

MAPEFILL N-LH

High strength, shrinkage compensated mortar for concrete repair and anchoring steel bar



DESCRIPTION OF THE PRODUCT

Mapefill N-LH is a special grouting mortar for anchoring strengthening and repairing concrete structures.

WHERE TO USE

- Casting and grouting of assembling parts, thickness from 20 to 300 mm.
- Grouting of steel structures to obtain increased loadbearing.
- Embedding mountings in concrete.
- Anchoring of reinforcement steel bar.

TECHNICAL CHARACTERISTICS

Mapefill N-LH is a factory produced dry mortar consisting of sulfate-resistant Portland cement, graded aggregate and special formulated additives. Which mixed with water gives a shrink compensated, easy flow, highly pumpable mortar.

Mixed with water **Mapefill N-LH** is a shrink-compensated, easy workable mortar with high flow which ensure excellent filling without segregation. The use of low-heat cement reduces the risk for overheating even at large volumes.

Mapefill N-LH meets the requirement defined by EN 1504-3, ("*Structural and non structural repair*") for structural mortars for class R4 as well as EN 1504-6 ("*Anchoring of reinforcing steel bar*").

RECOMMENDATIONS

- **Mapefill N-LH** does not contain any anti-washout agents.
- Formwork is needed for repair at vertical surfaces.
- At significant volume or thickness can be added gravel 8 - 12 mm.
- Do not remix stiffened mortar with extra water when it has begun to set.
- Do not add extra cement or admixtures.
- Do not use **Mapefill N-LH** at temperatures below +5°C or above +35°C.
- Do not use **Mapefill N-LH** if the bag is damaged or previously opened.

INSTRUCTIONS FOR USE

TECHNICAL INFORMATION FOR THE APPLICATION

Composition of the mix	100 kg of Mapefill N-LH 10 - 12 kg of water
Application thickness:	20 - 300 mm
Application temperature range:	Surrounding and substrate temperature from +5°C to +35°C
Pot life of mix:	approx. 40 minutes (at +20°C)
Environment of use (climatic and geographical conditions):	The product can be used under the environmental conditions of the following exposure classes (EN 206-table F.1) X0 / XC4 / XS3 / XD3 / XF4 / XA3

Preparation

All loose particles and particles that may reduce bonding (dirt, cement paste, coatings etc.) must be removed from the substrate in an appropriate manner (e.g sandblasting, high pressure cleaning). The substrate should also be roughened up. Before casting, the substrate should be saturated and then dried until it is matt and damp. When using formwork this must be sufficiently stable and sealed.

Mixing

Mix 25 kg bag of dry mortar with 2.5 - 3.0 liters of clean water. Use a mechanic mixer or a suitable batch mixer and stir for 2 - 4 min. until it reaches a lump free and homogenous consistence. The mortar has an open time for at least 30 min.

Instructions for the preparation of the mortar to create samples for Lab testing are contained in the TECHNICAL DATA table.

Application

Place the mortar from one side and ensure that air pockets do not form any voids.

NB!

The mortar must not be stored in direct sunlight ahead of work. We recommend to use cold mixing water when the temperature is high and tempered water at low temperature conditions. Placed mortar should be protected against drying out too quickly as a result of wind and sun. Depending on the situation, this can be done by covering with polythene sheet, watering or using **Mapecure 1**, curing membrane.

CLEANING

Fresh mortar can be removed from tools and equipment with water. Hardened mortar can only be removed mechanically.

CONSUMPTION

Approx. 2.1 kg dry mortar to each liter of volume to be filled.

PACKAGING

Mapefill N-LH is supplied in 25 kg bags, 1000 kg big-bag and bulk.

STORAGE

Mapefill N-LH can be stored up to 12 months from production date in unopened, original packaging in dry conditions. Opened bags should be used immediately.

SAFETY INSTRUCTIONS FOR PREPARATION AND INSTALLATION

Instructions for the safe use of our products can be found on the latest version of the SDS available from our website www.mapei.no

PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)

PRODUCT IDENTIFICATION DATA

Class according to EN 1504-3:	R4
Type according to EN 1504-1:	CC
Consistency:	powder
Color:	grey
Maximum size of aggregate:	3.5 mm
Chloride ion content: – minimum requirement ≤ 0.05 % - according to EN 1015-17:	≤ 0.05 %

TECHNICAL INFORMATION FOR PRODUCT PREPARATION

Composition of the mix:	100 parts in weight of Mapefill N-LH with 11.5 % of water
Preparation of the mix:	according to EN 196-1

CHARACTERISTICS OF THE FRESH MIX (at +20°C and 50 % R.H.)

Color of mix:	grey
Consistency of mix:	fluid
Density of mix:	2300 kg/m ³
Expansion:	0 - 2 %

FINAL PERFORMANCE

According to curing defined in the test methods

Performance characteristic	Test method	Requirements according to EN 1504-3 R4	Requirements according to EN 1504-6	Product performance
Compressive strength: - 1 day - 7 days - 28 days	EN 12190	- - ≥ 45 (after 28 days)	not required	> 20 MPa > 50 MPa > 80 MPa
Flexural strength: - 1 day - 7 days - 28 days	EN 196-1	not required	not required	> 4 MPa > 8 MPa > 10 MPa
Modulus of elasticity in compression:	EN 13412	≥ 20 GPa	not required	> 30 GPa
Adhesion to concrete by pull-off:	EN 1542	≥ 2.0 MPa	not required	> 2.0 MPa
Capillary absorption:	EN 13057	≤ 0.5 kg/m ² ·h ^{0.5}	not required	0.13 kg/m ² ·h ^{0.5}
Thermal compatibility - freeze-thaw cycles using de-icing salts (50 cycles):	EN 13687-1	≥ 2.0 MPa	not required	> 2.0 MPa
Resistance to accelerated carbonation:	EN 13295	carbonation depth $\leq$ than reference concrete	not required	test passed
Pull-out strength of steel rebar – displacement at load of 75 kN:	EN 1881	not required	≤ 0.6 mm	< 0.6 mm
Reaction to fire:	EN 13501-1	Euroclass	Euroclass	A1

NOTES: Preparation of samples: compaction according to EN 196-1.

WARNING

Although the technical details and recommendations contained in this product data sheet correspond to the best of our knowledge and experience, all the above - information must, in every case, be taken as merely indicative and subject to confirmation after long-term practical application: for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application: in every case, the user alone is fully responsible for any consequences deriving from the use of the product. The values declared in the TECHNICAL DATA table (typical values) were obtained in compliance with test methods and curing cycles defined in the technical standards referenced therein. Therefore please note that the use of test procedures or methods other than those indicated in the table could lead to different values and that, in such cases, any liability of our company is excluded.

Please refer to the current version of the technical data sheet, available from our web site www.mapei.no

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The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement or replace requirements per the TDS in effect at the time of the MAPEI product installation. For the most up-to-date TDS and warranty information, please visit our website at www.mapei.no

ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.

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