



## Betonfix MONOLITE N

ST11-1022

*Thixotropic high-resistance, normal curing mortar, for structural and non-structural repair of reinforced concrete structures.*



### DESCRIPTION

**Betonfix MONOLITE N** is a non-shrink, normal curing, ready-to-use, thixotropic mortar with the addition of synthetic fibers.

It has high mechanical strength for both short and long curing time, strong adhesion to concrete, high resistance against sulphates and excellent durability even in severe aggressive conditions (coastal areas, deicing salts, acid rain).

It is CE marked as an R4 mortar according to EN 1504-3 and for systems for the protection of reinforcing steel (according to 1504-7). It is CE marked as a protective coating according to 1504-2, intervention principles C, MC and IR.

Betonfix MONOLITE N is part of Kimisteel GLV 650B SYSTEM which got the CVT n. 207.

### ADVANTAGES

- Performances: final mechanical development required for R4 mortars within the first 7 days.
- 3 in 1 system: passivation of reinforcement bars, restoration and skim coating at the same time in just a day of work, with a single coat.
- Versatile: suitable for both structural repairs (cortical) and non-structural (skim-coating).
- Easy to apply: excellent workability and easy to apply (manual or with machine).

### USES

Consolidation, restoration and skimming coats for concrete works (columns, beams, cornices, balcony risers, bridges and road and railway viaducts, canals, dams, tunnels).

### WORKS

- Cortical restoration and protection of degraded reinforced concrete structures with exposed metal reinforcement ([SA65](#))
- Structural reinforcing systems for RC elements, using galvanized steel fabrics with inorganic matrix ([SA127](#))

### APPLICATION

	Manual application		Normal curing time: 250 ± 30 mins
	Mechanical devices application		Mixing water: 4,5-5 lt/ 25Kg variable according to the desired workability
	Max thickness per coat: 2-30 mm for horizontal application 2-20 mm for vertical application 2-15 mm for overhead application		

The substrate must be perfectly clean, compact, free from dust, grease, varnishings, etc.

Carefully remove degraded and inconsistent concrete hammering the surface until you get a compact substrate.

The superficial tensile strength of concrete "Pull off" mustn't be lower than 1,5 Mpa as indicated in the substrate quality check procedures according to EN 1504-10.

Remove the concrete in contact with the exposed metal reinforcement using a needle gun and then sandblasting it. Soak the area to be treated and remove any possible standing water, before the casting.

**Betonfix MONOLITE N** is a ready-to-use product with the simple addition of drinking water for each package, depending on the quantity shown in the table.

Mixing must be carried out in a cement mixer or in the mixer of the spraying machine for at least 5 minutes until you get a proper plastic, homogeneous, lump-free mixture. A mortar mixer or a drill equipped with an agitator can be used, it depends on the quantity to be prepared. Mixing must take place at low speed to avoid entrapping air.

Introduce 3/4 of water required and continuously both product and remaining water until you get the consistency desired.

Apply by trowel or by spray with suitable plastering machine.

Kimitech AD latex can be added to the product. It is an expansive curing additive, which can reduce shrinkage.

Kimitech BC latex can be added to give to the mortar greater flexibility and adhesion\*. It is recommended to roughen the surface by bush hammering and apply the mortar with a thickness such as to create a concrete layer of at least 2 cm. The discretionary insertion of a suitable galvanized electro-welded metal mesh to improve the seal of the mortar layer does not alter its mechanical characteristics.

\*The optional addition of these latexes in reduced percentages (Kimitech AD 0,25% - 1% by weight of the product and Kimitech BC not exceeding 5%) does not lead to substantial changes in the physical and mechanical characteristics of the product.

The setting values related to mechanized application are the following:

- machine type model PFT G5,
- with lung type D7,
- pipe parameters:
  - diameter d=30mm,
  - length L=30m.

## CONSUMPTION

17 Kg/m<sup>2</sup>/cm.

## PACKAGING

25 kg multilayer polythene bag

## STORAGE

Protect from humidity. Products to be stored in a dry, sheltered place. Under these conditions and in intact containers, the product maintains its technical characteristics for 12 months.

Characteristics	Value
Aspect	Powder
Colour	Grey
Apparent specific weight UNI 9446	1,40 ± 0,1 g/cm <sup>3</sup>
Hazard classification 1999/45/CE & 67/548/CEE	Irritant
Granulometric interval EN 1015-1	0,1 – 0,5 mm
Apparent volumetric mass of fresh mortar EN 1015-6	2050 ± 30 Kg/m <sup>3</sup>
Consistency of the mix EN 13395-1	40-50 %
Initial hardening time EN 196-3 at 20°C & 65% H.R.	250 ± 30 mins
Final hardening time EN 196-3 at 20°C & 65% H.R.	400 ± 30 min.
Minimum application temperature	+5 °C
pH of the mixture	12 ± 0,5
Dangerous substance	According to DM 10/05/2004

Characteristics (mixing water 18%)	Limits EN 1504-3 for R4 mortars	Value
Compressive strength EN 12190 [MPa]	≥ 45	7 days > 15 14 days > 35 28 days > 50
Bending strength EN 196-1 [MPa]	No request	7 days > 5 14 days > 7 28 days > 8
Secant modulus of elasticity in compression EN 13412 [GPa]	≥ 20	≥ 20
Chloride content EN 1015-17 [%]	≤ 0,05	≤ 0,05
Adhesion to CLS (EN 1542) [MPa]	≥ 2	≥ 2
Thermal compatibility measured as adhesion (EN 1542) after 30 dry thermal cycles EN 13687-4 [MPa]	≥ 2	≥ 2
Thermal compatibility measured as adhesion (EN 1542) after 30 thundershower cycles EN 13687-2 [MPa]	≥ 2	≥ 2
Thermal compatibility measured as adhesion (EN 1542) after 50 freezethaw cycles with de-icing salts EN 13687-1 [MPa]	≥ 2	≥ 2
Resistance to accelerated carbonation, EN 13295	Carbonation depth, dk <Concrete for reference Type MC 0.45 a / c	OK
Impermeability to water (capillary absorption coefficient, EN 13057) [Kg/m <sup>2</sup> ·h <sup>1/2</sup> ]	≤ 0,5	< 0,5
Reaction to fire	-	A1

Characteristics (mixing water 18%)	Limits EN 1504-7	Value
Test of protection against corrosion* (EN 15183) after 10 cycles of condensation with water, 10 cycles of sulfur dioxide in accordance with EN ISO 6988, 5 days of saline fog according to EN 60068-2-11	After the series of cycles, coated steel bars must be free of corrosion. The penetration of rust at the end of the steel plate without coating must be <1 mm	OK
Pull-out strength of the bars treated (EN 15184), relative load to a displacement of 0.1 mm	Load of at least 80% on uncoated armor	OK
Determination of the glass transition temperatures (EN 12614)	At least 10°K above the maximum operating temperature	-

\*The test was carried out with a coating thickness of 30 mm.

Characteristics (mixing water 18%)	Limits EN 1504-2 Coating C, principles MC and IR	Value
Adhesion to concrete EN 1542	Flexible systems without trafficking >0,8 Mpa; with trafficking >1,5 Mpa.  Rigid systems without trafficking >1 Mpa; with trafficking >2 Mpa.	> 2 N/mm <sup>2</sup>
Permeability EN ISO 7783-2	Class I (permeable to vapour) Sd < 5 m  Class II 5 m ≤ Sd ≤ 50 m  Class III (not permeable to vapour) Sd > 50 m	Clase I
Capillar absorption and water permeability EN 1062-3	< 0,1 Kg/m <sup>2</sup> ·h <sup>0,5</sup>	< 0,1 Kg/m <sup>2</sup> ·h <sup>0,5</sup>
Reaction class to fire	Declared value	A1

## WARNING

Product intended for professional use.

For thicknesses less than 3 cm use Betonfix KIMIFER to passivate the reinforcement.

It is possible that different remittances made from the same raw materials present colors slightly discordant; may have tiny chromatic variations between batches of production which in no way impair the technical performance of the products supplied.

Do not remix with water any product that has already started to set.

Do not add cement, additives or other Betonfix mortars.

Before using, check bags have not been damaged, and do not use the product if there are lumps.

Use all the material once the package is opened.

Take all necessary precautions to ensure correct curing of the castings.

Do not cast at temperatures below +5 ° C.

Wet with water for the first 48 hours, or cover with plastic sheets or damp jute bags.

Do not use anti-evaporation products if there is no provision for further coatings.

For further information and advice on safe handling, storage and disposal of chemical products, the user must refer to the most recent Safety Data Sheet, containing physical, ecological, toxicological and other data related to safety.

All technical data shown in this Technical Data Sheet are based on laboratory tests. Actual measurement data may vary due to circumstances beyond our control.

The information and requirements indicated in this Technical Data Sheet are based on our current knowledge and experience and are to be considered, in any case, purely indicative. They cannot guarantee the final result of the applied product and they have to be confirmed by exhaustive practical applications; therefore the user must

test the suitability of the product for the intended application and its purpose. Users must always refer to the latest version of the local technical data sheet related to the product.

## TECHNICAL SPECIFICATIONS

### SK65 - Cortical restoration and protection of degraded reinforced concrete structures with exposed metal reinforcement

Accurate removal of degraded and inconsistent concrete by hammering until a you see a compact substrate.

Remove concrete from metal reinforcements by means of a needle gun. Positioning of new collaborative metal reinforcement in case of noticeable oxidation of existing irons with a strong reduction of the section and grout with special epoxy resins.

Hydro-sandblasting or sandblasting of concrete and metal reinforcement. Wet the area to be treated and remove any stagnant water at the time of application.

For the treatment of the reinforcement rebars, use Betonfix MONOLITE N mortar by Kimia S.p.A. or similar product.

Consumption: 17kg/m<sup>2</sup>/cm

The ready-to-use anti-shrinkage hydraulic mortar with a thixotropic effect containing synthetic fibers and corrosion inhibitors will be prepared and applied scrupulously following the indications given on the technical sheets supplied by the manufacturer and must have the following characteristics:

- Compressive strength EN 12190 at 1 days: > 15 MPa; at 7 days:> 35 MPa; at 28 days:> 50 MPa.
- Tensile flexural strength EN 196/1 at 1 days> 5 MPa; at 7 days:> 7 MPa; at 28 days:> 8 MPa.
- Elastic secant modulus on compression EN 13412 [Gpa]> 20;
- Concrete adhesion (EN 1542) > 2.0 Mpa

The mortar will be CE marked as R4 according to EN 1504-3, as material suitable to protect steel reinforcement bars against corrosion according to EN 1504-7 and as product suitable for protective coatings according to principles C, MC and IR mentioned in EN 1504-2.

The manufacturer will be able to provide specific reports or references showing the durability of interventions carried out with above-mentioned products.

Kimicover BLINDO by Kimia S.p.A. will be used for any anti-carbonation protective coating, or similar product diluted with 10-15% of drinking water applied in a double coat by brush, roller or spray respecting a total consumption not lower than 0.5 kg / m<sup>2</sup>.

As alternative to the protective varnishing system, it will be possible to use a cement-based elastic bi-component waterproofing system like Kimicover DUO by Kimia S.p.A. or similar product.