

Mapefill 318

Pumpable, multi-purpose, shrinkage-compensated, cementitious grout

WHERE TO USE

Recommended for filling of voids and cavities in anchoring and concrete repair applications and for bearing pads.

Some application examples

- Anchoring of columns and posts.
- Filling of rigid joints between elements in concrete and precast concrete structures.
- Repair of concrete structures by form-and-pour or pressure grouting methods.
- Enlargement of beams and columns.
- Grouting of machine baseplates and bridge bearings.
- Execution of underpinnings.

TECHNICAL CHARACTERISTICS

Mapefill 318 is a preblended powdered grout composed of high strength cement, graded 1.2 mm aggregates and special additives with expansion agents formulated by the MAPEI research laboratories.

When mixed with water, **Mapefill 318** is transformed into a highly fluid grout with good pumping properties that is able to fill narrow, intricate spaces without segregation.

Mapefill 318, due to its dual-stage expansion, is characterized by a total absence of shrinkage in the plastic and hardening phases, and develops very high early flexural and compressive strengths.

Mapefill 318 also has the following qualities:

- excellent impermeability to water;
- excellent adhesion to steel and concrete;
- excellent resistance to dynamic mechanical stress;
- modulus of elasticity and thermal expansion coefficient similar to those of high quality concrete.

RECOMMENDATIONS

- Do not add cement or additives to **Mapefill 318**.
- Do not add water when the mix begins to set.
- Do not use **Mapefill 318** if the bag is damaged or has already been opened.
- Do not apply **Mapefill 318** at temperatures below +5°C.

APPLICATION PROCEDURE

Preparation of the concrete substrate

- Remove all deteriorated concrete down to sound substrate.
- Scarify the surface and completely remove dust, oil, grease, debris and any contaminant which may affect adhesion.
- Soak the sides of the cavity to be filled with water. Before pouring, remove all unabsorbed water. Use compressed air if necessary.

Preparing the steel substrate

- Remove completely rust, oil, grease, scale and coating from the steel surface.

Preparing the grout

Pour up to 80% of the required water (see APPLICATION DATA) into a clean container and slowly add **Mapecore 318** while mixing continuously.

Add the remaining water as necessary to achieve the desired mix.

Mix for 1-2 minutes, making sure to scrape free any powder left sticking to the sides of the container. Remix for another 2-3 minutes until a fluid homogeneous paste is obtained.

According to the quantities to be prepared, a grout mixer or a mechanical mixer can be used, paying careful attention to avoid the formation of air bubbles. Do not mix by hand.

After mixing, stir gently with a spatula to remove entrapped air.

Application

In general, pour or pump **Mapecore 318** from one side only in a continuous flow to avoid the formation of voids and to facilitate the discharge of entrapped air.

- For formwork repairs, it is necessary to make breather holes for air discharge. The formwork must be water-tight and firmly supported in place.
- For large area applications, for example in machine base grouting, make sure enough material is prepared for grout placement in an uninterrupted operation. It is not necessary to vibrate the grout mechanically; to facilitate the filling of spaces that are particularly difficult, use a wooden stick, steel bar or steel chain as appropriate.

Addition of 8-10 mm aggregates

For filling cavities with section thicknesses greater than 60 mm, add washed 8-10 mm aggregates not exceeding 100% by weight of **Mapecore 318** to reduce heat build-up during the cement hydration process.

It is advisable to carry out preliminary tests at the work-site or to consult our Technical Service in order to determine the appropriate mix consistency and work method.

Instructions to be observed before and after application

- At temperatures around +20°C, no particular precautions are required.
- In hot weather it is advisable not to expose the material to sun and to use cold water in preparing the mix.
- In low temperatures it is advisable to use water that is around +20°C.
- After casting, **Mapecore 318** must be properly cured; the surface of the grout exposed to air must be protected from rapid water evaporation that can cause the formation of surface cracks due to plastic shrinkage especially in hot and/or windy weather.

- Apply a curing compound such as **Mapecure SP** or cover with plastic sheets for at least 24 hours.

Cleaning

Fresh grout can be removed from tools with water. After curing, material can only be removed mechanically.

CONSUMPTION

- 25 kg bag of **Mapecore 318** yields approximately:
- 13.3-13.5 litres of grout with 4.25-4.75 litres of mix water
 - 13.0-13.3 litres of grout with 3.75-4.25 litres of mix water
 - 12.8-13.1 litres of grout with 3.25-3.75 litres of mix water

PACKAGING

Mapecore 318 is available in 25 kg bags.

STORAGE

Store in a dry, sheltered place in original, unopened packaging for 12 months.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Mapecore 318 contains cement that when in contact with sweat or other body fluids causes irritant alkaline reactions and allergic reactions to those predisposed.

It is recommended to use protective gloves and goggles and to take the usual precautions for handling chemicals.

If the product comes in contact with the eyes or skin, wash immediately with plenty of water and seek medical attention.

For further and complete information about the safe use of our product please refer to the latest version of our Material Safety Data Sheet.

PRODUCT FOR PROFESSIONAL USE.

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.com

LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement

TECHNICAL DATA (typical values)

In compliance with:

- EN 196-1
- ASTM C939
- ASTM C940

PRODUCT IDENTITY

Consistency: powder

Colour: grey

Max. diam. of aggregate (mm): 1.2

Dry solids content (%): 100

Chloride ion content (%): absent

APPLICATION DATA

Colour of the mix: grey

Mixing ratio, water with 25 kg bag of Mapefill 318 (litres):
- flowable mix:
- pourable mix:
- trowellable mix:

4.25 - 4.75
3.75 - 4.25
3.25 - 3.75

Flow (ASTM C 939) (s): 35 (using 19% water)

Mass density of the mix (kg/m³): 2100 - 2300

pH of mix: > 11

Temperature range (°C): +5 to +40

Pot life (min): 60

FINAL PERFORMANCES

Mechanical characteristic: the tests of flexural and compressive strengths were carried out on prisms of 4x4x16 cm, made and cured according to the EN 196-1. **Mapefill 318** was prepared using 19% water and 16% water

Compressive strength (MPa):
- 1 day
- 7 days
- 28 days

<u>with 19% water</u>	<u>with 16% water</u>
30	40
55	65
65	75

Flexural strength (MPa)
- 1 day
- 7 days
- 28 days

<u>with 19% water</u>	<u>with 16% water</u>
5	6
7	8
8	9

Bleeding (ASTM C940): absent

Volume expansion (%) (ASTM C940): 1.0

Mapefill 318

or replace requirements per the TDS in force at the time of the MAPEI product installation.

The most up-to-date TDS can be downloaded from our website www.mapei.com.

ANY ALTERATION TO THE WORDING OR REQUIREMENTS CONTAINED OR

DERIVED FROM THIS TDS EXCLUDES THE RESPONSIBILITY OF MAPEI.

All relevant references for the product are available upon request and from www.mapei.com

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