

# Mapefill MC 06

## Shrinkage compensated, super flow micro-concrete

### WHERE TO USE

For grouting of gaps with thicknesses ranging from 50 mm to 250 mm.

### Some application examples

- Structural reinstatement of reinforced concrete beams and pillars.
- Restoring the lower flanges of pre-stressed concrete beams of viaducts.
- Reinstatement of floor beams and slabs after scarification of deteriorated areas.
- Restoring concrete floors (industrial, road and airport).
- Grouting of machine baseplates, bridge bearing.

**TECHNICAL CHARACTERISTICS** Mapefill MC 06 is a ready-mixed powder composed of high strength cement, selected aggregates and special additives with an expansive agent prepared according to a formula developed in MAPEI research laboratories.

Mapefill MC 06, once mixed with water, becomes a fluid mortar, suitable for pouring into formwork without separation of the aggregates even when forming great thicknesses.

Mapefill MC 06, once cured, has the following qualities:

- very high flexural and compressive strength;
- modulus of elasticity and coefficients of thermal expansions and permeability to water vapour similar to those of high quality concrete;
- waterproof;
- high adhesion to old concrete, providing it has been saturated with water beforehand, and to reinforcing rods especially if they have been treated with **Mapefer** or **Mapefer 1K**, two-component and one component;
- high resistance to wear due to abrasion.

Mapefill MC 06 is recommended for voids up to 250 mm for single placing.

### RECOMMENDATIONS

- Do not use **Mapefill MC 06** on smooth concrete surfaces; roughen them well and insert reinforcing rods if needed.
- Do not use **Mapefill MC 06** for precision anchorages (use **Mapefill SP**).
- Do not use **Mapefill MC 06** for applications by spray or trowel (use **Mapegrout Thixotropic**).

- Do not add cement or additives to **Mapecoat MC 06**.
- Do not add water after the mix has begun to set.
- Do not use **Mapecoat MC 06** if its packing has been damaged or if it has been opened prior to use.

## APPLICATION PROCEDURE

### Preparing the substrate

- Remove degraded and loose concrete until the substrate is solid, resistant and rough. Any previous restoration work which is not soundly bonded should also be removed.
- Clean the concrete and reinforcing rods by sandblasting, to remove all dirt, rust, cement laitance, grease, oil and previously applied paints.
- Soak the substrate with water.
- Allow the excess water to evaporate before pouring in the mix; if necessary, use compressed air to facilitate the removal of the free water.

### Preparing the mortar

Pour 3.3-3.5 litres of water into a concrete mixer.

Start the mixer and slowly and continuously pour in the **Mapecoat MC 06**.

Mix for 1-2 minutes, scrape any unmixed powder off the sides of the mixer and remix for another 2-3 minutes until the mix is fluid and free from lumps.

Depending on the quantity being prepared, a mortar mixer or drilling machine with a stirrer attachment can be used.

Avoid stirring an excess of air into the mix. Only in exceptional circumstances should the slurry be mixed by hand. Only where it is absolutely necessary, prepare small quantities and mix for at least 5-6 minutes until the slurry is completely smooth and even. It should be remembered that manual preparation requires greater quantities of water, which are detrimental to some of the **Mapecoat MC 06** characteristics, such as mechanical strength, shrinkage, waterproofing, etc.

The expansion of **Mapecoat MC 06** has been calculated to compensate for hygrometric shrinkage.

In order to be effective, the forces of expansion must be countered with suitable reinforcement or formwork around the substrate.

The expansion phase is completed during the first days of curing.

### Applying the mortar

To facilitate the expulsion of air, pour **Mapecoat MC 06** continuously into the moulds.

Water from **Mapecoat MC 06** must not be absorbed by the formwork, which should be pre-treated with a form-release oil (e.g. MAPEI's **DMA 1000 Form Release Agent**).

The pour does not need to be vibrated. Make sure that all the parts have been filled. If necessary, use sticks or rods to tamp the slurry into particularly difficult areas.

As an option, **Mapecoat I24** can be applied on the surfaces to enhance the protection against oils and acids.

### Precautions to be observed during application and curing

No special precautions need to be taken when the temperature is around +20°C.

In hot weather, it is advisable to prevent the material from being exposed to the sun and to use cold water for preparing the mix.

When the temperature is low, the water used for the mix should be around 20°C.

Once poured, **Mapecoat MC 06** must be cured very carefully. The surface of the mortar exposed to air must be protected against the rapid evaporation of water particularly in warm and windy environments, as this will cause surface cracks due to plastic shrinkage.

Spray water onto the surface during the first 24 hours of curing or apply a suitable anti-evaporation product (Mapecure SP).

### Cleaning

Before hardening, the slurry can be cleaned from tools with water. After setting, cleaning is very difficult and it can only be removed mechanically.

### CONSUMPTION

20 kg/m<sup>2</sup> per cm of thickness.

### PACKAGING

25 kg bags.

### STORAGE

12 months in original packaging in a dry place.

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

### SAFETY INSTRUCTIONS FOR THE PREPARATION AND APPLICATION

It contains cement that when in contact with sweat or other bodily fluids produce an irritant alkaline reaction and allergic reactions to those predisposed. Wear protective gloves and goggles. For further information refer to the safety data sheet.

## TECHNICAL DATA (typical values)

### PRODUCT IDENTIFICATION

Type:	powder
Colour:	grey
Maximum aggregate diameter (mm)	6
Density (kg/m <sup>3</sup> )	1300
Dry solid content (%)	100
Hazard classification according to EC 1999/45:	Irritant. Before using, refer to the "Safety Instruction for the preparation and application" paragraph and the information on the packaging and safety data sheet.
Customs code:	38245090

### APPLICATION DATA

Colour of the mix:	grey
Mixing ratio:	one 25 kg bag of <b>Mapefill MC 06</b> with 3.3-3.5 litres of water
Consistency of mix:	fluid
Density of mix (kg/m <sup>3</sup> )	2250
pH of the mix:	>12
Application temperature range:	from +5°C to +35°C
Pot life at +23°C and 50% R.H.:	60 minutes
Maximum thickness per application (mm):	250

### FINAL PERFORMANCE

Mechanical characteristics: (according to EN 196/1 - mixing water 13.5%) Compressive strength (MPa):	
- after 1 day:	> 25
- after 7 days:	> 55
- after 28 days:	> 75
Flexural strength (MPa):	
- after 1 day:	> 6
- after 7 days:	> 8
- after 28 days:	> 9
Adherence to substrate (MPa): (measured by pull-off test on damp concrete):	
- after 7 days (+23°C and 50% R.H.):	> 3 (concrete failure)
- after 21 days (7 days at +23°C and 50% R.H. + 21 days at +60°C):	> 3 (concrete failure)
- after 28 days (7 days at +23°C and 50% R.H. + 21 days at +20°C):	> 3 (concrete failure)
Rapid Chloride Permeability (Coulombs)	< 1000

CONSISTENCY	SLUMP (%) ACCORDING TO UNI NORM 7044/72	LITRES OF WATER PER 25 KG BAG
Fluid	≥ 160	3.3 - 3.5

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**

(FAR EAST)

Any reproduction of texts, photos and illustrations published here is prohibited and subject to prosecution

### Mapei Far East Pte Ltd

28, Tuas West Road - Singapore 638383  
Tel (65) 6862 3488 - Fax (65) 6862 1012/3  
E-mail: mapei@mapei.com.sg - Website: www.mapei.com.sg

### Mapei (Malaysia) Sdn. Bhd.

521, Batu 23 - Jalan Rawang/Jalan Batang - Berjantai 48000  
Rawang - Selangor Darul Ehsan - Malaysia  
Tel (60) 3 60935799 - Fax (60) 3 60915801  
E-mail: mapei@mapei.com.my - Website: www.mapei.com.my



BUILDING THE FUTURE

474-11-2008