

Mapefill HS

Premium, super flow, high-strength, non-shrink, precision cementitious grout

WHERE TO USE

For precision anchoring of machinery and metallic structures.

Some application examples

- Anchoring of mechanical equipments, especially for oil and gas industries.
- Anchorage of metallic carpentry.
- Filling of rigid joints between elements in concrete and precast concrete structures.
- Execution of underpinning.
- Pressure grouting of concrete structures.
- Grouting of machine base plate, bridge bearing.

TECHNICAL CHARACTERISTICS

Mapefill HS is a preblended powdered grout composed of high strength cement, graded aggregates with 1 mm diameter and special additives with an expansive agent formulated by the MAPEI research laboratories.

When mixed with water **Mapefill HS** is transformed into a fluid grout without segregation that is able to fill small and interconnected spaces.

Mapefill HS, due to its expansive agent, is characterized by a total absence of shrinkage in its

plastic phase (ASTMC827) and its hardened phase and develops very high early flexural and compressive strength.

Mapefill HS 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;
- **Mapefill HS** does not contain metal aggregates and aluminium dust.

RECOMMENDATIONS

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

APPLICATION PROCEDURE

Preparing the substrate

- Remove all deteriorated concrete down to sound substrate.

- Scarify the surface and eliminate completely dust, oil, grease, debris and laitance.
- Soak the sides of the cavity to be filled with water. Before pouring, wait for the excess water to evaporate. To remove unabsorbed water, use compressed air if necessary.

Preparing the grout

Pour the required water into a clean container and slowly add **Mapefill HS** while mixing continuously.

Mix for 1-2 minutes, making sure no powder is clumping and sticking to the sides of the container. Mix again for another 2-3 minutes until a fluid and homogeneous paste is obtained.

According to the quantities to be mixed, 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.

Application (anchoring)

Pour the mixed **Mapefill HS** from one side only in a continuous flow to prevent air entrapment. The diameter of the anchor hole should be at least twice the diameter of the bar to be anchored.

The use of **Mapefill HS** for connecting precast concrete elements and the filling of rigid joints is recommended for thicknesses up to 6 cm. It is not necessary to vibrate the grout mechanically; to facilitate the filling of spaces that are particularly difficult, use a wood stick or a steel bar.

Grouting of thick section

For filling cavities that have dimensions greater than those indicated, please consult our Technical Service for assistance.

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 at +20°C
- After casting, **Mapefill HS** must be properly cured; the surface of grout exposed to the 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.
- Spray water on surface exposed to air the first 24 hours of curing or apply an anti-evaporant.

Cleaning

Fresh grout can be removed from tools with

water. After curing, cleaning becomes very difficult and can only be done mechanically.

CONSUMPTION

Each 25 kg bag of **Mapefill HS** yields approximately 13 litres of grout when mixed with 4 litres of water.

PACKAGING

Mapefill HS is available in 25 kg bags.

STORAGE

Stored unopened in dry conditions at 25°C, the shelf-life would be 9 months minimum

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Mapefill HS contains cement that when in contact with sweat or other body fluids causes irritant alkaline reactions and allergic reactions to those predisposed. It can cause damage to eyes.

During use wear protective gloves and goggles and 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

***N.B.** Although the technical details and recommendations contained in this report 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 applications; 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.*

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 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

TECHNICAL DATA (typical values)

In compliance with:

- EN 196-1: 1995
- ASTM C 940- 98
- EN 13395-2: 2002

PRODUCT IDENTITY

Consistency: powder

Colour: grey

Max. aggregate diameter (mm): 1

Dry solids content (%): 100

Chloride ion content (%): absent

APPLICATION DATA

Colour of the mix: grey

Mixing ratio (by weight): 100 parts **Mapefill HS** with 15 – 17 parts water
(25 kg bag with 3.75 – 4.25 litres water)

Consistency: fluid

Flow spread EN13395-2 (cm) >45

Density of mix (kg/m³): 2250

pH of mix: > 12

Temperature range: from +5°C to +40°C

Pot life: 60 min.

FINAL PERFORMANCES

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

Compressive strength (MPa):
- 1 day > 30
- 7 days > 75
- 28 days > 85

Flexural strength (MPa):
- 1 day > 5
- 7 days > 8
- 28 days > 10

Bleeding (ASTM C940): absent

Volume expansion (%) (ASTM C940): 0.5

Mapectill HS



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