



Mapecfill 10

Non-shrink concrete mix for high-precision anchoring of installed equipment, columns, joint grouting in reinforced concrete structures. The maximum aggregate size is 10 mm. The application thickness varies from 40 to 100 (200*) mm.



WHERE TO USE

Mapecfill 10 is used for high-precision anchoring of the base (frame) of installed equipment by casting, for various types of industrial equipment, such as:

- Metallurgical hot and cold rolling mills;
- Presses;
- Turbines;
- Compressors;
- Generators;
- Machines for various purposes;
- Supporting parts of metal columns (bases).

The product is also used for grouting rigid joints between prefabricated reinforced concrete elements.

TECHNICAL CHARACTERISTICS

Mapecfill 10 is a pre-blended product in the form of a dry concrete mix, based on high-strength cement, graded sand and special expanding admixtures.

When mixed with water, it forms a highly flowable, non-segregating concrete mix.

Because of expanding admixtures, **Mapecfill 10** is a non-shrink product characterized by a total absence of shrinkage in its plastic phase and the subsequent hardening phase.

In the hardened state, **Mapecfill 10** is a high-strength concrete with excellent adhesion to steel and concrete, high frost and water resistance.

Mapecfill 10 does not contain metal aggregates and chlorides. The maximum aggregate size is 10 mm. The

application thickness varies from 40 to 100 (200*) mm per coat.

*** For application thicknesses of more than 100 mm and for large application areas, please consult the Technical Support Department of ZAO Mapei.**

Mapecfill 10 meets all the main requirements of EN 1504-9 («Products and systems for the protection and repair of concrete structures; definitions, requirements, quality control and conformity assessment. General principles for the use of products and systems») and the minimum requirements of EN 1504-6 («Anchoring steel reinforcement»).

RECOMMENDATIONS

- Do not use **Mapecfill 10** for structural repairs by pouring into formwork (use **Mapecgrout Hi-Flow 10**).
- Do not use **Mapecfill 10** for vertical applications by spraying or trowel (use thixotropic products).
- Do not add cement or admixtures to **Mapecfill 10**.
- Do not add water after the mix has started to set.
- Do not use **Mapecfill 10** if the bag is damaged or has already been opened.
- Do not apply **Mapecfill 10** at temperatures below +5°C.

APPLICATION PROCEDURE

Preparation of the substrate

Before installing the equipment, remove from the foundation surface all destroyed concrete with a lightweight perforator, needle gun or water-jet unit. For good adhesion, make the concrete surface rough, with

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roughness of at least 5 mm. Thoroughly clean the bolts and support surface of the base frame (base plate of equipment) from grease and oil stains, dust, rust and other contaminants. Install the equipment and fasten it securely. Note that it will be impossible to change the position of equipment after the work is completed. Before starting work, thoroughly moisten the concrete foundation surface. Remove excess water with compressed air or rags. The substrate must be damp, but not wet. The formwork must be made of a durable waterproof material, securely fixed, sealed, excluding leakage of laitance, adequate for mix pressure during pouring, levelling and finishing. On the **Mapefill 10** pouring side, provide a gap of 150 mm between the formwork and the base frame side. From the sides make gaps of at least 50 mm between the formwork and the sides of the base frame. For pouring **Mapefill 10**, use mortar pumps, funnels, etc.

When casting under large-sized frames and in order to ensure the free flow of **Mapefill 10**, use the maximum amount of water indicated in Table 1.

Preparation of the mix

Before mixing **Mapefill 10** with water, do the following:

- Check there is enough **Mapefill 10** to complete the work, taking into account that the consumption of dry **Mapefill 10** for the preparation of 1 m³ of concrete mix is 2100 kg.
- Ensure that all necessary equipment (mixers, barrows, buckets, trowels, etc.) is at hand.

For the correct preparation of concrete mixes:

- A) Just before mixing, open the required number of bags.
- B) Fill the mixer with the minimum amount of water indicated in Technical data table.
- C) Turn on the mixer and continuously pour dry **Mapefill 10**. For mixing, the entire bag must be used.
- D) Stir for 1-2 minutes until the lumps disappear and the mix becomes homogeneous.
- E) Stop the mixer for 1 minute, clean its walls from the adhering residues of the dry mix.
- F) If necessary, add water (in the amount indicated in Table 1), turn on the mixer

and stir again for 2-3 minutes until a uniform consistency is obtained.

Mixing by hand is not allowed, since more water will be required, which will lead to deterioration of performance characteristics and formation of shrinkage cracks. The pot life of **Mapefill 10** mix at +20°C is 60 minutes.

Application

Before pouring the prepared mix into the formwork, carry out the following operations:

- Make sure that no vibration is transmitted to the equipment from nearby machines. If such transmission occurs, stop these machines for at least 10-12 hours (at a temperature of +20°C), for the start of concrete strength development, in order to exclude the influence of vibration on the adhesion of concrete to the base frame.
- To prevent air entrainment, pour **Mapefill 10** continuously and from one side only. Do not pour **Mapefill 10** from two opposite sides.
- Ensure that **Mapefill 10** completely fills the space between the base plate and the equipment, for which use a flexible steel rod to make several forward-backward movements under the base plate of the equipment.

INSTRUCTIONS TO BE OBSERVED DURING AND AFTER APPLICATION

- Work with **Mapefill 10** at an air temperature of + 5°C to + 35°C. At low ambient temperatures (from + 5°C to + 10°C), the strength increases more slowly.
- If high early strength is required, we recommend to:
 - A) Store bags with **Mapefill 10** in places protected from cold.
 - B) For mix preparation, use hot water (from + 30°C to + 40°C).
 - C) After pouring, cover the surface with heat-insulating materials.
- At high ambient temperatures (above + 30°C), a rapid loss of mix fluidity is possible. Typically, the pot life of the mix at a temperature of +20°C is 60 minutes, at higher temperatures it decreases noticeably.
- At high temperatures, the following measures are recommended:

TECHNICAL DATA (typical values)

PRODUCT IDENTITY

Type:	CC
Colour:	grey
Bulk density (kg/m ³):	1,500
Maximum aggregate size (mm):	10.0
Dry solids content (%):	100
Ion chloride content: – minimum requirement ≤ 0.05% - according to EN 1015-17 (%):	≤ 0.05

APPLICATION DATA (at +20°C - 50% R.H.)

Mixing ratio:	100 parts of Mapefill 10 with 11.0-12.0 parts of water (2.8-3.0 l per 25 kg bag)
Consistency of mix:	fluid
Density of the mix (kg/m ³):	2350
pH of the mix:	> 12.5
Workability, (mm):	210-260
Application temperature range:	from +5°C to +35°C
Pot life of the mix (min):	60

FINAL PERFORMANCE (11,5% mixing water)

Performance characteristics:	Test method	Requirements according to EN 1504-6	Requirements according to GOST 56378-2015	Product performance
Compressive strength (MPa):	EN 12190	>80% OF THE VALUE DECLARED BY THE MANUFACTURER	not required	> 40 (after 24 hours) > 55 (after 3 days) > 75 (after 28 days)
	GOST 30744	not required	≥ 45 (after 28 days)	
Flexural strength (MPa):	EN 196/1	not required	not required	> 5 (after 24 hours) > 8 (after 28 days)
	GOST 30744			
Compressive modulus of elasticity (GPa):	EN 13412	not required	not required	> 25 (after 28 days)
	GOST 24452		≥ 20 (after 28 days)	
Bond strength on concrete (substrate in MC 0.40 - water/cement ratio = 0.40) according to EN 1766 (MPa):	EN 1542	not required	not required	> 2 (after 28 days)
	GOST 56378, appendix G		≥ 2 (after 28 days)	
Free expansion in the plastic phase (%):	ASTM 827	not required	not required	≥ 0,3
Drawing resistance of the steel rods - movement under a 75 kN load (mm):	EN 1881	≤ 0,6	not required	< 0,6
Brand on frost resistance (for road concrete):	GOST 10060	not required	not required	F ₂ 300
Brand on water resistance:	GOST 12730.5	not required	not required	> W 16 (after 28 days)
Reaction to fire:	EN 13501	EUROCLASS	not required	A1
Class of fire risk:	GOST 30244	not required	not required	NF

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- A) Store bags with **Mapefill 10** in a cool place.
- B) Use cold water to prepare the mix.
- C) Prepare the mortar at the coolest time of the day.

After pouring, all exposed surfaces of **Mapefill 10** must be immediately protected from moisture loss for a period of at least 24 hours.

To protect the surface:

- Spray water onto it.
- Cover it with a film or a damp burlap.
- Apply products from **Mapecrete** range.

Cleaning

After completion of work, clean all tools and equipment with water. After hardening, the product can be removed only mechanically.

CONSUMPTION

21 kg of dry **Mapefill 10** per m² at a coat thickness of 1 cm.

PACKAGING

Dry **Mapefill 10** is packed in special moisture-proof bags weighing 25 kg.

STORAGE

If stored in the undamaged manufacturer's packaging in a dry indoor environment, the warranty period for **Mapefill 10** is 12 months from the date of manufacture.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

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

PRODUCT 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 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.

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



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