

# Metric Binder

High-performance, expansive, superfluid cement-based binder for concrete, fine grain concrete and mortar.

Metric Binder is a binder compliant with standard EN 1504-6, for the preparation of slurry keys, concrete, fine grain concrete and mortars.



## Rating 1

1. High fluidity and expansion
2. EN 1504-6 certified
3. For consolidating injections and precision grouting
4. For the preparation of concrete and fine grain concrete
5. Resistant to environmental aggressions
6. Applicable with a machine

- × Regional Mineral  $\geq 60\%$
- × Recycled Regional Mineral  $\geq 30\%$
- × CO<sub>2</sub> Emission  $\leq 250$  g/kg
- × VOC Low Emission
- ✓ Recyclable

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## Areas of application

### → Use

- For the preparation of slurry keys for precision grouting, consolidating injections and filling of large cracks.
- Preparation of concrete and fine grain concrete with compensated shrinkage, no segregation and with high levels of mechanical resistance cured in a very short time.

- Preparation of concrete and fine grain concrete for underpinning, self-levelling casting and filling of rigid joints.

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## Instructions for use

### → Preparation of substrates

Before applying Metric Binder as a slurry key for injections it is necessary to:

- drill the holes, install the nozzles and grout the cracks;
- clean using water from the top downwards.

Before casting concrete and fine grain concrete prepared with Metric Binder 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  $\geq 5$  mm, equivalent to level 9 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.

### → Preparation

- For slurry keys: Prepare Metric Binder by mixing the powder with the amount of water indicated on the packaging (we advise using the whole bag). To prepare the mixture, empty the product into a bucket and stir with a mortar mixer or a drill-type mixing device with a low-rev agitator until the mixture is smooth and has no lumps.

- For concrete and fine grain concrete: Prepare Metric Binder by mixing the powder with certified aggregates with a suitable grain size curve and enough water to obtain the desired consistency. The mixture can be prepared in a cement mixer or with a suitable mixing pump. Mix until the mixture is smooth.

### → Application

- Before applying concrete and fine grain concrete prepared with Metric Binder, it is necessary to treat the reinforcing bars with Metric Rebar.
- For the injection, use the nozzles to perform the procedure at low pressure from the bottom up and until complete saturation.
- For grouting of bars, fill the hole previously made with Metric Binder and insert the bar with a rotating movement.
- For concrete and fine-grain concrete application, apply by pouring or pumping it on the extrados of horizontal surfaces or in sealed formworks treated with a parting compound that assists air escape, using the correct application techniques.
- Mechanical applications: it is recommended to use a suitably equipped piston or endless screw plastering machine (such as Turbosol, Putzmeister, PFT, Bunker, Imer).

Allow to cure during the first 24 hrs.

### → Cleaning

Residual traces of Metric Binder 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.

Atelier® 11137-2009

## Abstract

Supply and laying of a high-performance, expansive, superfluid cement-based binder, such as Metric Binder by Kerakoll. For the preparation of slurry keys for grouting or injections and the preparation of concrete, fine grain concrete and mortars. GreenBuilding Rating 1, CE-marked and compliant with the performance requirements of Standard EN 1504-6 for anchoring; according to Principles as defined by Standard EN 1504-9.

### Technical Data compliant with Kerakoll Quality Standard

Appearance	Powder	
Apparent volumetric mass	≈ 1000 kg/m <sup>3</sup>	UEAtc
Aggregate mineral content	silicate - carbonate	
Grading	0 – 0.5 mm	EN 12192-1
Shelf life	≈ 12 months from production in the original sealed packaging, protect from humidity	
Pack	25 kg bags	
Mixing water	≈ 8 l / 1 25 kg bag	
Flow of the mixture	145 – 215 mm with no shaker table vibration	EN 13395-1
Density of the mixture	≈ 2000 kg/m <sup>3</sup>	
pH of the mixture	≥ 12.5	
Pot life	≥ 1 hr	
Temperature range for application	from +5 °C to +35 °C	
Coverage	≈ 1500 kg/m <sup>3</sup>	

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

<b>Performance</b>			
<b>VOC Indoor Air Quality (IAQ) - Volatile organic compound emissions</b>			
Conformity	EC 1 plus GEV-Emicode	GEV Certified 17805/11.01.02	
<b>HIGH-TECH</b>			
<b>Performance characteristic</b>	<b>Test Method</b>	<b>Requirements of standard EN 1504-6</b>	<b>Metric Binder</b>
Pull-out strength of steel rebars (movement in mm in relation to a 75 kN load)	EN 1881	≤ 0,6 mm	< 0,6 mm
Chloride ion content (determined on the product in powder form)	EN 1015-17	≤ 0.05%	< 0.05%
Hazardous substances		compliant with point 5.4	
	<b>Test Method</b>	<b>Requirements of standard</b>	<b>Metric Binder</b>
Embedded bar adhesive tension	RILEM-CEB-FIPRC6-78	None	> 25 MPa
Compressive strength	EN 12190	None	> 30 MPa (24 hrs)
			> 50 MPa (7 days)
			> 60 MPa (28 days)
Flexural strength	EN 196-1	None	> 6 MPa (24 hrs)
			> 8 MPa (7 days)
			> 9 MPa (28 days)
Adhesive bond	EN 1542	≥ 2 MPa	> 2 MPa
Bleeding	EN 445	<1% of the initial volume after 3 hrs	test passed (no trace)
Volume change	EN 445	-1% < volume change < +5% of the initial volume	value exceeded
Reaction to fire	EN 13501-1	Euroclass	A1

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**Preparation of concrete or fine grain concrete**


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Fine grain concrete made from	- Metric Binder: 450 kg/m <sup>3</sup> - Sand ≈ 0 – 6 mm: 1030 kg/m <sup>3</sup> - Fine gravel ≈ 6 – 10 mm: 650 kg/m <sup>3</sup> - Water: 180 kg/m <sup>3</sup>
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Water/binder ratio	0.4
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Volumetric mass	2310 kg/m <sup>3</sup>
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Slump	240 mm
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	> 30 MPa (24 hrs)
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Compressive strength	> 45 MPa (7 day)
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	> 50 MPa (28 days)
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Concrete made from	- Metric Binder 350 kg/m <sup>3</sup> - Sand ≈ 0 – 6 mm: 1000 kg/m <sup>3</sup> - Fine gravel ≈ 6 – 10 mm: 195 kg/m <sup>3</sup> - Gravel 10 – 30 mm: 700 kg/m <sup>3</sup> - Water: 140 kg/m <sup>3</sup>
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Water/binder ratio	0,4
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Volumetric mass	2385 kg/m <sup>3</sup>
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Slump	220 mm
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	> 25 MPa (24 hrs)
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Compressive strength	> 40 MPa (7 days)
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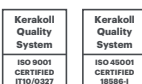
	> 50 MPa (28 days)
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## Warning

- 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](mailto:globalservice@kerakoll.com)



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](http://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.