

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

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 **Mapesfill SP ME** continuously. Add remaining water to achieve the desired mix consistency. Mix for 1-2 min, 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.

Application (anchoring)

Pour **Mapesfill 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 **Mapesfill 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, **Mapesfill 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 **Mapesfill SP ME** yields 13-14 litres of grout.

PACKAGING

Mapesfill SP ME is available in 25 kg bags.

STORAGE

When stored in dry conditions in the original, unopened bags, **Mapesfill 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.

Manufactured in compliance with the regulations of the 2003/53/EC Directive.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Mapesfill SP ME contains cement powders which, when mixed with water or upon becoming damp, releases alkalis which can be an irritant to the skin. During use, avoid inhalation of the dust and contact with skin and or eyes. Wear suitable

protective clothing such as eye protection and gloves. In case of contact with the skin or eyes rinse with plenty of clean water.

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

PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values) In compliance with: – EN 196-1 – ASTM C939 – ASTM C940		
PRODUCT IDENTIFICATION		
Consistency:	powder	
Colour:	grey	
Max. diameter. of aggregate (mm):	2	
Dry solids content (%):	100	
Chloride ion content (%):	absent	
Storage:	12 months in original packaging, in dry place	
Hazard classification according to EC 1999/45:	irritant. Before using refer to the “Safety Instructions for the preparation and application” paragraph and the information on the packing and Safety Data Sheet	
Customs class:	3824 50 90	
APPLICATION DATA (at +20°C - 50% R.H.)		
Colour of the mix:	grey	
Mixing ratio: – flowable mix: – fluid mix:	25 kg of Mapefill SP ME with 4.0-4.2 L of water 25 kg of Mapefill SP ME with 5.1-5.3 L of water	
Consistency of the flowable mix (according to EN 13395):	230 (with 16% of water)	
Flow (s) (ASTM C 939):	20-30 sec. (using 21% water)	
Mass density of the mix (kg/m ³):	2250	
pH of mix:	12.5	
Temperature range:	from +5°C to +50°C	
Pot life (at +20°C):	60 min.	
FINAL PERFORMANCES (at +20°C - 50% R.H.)		
	Fluid (21% water addition)	Flowable (16% water addition)
Compressive strength (N/mm ²) EN196-1 – 1 day: – 7 days: – 28 days:	20 55 70	35 70 90
Flexural Strength (N/mm ²) EN196-1 – 1 day: – 7 days: – 28 days:	5 7 7.5	6 8 8.5
Bleeding:	absent	
Modulus of elasticity ASTM C469 (N/mm ²):	28000	
Water permeability EN12390-8:	< 5 mm	

Expansion according to ASTM C940 (%):	up to 1
Time for expansion – plastic state: – hardened wet state:	– start 10 min – finish 1.5 h – start 1.5 h – finish 7 days

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

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

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