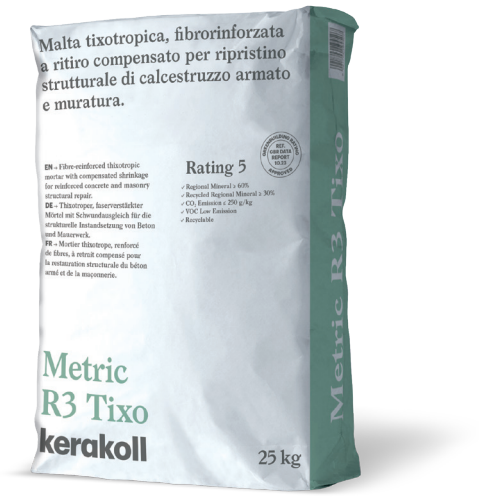
Metric R3 Tixo

Fibre-reinforced thixotropic mortar with compensated shrinkage for reinforced concrete and masonry structural repair.

Metric R3 Tixo is a class R3 mortar for repairing and consolidating reinforced concrete structures and masonry of any nature when combined with an electro-welded, metal mesh.



GREENBUILDING RATING
REF. GBR DATA REPORT 10.23
APPROVED

Rating 5

- ✓ Regional Mineral ≥ 60%
- ✓ Recycled Regional Mineral ≥ 30%
- ✓ CO_2 Emission ≤ 250 g/kg
- ✓ VOC Low Emission
- ✓ Recyclable

1. Thixotropic, class R3
2. Thicknesses from 10 to 50 mm in a single coat
3. For structural layered repairs of reinforced concrete
4. For the preparation of reinforced fine grain concrete on masonry
5. Applicable with a machine

kerakoll

Areas of application

→ Use
Repair and structural consolidation of weakened reinforced concrete and prestressed reinforced concrete elements of any nature and size:.
Structural repair of prefabricated concrete elements.
Strengthening of masonry of any nature using reinforced fine grain concrete. Reconstruction of concrete covers in reinforced concrete and prestressed reinforced concrete structures
Smoothing of concrete surfaces and superficial defects.

Instructions for use

→ Preparation of substrates
Before applying Metric R3 Tixo on reinforced concrete it is necessary to:
- thoroughly remove all weakened concrete until a solid, resistant substrate is obtained; roughen it by mechanical scarification or hydro-demolition to a depth of ≥ 5 mm, equivalent to level 8 of the Test kit for preparation of reinforced concrete and masonry substrates
- remove the rust from the reinforcing bars, which must be cleaned by brushing (manual or mechanical) or sandblasting;
- clean the treated substrate using compressed air or a high pressure washer;
- saturate with water until the substrate is saturated yet with no excess water on the surface.

Check that the resistance class of the supporting concrete is suitable.
In case of thick patched layers and on large surface areas, provide a reinforcing welded mesh anchored to the substrate.

Before applying Metric R3 Tixo on masonry it is necessary to:
- remove all finishing coats until the masonry is exposed;
- remove all weakened parts and inconsistent rendering mortars until a solid, resistant substrate is obtained; roughen it by mechanical scarification or hydro-demolition to a depth of at least 5 mm, equivalent to level 8 of the Test kit for preparation of reinforced concrete and masonry substrates;
- repair any missing parts of the masonry using fragment-filling or break-fill techniques;
- saturate with water until the substrate is saturated yet with no excess water on the surface.

provide a metal, reinforcing welded mesh anchored to the substrate.

→ Preparation
Prepare Metric R3 Tixo by mixing the powder using the amount of water indicated on the packaging (we advise using the whole bag).
The mixture can be prepared in:
- a mixer, mixing until a smooth, lump-free mortar is obtained;
- a suitable mixing pump;
- a mortar mixer or drill-type mixing device with a low-rev agitator.

→ Application
- Treat the reinforcing bars with Metric Rebar before applying Metric R3 Tixo.
- In localised and/or generalised repair work in which Metric R3 Tixo is applied in thicknesses from 10 mm to 50 mm (maximum per layer), apply the mortar by hand using a trowel or a mortar spray machine.
- For multiple-layer applications, leave the surface roughened and work after the previous layer has begun to set, no later than 12 hours.
- Before float finishing with a sponge float, wait for appropriate timing depending on weather conditions.
- Mechanical application: it is recommended to use a piston plastering machine or an endless screw plastering machine (such as Turbosol, Putzmeister, PFT, Bunker, Imer) or a three-phase continuous pump mixer (such as PFT G4) equipped with the following accessories: mixer, stator/rotor D 6-3 (flow rate 22 l/min), Ø 25 mm flexible hose, 10-15 m long and spray gun.

Allow to cure during the first 24 hrs.

→ Cleaning
Residual traces of Metric R3 Tixo can be removed from tools and machines using water before the product hardens.

Certificates and marks

When properly emptied, the packaging is recyclable as paper (up to 80 per cent) according to the ATICELCA® 501 method.

* *Émission dans l'air intérieur Information sur le niveau d'émission de substances volatiles dans l'air intérieur, présentant un risque de toxicité par inhalation, sur une échelle de classe allant de A+ (très faibles émissions) à C (fortes émissions).*

Abstract

Supply and laying of a fibre-reinforced, thixotropic mortar with compensated shrinkage, such as Metric R3 Tixo by Kerakoll, for localised or generalised centimetre-thick structural repair of damaged or deteriorated sections of reinforced concrete and strengthening of masonry using a reinforced fine grain concrete technique, to be applied with a trowel or by machine, after adequate preparation and wetting of the substrates until fully saturated. GreenBuilding Rating 5, CE-marked and compliant with the performance requirements of Standard EN 1504-3, Class R3, type CC and PCC, for volumetric reconstruction; according to Principles as defined by Standard EN 1504-9.

Technical Data compliant with Kerakoll Quality Standard		
Appearance	Powder	
Apparent volumetric mass	≈ 1420 kg/m³	UEAtc
Aggregate mineral content	silicate - carbonate	
Grading	0 – 2,5 mm	EN 12192-1
Shelf life	≈ 12 months from production in the original sealed packaging, protect from humidity	
Pack	25 kg bags	
Mixing water	≈ 4.6 l / 1 x 25 kg bag	
Flow of the mixture	160 – 180 mm	EN 13395-1
Density of the mixture	≈ 2100 kg/m³	
pH of the mixture	≥ 12,5	
Pot life	≥ 1 hr	
Temperature range for application	from +5 °C to +35 °C	
Minimum thickness	10 mm	
Maximum thickness per layer	50 mm	
Coverage	≈ 18 kg/m² per cm of thickness	

Values taken at +21 °C, 60% R.H. and no ventilation. Data may vary depending on specific conditions at the building site.

Performance			
VOC Indoor Air Quality (IAQ) - Volatile organic compound emissions			
Conformity	EC 1 plus GEV-Emicode		GEV certified 17758/11.01.02
HIGH-TECH			
Performance characteristic	**Test Method**	**Required by EN 1504-3 class R3**	**Metric R3 Tixo performance in CC and PCC conditions**
Compressive strength	EN 12190	≥ 25 MPa (28 days)	> 15 MPa (24 hrs) > 30 MPa (7 days) > 35 MPa (28 days)
Flexural tensile strength	EN 196-1	None	> 3 MPa (24 hrs) > 5 MPa (7 days) > 6 MPa (28 days)
Adhesive bond	EN 1542	≥ 1.5 MPa (28 days)	> 2 MPa (28 days)
Resistance to carbonation	EN 13295	dk ≤ reference concrete [MC (0.45)]	CC value exceeded PCC value exceeded*
Modulus of elasticity under compression	EN 13412	≥ 15 GPa (28 days)	19 GPa in CC 15 GPa in CC
Thermal compatibility with freeze/thaw cycles with de-icing salts	EN 13687-1	bond strength after 50 cycles ≥ 1.5 MPa	> 2 MPa
Capillary absorption	EN 13057	≤ 0.5 $kg \cdot m^{-2} \cdot h^{-0.5}$	< 0.5 $kg \cdot m^{-2} \cdot h^{-0.5}$
Chloride ion content (determined on the product in powder form)	EN 1015-17	≤ 0.05%	< 0.05%
Reaction to fire	EN 13501-1	Euroclass	A1

* Standard passed applying a protective surface layer such as Kerakover Acrilex Flex

Values taken at +21 °C, 60% R.H. and no ventilation. Data may vary depending on specific conditions at the building site.

Warning

→ Product for professional use
→ abide by any standards and national regulations
→ store the product away from any sources of humidity and out of direct sunlight
→ use at temperatures between +5 °C and +35 °C
→ do not add binders or additives to the mixture
→ do not apply to dirty, loose and flaking surfaces
→ do not apply on gypsum, metal or wood
→ following application, protect from direct sunlight and wind
→ allow the product to cure during the first 24 hours
→ if necessary, ask for the safety data sheet
→ for any other issues, contact the Kerakoll Worldwide Global Service +39 0536 811 516 - globalservice@kerakoll.com

Kerakoll Quality System ISO 9001 CERTIFIED IT10/0327

Kerakoll Quality System ISO 45001 CERTIFIED 18586-I

The Rating classifications refer to the GreenBuilding Rating Manual 2012. This information was last updated in October 2023 (ref. GBR Data Report - 10.23); please note that additions and/or amendments to this information may be made over time by KERAKOLL Spa; for the latest version, see www.kerakoll.com. KERAKOLL SpA shall therefore be liable for the validity, accuracy and updating of information provided only when taken directly from its institutional website. The technical data sheet given here is based on our technical and practical knowledge. As it is not possible for us to directly check the conditions in your building site and the execution of the work, this information represents general indications that do not bind Kerakoll in any way. Therefore, it is advisable to perform a preliminary test to verify the suitability of the product for your purposes.

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