



Mapefill SP

Premium super flow non-shrink cementitious grout

WHERE TO USE

For precision anchoring of machinery and metallic structures.

Some application examples

- Anchoring of mechanical instruments.
- 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 baseplate, bridge bearing.

TECHNICAL CHARACTERISTICS

Mapefill SP 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 SP** is transformed into a very highly fluid grout without segregation that is able to fill small and interconnected spaces.

Mapefill SP, due to its expansive agent, is characterized by a total absence of shrinkage in its plastic phase (ASTM C827) and its hardened phase

and develops very high early flexural and compressive strength.

Mapefill SP 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 SP** does not contain metal aggregates and aluminium dust.

RECOMMENDATIONS

- Do not add cement or additives to **Mapefill SP**.
- Do not add water when the mix begins to set.
- Do not use **Mapefill SP** if the bag is damaged or has already been opened.
- Do not apply **Mapefill SP** 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 upto 80% of the required water (see APPLICATION DATA) into a clean container and slowly add **Mapecfill SP** continuously.

Add remaining water to achieve the desired mix.

Mix for 1-2 min., remove from the sides of the concrete mixer 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 formation of air bubbles.

Mixing by hand is not recommended.

Application (anchoring)

Pour **Mapecfill SP** from one side only in a continual flow encouraging the discharge of air bubbles into the appropriate area which should not be less than twice the diameter of the bar to be anchored.

The use of **Mapecfill SP** 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.

Addition of fine gravel

For filling cavities that have dimensions greater than those indicated, add gravel with a maximum diameter of 8-10 mm not exceeding 30% by weight of **Mapecfill SP**.

Because certain characteristics may vary, such as workability and strength, it is advisable to carry out preliminary tests at the work site or to consult our Technical Service.

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, **Mapecfill SP** 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

Every 25 kg bag of **Mapecfill SP** can yield 13-14 litres of grout.

PACKAGING

Mapecfill SP is available in 25 kg bags.

STORAGE

Store in a dry, sheltered place in original, unopened packaging.

FOR PROFESSIONALS.

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.*

**All relevant references
of the product are available
upon request**

TECHNICAL DATA (typical values)

In compliance with:

- EN 196-1: 1995
- ASTM C 939 - 97
- ASTM C 940 - 98
- ASTM C 827 - 97

PRODUCT IDENTITY

Consistency:	powder
Colour:	grey
Max. diam. of aggregate (mm):	1
Dry solids content (%):	100
Chloride ion content (%):	absent
Storage:	12 months in original packaging, in dry place
Hazard classification according to EC 99/45:	none. The cement content of the product may however cause irritation to the eyes and skin. For further information consult the safety data sheet
Customs class:	3824 50 90

APPLICATION DATA

Colour of the mix:	grey
Mixing ratio:	Pumpable Mix: 25 kg of Mapefill SP with 3.75-4.25 litres of water; Pourable Mix: 25 kg of Mapefill SP with 4.25-4.75 litres of water
Consistency:	super-fluid
Flow (s) (ASTM C 939):	20-30 (using 18% water)
Specific gravity (kg/l):	2.10-2.30
pH of mix:	> 11.5
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 the EN 196-1. Mapefill SP was prepared using 18% water
Compressive strength (MPa): - 1 day - 7 days - 28 days	> 25 > 55 > 60
Flexural strength (MPa): - 1 day - 7 days - 28 days	> 5 > 7 > 8
Bleeding (ASTM C940):	absent
Volume expansion (%) (ASTM C827):	0.52

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