MAPEI

IN COMPLIANCE WITH EUROPEAN STANDARD
EN 1504-6
MAPEI
ANCHORING MORTAR

Mapefill F

NF

CE
EN 1504-6

High-performance mortar for anchoring and sealing

WHERE TO USE
Accurate anchoring and sealing of machinery and metallic structures.

Application examples
- Anchoring machine tools by casting below and around the machine footings.
- Anchoring and sealing metallic structures.
- Filling rigid joints between concrete elements and pre-cast concrete.
- Footings below masonry, etc.

TECHNICAL CHARACTERISTICS
Mapefill F is a pre-blended mortar in powder form made from high-strength cement, selected graded aggregates and special additives, according to a formula developed in MAPEI's own research laboratories.
When **Mapefill F** is mixed with 18-20% of water it forms a fluid mortar which does not segregate and which has the capacity of flowing even into spaces with a difficult format.
Mapefill F also has the following characteristics:
- excellent impermeability to water;
- excellent resistance to sulphates in compliance with the French Standard NF P 18-837;
- bonds extremely well to iron and concrete;
- excellent resistance to mechanical stress, including dynamic stress;
- modulus of elasticity and thermal expansion coefficient similar to those for high quality concrete;
- **Mapefill F** does not contain metallic aggregates or aluminium powder.

Mapefill F meets the main requirements of EN 1504-9 ("*Products and systems for protecting and repairing concrete structures: definitions, requirements, quality control and conformity assessment. General principles for the use of products and systems*"), and the minimum requirements for EN 1504-6 ("*Anchoring of reinforcing steel bar*").

Mapefill F complies with the French Standard NF P 18-821:
– for sealing in all positions: class 12;
– anchoring: class 6.

RECOMMENDATIONS
- Do not use **Mapefill F** for repairs requiring casting into formwork (in such cases, use **Mapegrout Hi-Flow**).
- Do not apply **Mapefill F** on vertical surfaces by spray or with a trowel (use **Mapegrout Thixotropic**).
- Do not add cement or additives to **Mapefill F**.
- Do not add water once the mix has started to set.
- Do not use **Mapefill F** if the sack is damaged or if it has been opened previously.
- Do not apply **Mapefill F** if the temperature is below +5°C.

Mapefill F

TECHNICAL DATA (typical values)

PRODUCT IDENTITY	
Type:	CC
Consistency:	powder
Colour:	grey
Maximum size of aggregate (mm):	1
Bulk density (kg/m³):	1,300
Dry solids content (%):	100
Chloride ions content - minimum requirements ≤ 0.05% - according to EN 1015-17 (%):	≤ 0.05
Storage:	12 months in original packaging
Hazard classification according to EC 1999/45:	irritant. Before using the product, refer to the "Safety instructions for preparation and installation" paragraph and the information on the packaging and Safety Data Sheet
Customs class:	3824 50 90

APPLICATION DATA (at +20°C - 50% R.H.)	
Colour of mix:	grey
Mixing ratio:	**sealing:** 100 parts of **Mapefill F** with 12.5 parts of water (approximately 3.1 litres of water per 25 kg sack); **anchoring:** 100 parts of **Mapefill F** with 18-20 parts of water (approximately 4.5-5.0 litres of water per 25 kg sack)
Slump after mixing (EN 13395-2) (cm):	> 45 (20% water)
Density of mix (kg/m³):	2,200
pH of mix:	> 13
Application temperature range:	from 5°C to 35°C
Pot life of mix:	approx. 1 hour (12.5% water) approx. 1 hour 30 min. (20% water)

FINAL PERFORMANCE

Performance characteristic	Test method	Requirements according to EN 1504-6	Performance of product	
Classification according to NF P 18-21:	–	–	– **sealing:** class 12 (12.5% water) – **anchoring:** class 6 (20% water)	
Compressive strength (Mpa):	EN 12190	> 80% of value declared by manufacturer	12.5% water	20% water
			60 (after 1 day) 83 (after 7 days) 100 (after 28 days)	32 (after 1 day) 54 (after 7 days) 77 (after 28 days)
Flexural strength (Mpa):	EN 196/1	none	12.5% water	20% water
			9 (after 1 day) 13 (after 7 days) 15 (after 28 days)	5.5 (after 1 day) 7.0 (after 7 days) 10.0 (after 28 days)
Bond strength on concrete (substrate in MC 0.40 water/cement ratio = 0.40) according to EN 1766 (MPa):	EN 1542	none	≥ 2 (after 28 days)	
Slip-resistance of reinforcement rods movement with a load of 75 kN - (mm):	EN 1881	< 0.6	< 0.2	
Adherence strength of rods anchored with Mapefill F (MPa):	EN 1881 (*)	none	> 25	
Reaction to fire:	Euroclass	value declared by manufacturer	A1	

*(*) Adhesion stress calculated on a sample according to EN 1881, assuming even stress distribution between the reinforcement rod and **Mapefill F**.*

APPLICATION PROCEDURE

Preparation of the substrate

- Remove all deteriorated and loose concrete to form a solid, strong substrate.
- Roughen the surface and remove all traces of dust, oil, grease, rubble and surface cement laitance.
- Saturate the walls of the cavities to be filled with water. Before casting the product, wait until excess water has evaporated off. If necessary, use compressed air to help remove excess water which has not absorbed into the substrate.

Preparation of the mortar

Pour an amount of water into the cement mixer to form the consistency required:
– approx. 2.9 litres for a plastic consistency;
– approx. 4.0 litres for a more fluid consistency.
Switch the mixer on and slowly add the **Mapefill F** in a continuous flow. Mix for 3-4 minutes, remove all powder which has stuck to the walls of the mixer, add the rest of the water and mix again for 2-3 minutes to form a smooth, lump-free mix. Depending on the amount of product to prepare, you may use either a cement mixer or a low-speed drill with a mixing attachment, but in this case make sure that not too much air is entrapped in the blend. We advise against mixing the product by hand.

Application

Pour the **Mapefill F** from one side in a continuous flow, making sure that any air in the area to be cast is completely expelled. The area to be cast must be at least twice the diameter of the steel reinforcement. The use of **Mapefill F** to join pre-cast concrete elements and to fill rigid joints is recommended for thicknesses of up to 60 mm. The mortar does not need to be vibrated after casting. Use wooden batons or pieces of rebar to work the mortar into tight spaces.

Adding gravel

If cavities larger than the recommended maximum size need to be filled, add 30% in weight of **6-10 Gravel** to the **Mapefill F**. Following modifications to certain characteristics of the product, such as workability and strength, we recommend carrying out preliminary tests directly on site or contacting our Technical Assistance Department.

Precautions to be taken during and after application

- No special precautions need to be taken if the temperature is around +20°C.
- In hot weather, we recommend avoiding exposure of the material to the sun and that cold water is used for mixing.
- In cold weather, we recommend using water at a temperature of +20°C.
- After casting, **Mapefill F** must be carefully cured. Surfaces exposed to the open air must be protected to avoid the water evaporating too quickly, otherwise surface cracks due to plastic shrinkage may form, particularly in hot and/or windy weather.
- Spray water on surfaces exposed to the open air during the first 24 hours of curing or lay a suitable anti-evaporation product on the surface.

Cleaning

Mortar which has not yet hardened may be washed from tools using water. Once hardened, cleaning is much more difficult, and it must be removed mechanically.

CONSUMPTION

1.8 kg/dm³ of cavities to be filled.

PACKAGING

25 kg sacks.

STORAGE

If stored in a covered area in its original packaging, the product remains stable for 12 months.

This products conforms to the requirements of CE 2003/53.

SAFETY INSTRUCTIONS FOR PREPARATION AND INSTALLATION

Mapefill F contains cement which, in contact with perspiration or other body fluids, produces an irritating alkaline reaction and, in those subjects sensitive to such products, an allergic rash. Use protective gloves and goggles.
For further and complete information about a safety use of our product please refer to our latest version of the Material Safety Data Sheet.

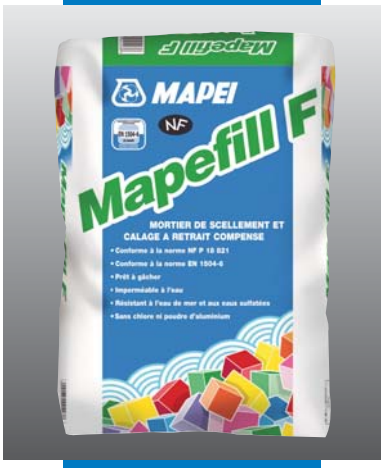
FOR PROFESSIONAL USE.

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 applications. For this reason, anyone who intends using 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 web site www.mapei.com.

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



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