

NONSET 400 FF

Frost resistant expanding mortar for foundations and concrete repair



AREA OF USE

Nonset 400 FF is used for all types of foundations and concrete repairs in thicknesses up to 150 mm and in temperatures down to -10°C . Ready mixed mortar must be utilized within 30 minutes after mixing, so it does not lose its expansion feature.

Examples of use:

- Structural reconstruction of reinforced concrete beams and columns
- Foundations and installation of concrete slabs
- Foundations for mounted equipment
- Foundations sleepers and crane tracks
- Sealing of horizontal motion-free joints

TECHNICAL CHARACTERISTICS

Nonset 400 FF is a cement-based dry mortar, expanding 1 - 3 % before it sets. The mortar consists of cement, well graded sand, expanding, stabilizing and plasticizing substances. The mortar is very viscous and requires closed encasing.

Nonset 400 FF contains additives that causes the cement to harden without the mortar "bursting," even with substrate and air temperatures down to -10°C .

Nonset 400 FF is in accordance with the principles described in EN 1504-9 "Products and Systems repair of concrete structures: Definitions, requirements, quality control and evaluation of conformity. General regulations for use of products and systems," and the requirements described in EN 1504-3, "Repair mortar for structural and non-structural repairs, class R3."

RECOMMENDATIONS

- Do not use **Nonset 400 FF** on vertical surfaces without encasing
- Do not add cement or other additives to **Nonset 400 FF**
- Do not add water after the mixture has started to harden
- Do not use **Nonset 400 FF** if the bag is damaged or previously opened

APPLICATION PROCEDURE

Pre-treatment

Loose concrete and contamination must be removed from the substrate surface where you are about to cast. The substrate must be free of dust, oil and grease that may reduce adhesion. The surface should be sufficiently rough. Pre-wet the surface with clean water so that it is slightly absorbent. *Do not wet in freezing temperatures.*

Mixing

Add 3 - 4 litres lukewarm or hot water to a 25 kg sack of **Nonset 400 FF**, adjusted so that the temperature in the premixed mortar is approx. $+20^{\circ}\text{C}$ to $+30^{\circ}\text{C}$. Mix for at least 3 minutes until a lump-free and liquid mortar is obtained. Do not add

more water and soft mortar more than necessary, as too much water can cause separation, reduced resistance and poor results. For minor work, the mixing can be done with a drill and mortar whisk. An agitator mixer or regular cement mixer is used for major work.

APPLICATION

One must create a closed formwork, securely attached with 25 - 50 mm headroom. The formwork must be designed so that it is easy to fill. Have 10 to 20 mm clearance on the sides so it's easy to check the filling and to agitate the mortar. It is important to fill from one side so that air may evacuate. If a pump is used, position the hose in the centre of the formwork, so that the mixture flows in all directions.

When casting, pour the mixture into the formwork. Gently tap the formwork and agitate the mixture with a suitable tool, e.g. a piece of steelbar, so that the mixture flows more easily and air bubbles are avoided. Mixing and casting must be done in one go and without interruption, until the formwork is filled up. Suitable pumping equipment is preferable with larger undertakings.

Finishing

The most reliable and effective way to finish off an open surface is to immediately apply a surface membrane curing **Mapecure 1**, with watering the next day and 3 - 4 days afterwards. Covering with a plastic sheet is also effective and is preferred when the surface is to be treated.

CLEANING

Fresh mortar can be removed from tools and equipment with water.
Cured mortar must be removed mechanically.

CONSUMPTION

1.9 to 2.0 kg per litre of final mortar.

PACKAGING

Nonset 400 FF is supplied in 25 kg bags.

STORAGE

Must be stored dry.
Last 12 months in unopened packaging.

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

Strength class according to EN 1504-3:	R3
Type:	CC
Appearance:	powder
Colour:	grey
Maximum aggregate size (mm):	4.0
Dry solids content (%):	100
Chloride ions content – minimum requirements ≤ 0.05 % - according to EN 1015-17 (%):	≤ 0.05

PRODUCT APPLICATION DATA (at +20°C - 50 % RH)

Colour of mixture:	grey
Mixing ratio:	100 parts of Nonset 400 FF with 12 - 16 parts water (approx. 3 - 4 l per 25 kg sack)

Consistency of mixture:	liquid
Density of mixture (kg/m ³):	2 200
pH of mixture:	> 12
Application temperature range:	from +5°C to +35°C
Expansion (%):	1 - 3
Bleeding (%):	≤ 0.5
Pot life of mixture:	approx. 30 minutes

FINAL PERFORMANCE (16 % blending water)

Performace characteristics	Test method	Minimum requirements according to EN 1504-3 for R3 class mortar	Product performance
Compressive strength (N/mm ²):	EN 12190	≥ 25 (after 28 days)	At -10°C: > 2.0 (after 2 days) > 10 (after 7 days) > 25 (after 28 days) At +20°C: > 30 (after 28 days)
Flexural strength (MPa):	EN 196-1	None	At -10°C: > 0.5 (after 2 days) > 2.5 (after 7 days) > 5.0 (after 28 days)
Carbonation resistance:	EN 13412	D _k < control concrete (MC(0,45))	Passes
Modulus of elasticity in compression (GPa):	EN 13412	≥ 15 (after 28 days)	23.9 (after 28 days)
Bond strength to concrete (MC 0.40 type substrate water/cement ratio = 0.40) according to EN 1766 (MPa):	EN 1542	≥ 1.5 (after 28 days)	> 2.0 (after 28 days)
Capillary absorption (kg/m ² ·h ^{0.5}):	EN 13057	≤ 0.5	< 0.5
Thermal compatibility to freeze-thaw cycles with deicing salts measured as according to EN 1542 (MPa):	EN 13687-1	≥ 1.5 (after 50 cycles)	> 2.0
Exposure class (13 % mixing water):	EN 206-1	None	X0/XC2/XF2
Reaction to fire:	Euroclass	Value declared by manufacturer	A1

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.

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

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