MAPEFILL SP ME

Premium super flow non-shrink cementitious grout



WHERE TO USE

For precision anchoring of machinery, steel, and concrete structures.

Some application examples

- Anchoring of mechanical plants and machinery such as turbines, presses, milling machines, and generators
- Anchorage of bolts and other metallic fixtures
- Filling of rigid joints between elements in concrete and precast concrete structures
- Underpinning works
- Pressure grouting of concrete structures
- Grouting of machinery baseplates and crane rails
- Bridge bearing and column bases.

TECHNICAL CHARACTERISTICS

Mapefill SP ME is a preblended powdered grout composed of high-strength cement, graded aggregates, and special additives with an expansive agent formulated by the MAPEI Research Laboratories. When mixed with water **Mapefill SP ME** is transformed into a very highly fluid grout without segregation that is able to fill small and interconnected spaces.
Mapefill SP ME, due to its expansive agent, is characterized by a total absence of shrinkage in its plastic phase (ASTM C940) and expansion in the hardened phase according to ASTM C878, and develops very high early flexural and compressive strength.
If **Mapefill SP ME** is prepared by only adding water, it must be cured under damp conditions. Please note that in common with all other high-quality cementitious-based materials, curing of **Mapefill SP ME** is essential under extreme and arid climatic conditions, and/or where correct or adequate curing cannot be maintained, the addition of **Mapecure SRA** is highly recommended in order to ensure the required properties are attained.
Mapecure SRA is considered a technologically advanced additive system that has the capability of slowing down the evaporation rate of the mixing water thereby promoting the development and efficiency of the hydration process. The addition of **Mapecure SRA** in proportions of up to 0.25% has the ability to reduce drying shrinkage by between 20% and 50%.

Mapefill SP ME also has the following qualities:

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

- non-corrosive
- chloride-free.

RECOMMENDATIONS

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

APPLICATION PROCEDURE

TECHNICAL INFORMATION FOR THE APPLICATION	
Mixing ratio **– Flowable mix:** **– Fluid mix:**	25 kg of Mapefill SP ME 4.0-4.2 L of water 25 kg of Mapefill SP ME 5.1-5.4 L of water
Application temperature range:	from +5°C to +40°C
Pot life of mix:	approx. 1 hour (at +20°C)

Preparation of the substrate

Remove all deteriorated concrete down to sound substrate. Scarify the surface and completely eliminate dust, oil, grease, debris, and laitance. Pre-soak the sides of the cavity or void by filling it with water. Before pouring, ensure all excess water has been removed. Use clean, compressed air if necessary.

Preparation of the grout

Pour up to 80% of the required water (see APPLICATION DATA) into a clean, rust-free container, and whilst mixing slowly, add **Mapefill SP ME** continuously. Add remaining water to achieve the desired mix consistency. Mix for 1-2 minutes, scrape the sides of the mixing container to remove any powder that is not well blended; 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 entrapment of air bubbles. Do not use a free-fall mixer. Mixing by hand is not recommended.
Instructions for the preparation of the mortar to create samples for Lab testing are contained in the TECHNICAL DATA table.

Application (anchoring)

Pour **Mapefill SP ME** from one side only in a continual flow encouraging the discharge of air bubbles. It is not necessary to vibrate the grout mechanically. However, to facilitate the filling of spaces that are particularly difficult, use an iron rod or other suitable methods. When using **Mapefill SP ME** for connecting precast concrete elements and filling of rigid joints, a thickness of 60 mm should not be exceeded.

Grouting of thick sections

For filling cavities greater than 100 mm, consult your local MAPEI Technical Services for assistance.

Instructions to be observed before and after application

In hot working conditions (greater than +35°C), the following precautions should be taken:

- Prior to use, the product must be stored under shaded, ambient conditions no higher than +35°C.
- Avoid direct exposure to sunlight for stored material and also mixing equipment.
- Use cool water (approx +20°C) for mixing.
- Avoid application during the hottest time of the day and/or direct sunlight.

- Mix only sufficient material that can be applied using available labour and equipment to ensure a continuous and uninterrupted application.

After casting, **Mapefill SP ME** 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. Ensure adequate curing in accordance with good concrete practice. Spray water for the first 24 hours or apply an anti-evaporant such as **Mapecure E** or **Mapecure S**.

Cleaning

Fresh grout can be removed from tools with water. After curing, cleaning becomes very difficult and can only be done mechanically.

CONSUMPTION

Every 25 kg bag of **Mapefill SP ME** yields 13-14 litres of grout.

PACKAGING

Mapefill SP ME is available in 25 kg bags.

STORAGE

When stored in dry conditions in the original, unopened bags, **Mapefill SP ME** has a shelf life of 12 months. If stored at high temperature and or high humidity conditions the shelf life may be reduced.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Instructions on the safe use of our products can be found on the latest version of the Safety Data Sheet available on our website www.mapei.ae.

TECHNICAL DATA (typical values)

PRODUCT IDENTITY	
Consistency:	Powder
Colour:	grey
Maximum size of aggregate:	2 mm
Mixing Ratio:	100 parts of **Mapefill SP ME** with 21.5% water
Preparation of mix:	While mixing, add approx. ¾ of the total amount of water. Then, add slowly the product and the remaining mixing water while continuing mixing. Mix under high shear for at least 2 minutes until a homogeneous paste without lumps is obtained
Curing conditions:	CC according to Annex A - EN 12190

CHARACTERISTICS OF THE FRESH MIX (at +20 °C and 50% R.H.)	
Colour of the mix:	grey
Flow (s) (ASTM C 939):	20-30 sec. (using 21.50% water)
Density of mix:	2250 kg/m³
Bleeding:	absent

FINAL PERFORMANCES (Preparation of 40x40x160 mm samples: Pour the mortar in the centre of each compartment filling it up)			
Performance characteristic	Test method	Product performance	
Compressive strength: - 1 day - 7 days - 28 days	EN 12190	*21% water* 20 MPa 55 MPa 70 MPa	*16% water* 35 MPa 70 MPa 90 MPa
Flexural strength: - 1 day 7 days - 28 days	EN 196-1	*21% water* 5 MPa 7 MPa 8 MPa	*16% water* 4 MPa 8 MPa 9 MPa
Modulus of elasticity:	ASTM C469	28000 N/mm^2	
Water permeability:	EN12390-8	< 5 mm	
Volume change in the plastic phase:	ASTM C 940	up to 1%	

IMPORTANT NOTES

While we try to ensure that any advice, recommendations, or information in our literature is accurate and correct, we have no control over the circumstances in which our product is used. It is, therefore, important that installers satisfy themselves that the product and conditions are suitable for the envisaged application. No warranty can be given, nor can responsibility be accepted other than the product we supply will meet our written specifications. The installer should ensure that our latest product data and safety information sheets have been consulted before use.

Please refer to the current version of the Technical Data Sheet from our website www.mapei.ae.

LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into other project-related documents. 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.ae.

ANY ALTERATIONS 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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