

Precautions & Limitations

- Strictly follow water-powder ratio as specified.
- Consult structural engineer if the diameter of rebar is reduced by more than 20% of the original diameter.
- Replacement or provision of additional steel shall be done in consultation with structural consultant.
- Use 100% watertight and sound quality formwork shuttering for best performance.

Technical Information

PROPERTIES	TEST METHOD	TYPICAL VALUES
W/P ratio	0.13 - 0.14	-
Compressive strength @ 30°C	ASTM C 109 : 99	15 N/mm ² at 1 day 28 N/mm ² at 3 days 40 N/mm ² at 7 days 55 N/mm ² at 28 days
Flexural Strength @ 30°C	ASTM C 580	9 N/mm ² at 7 days 10.5 N/mm ² at 28 days
Tensile Strength @ 30°C	ASTM C 307	4 N/mm ² at 7 days 6 N/mm ² at 28 days
Expansion		> 0.4%
Fresh Wet Density		2200 - 2300 kg /m ³
Water absorption 28 days	BS 1882 : Part 122	< 2%
Length Change 28 days wet cured	ASTM C 157	+0.02%
Bond Shear Strength, N/mm ²	ASTM C 882	10 N/mm ² at 14 days
Linear Shrinkage	ASTM C 157/ C 157 M 2014	0.020 N/mm ² at 7 days 0.035 N/mm ² at 28 days

Performance requirements for free flow micro concrete mortar Repair Pro - Dr. Fixit Micro Concrete - Conforming to EN 1504-3 Class R4 and following results were obtained at water : powder ratio of 0.14

Performance characteristics	Test method	Structural Repair Class R4	
		Requirement in (EN 1504, part 3)	Test Results for Micro Concrete
Compressive Strength, Mpa (At 28 days)	EN 12190-1998	≥45	55.85
Chloride content, % by mass	EN 1504-3: 2005	≥ 0.05 %	0.02 %
Adhesive Bond Test, Mpa	EN 1542	≥2	Without primer 2.51 (pre-soak)
Shrinkage/Expansion Dry Condition Adhesive Bond test, Mpa	EN 12617 -4	≥2	2.24
Shrinkage/Expansion Wet Condition Adhesive Bond test, Mpa	EN 12617- 4	≥2	2.27
Thermal Compatibility Adhesive Bond test, Mpa	EN 13687- 4	≥2	2.21
Coefficient of Linear Thermal Expansion, mm/mm°C	EN 1770-1998	-	2.68x10-5
Capillary Absorption, kg/m2h1/2	EN 13057	≤0.5	≤0.30

Theoretical Coverage

1.2 m² per 25 Kg pack at 10 mm thickness

Yield - 12.7 Ltrs. at W/P ratio of 0.14

Packaging

25 kg Unit

Shelf Life & Storage

Shelf life is 6 months from the date of manufacturing if stored in original and unopened packaging in a cool dry place away from direct sunlight.

Health & Safety Precautions

This products contains cement. And contact with skin may cause irritation. It should not be inhaled and a quality certified PPE should be used whilst handling, pouring and mixing the powder. Avoid contact with the product by working carefully, using a barrier cream, if any contact does occur, wash thoroughly with soap and water. Avoid contact with eyes, if such contact occurs flush of water irrigate with water for 20 minutes and seek medical advice. If swallowed seek medical advise immediately- do not induce vomiting. See MSDS for further information.

Other Products Categories available

Dr. Fixit brings you the widest range of Construction Chemicals



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