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MAPEFLOOR EP 90

Three-component, high performance epoxy screed consistency mortar to repair concrete floorings and to form support layers for beams and joints



WHERE TO USE

Mapefloor EP 90 is a three-component, high performance epoxy mortar specifically developed to form support layers for beams on bridges and viaducts, railway lines, industrial machinery and joints in roads and motorways and concrete topping subject to heavy abrasion.

Some application examples

- Repairing and levelling concrete support layers for overhead cranes rails.
- Repairing and levelling the surface of concrete bearing elements for floor beams on bridges and viaducts.
- Forming high strength support beds for machinery, beams, joints, etc.
- Rebuilding the edges of expansion joints in deteriorated or damaged industrial floors.
- Repairing concrete floors.
- Acid / wear resistant protection of concrete elements such as ramps, silo beds, and concrete subject to heavy traffic.

TECHNICAL CHARACTERISTICS

Mapefloor EP 90 is a three-component mortar made from epoxy resin and selected, graded aggregates according to a formula developed in the MAPEI Research Laboratories. After mixing **Mapefloor EP 90** component A with the catalyser component B and fillers component C, it forms a mix with screed consistency which is easy to apply in thick layers.

Mapefloor EP 90 hardens without any significant shrinkage to form a product characterised by high mechanical properties and excellent resistance to wear and impact.

Mapefloor EP 90 remains workable for around 50 minutes at +23°C and may be applied at a temperature of +10°C to +35°C. When applying **Mapefloor EP 90** at high temperatures its workability time is considerably reduced. In such conditions, therefore, we recommend conditioning the product at +23°C (in a temperature-controlled container for example) prior to application.

Mapefloor EP 90 meets the requirements defined by EN 1504-9 ("Products and systems for the protection and repair of concrete structures. Definitions, requirements, quality control and evaluation of conformity. General principles for the use of products and systems") and the minimum requirements claimed by EN 1504-3 ("Structural and non structural repair") for structural mortars of class R4.

Mapefloor EP 90 complies with the principles defined in EN 13813 which specifies the requirements of materials for screeds used for internal flooring.

RECOMMENDATIONS

- Do not apply **Mapefloor EP 90** on very damp substrates.
- Do not use **Mapefloor EP 90** to seal elastic joints or joints subject to movement (use products from the **Mapesil** or **Mapeflex** range).
- Do not apply **Mapefloor EP 90** on substrates with high levels of capillary rising damp.
- Do not leave **Mapefloor EP 90** exposed to direct sunlight prior to use.
- Do not expose the mixed product to sources of heat.

· Do not use **Mapefloor EP 90** if the temperature is lower than +10°C or higher than +35°C.

APPLICATION PROCEDURE

Substrate preparation

Concrete substrates must be sound and clean.

Use hand tools or power tools to remove any loose or detached areas, efflorescence, cement laitance and form-release oil and compound and remove all traces of dust from the substrate with compressed air and/or an industrial vacuum cleaner.

Concrete structures cast on site before applying **Mapefloor EP 90** must be cured for at least 4 weeks to avoid stresses induced by hygrometric shrinkage in the cementitious conglomerate being concentrated at the interface between the two different materials.

Application of Primer RM / Primer SN

Just before applying **Mapefloor EP 90**, apply a coat of **Primer RM** two-component epoxy resin supplied in pre-dosed kits on the dry or slightly damp substrate (make sure there is no rising damp).

Mix components A and B separately and then add the catalyser (component B) to the resin (component A). Mix with a drill at low-speed for 2-3 minutes to form a smooth, even paste.

Apply **Primer RM** with a brush, roller or metal spreader.

Preparation of the mortar

The three components which make up **Mapefloor EP 90** must be mixed together. Pour component A into a suitably sized bucket and add component C (powder) while mixing. Add component B and mix together with a drill at low speed to form an even mix with a screed mortar consistency.

Each component is supplied in pre-dosed quantities. Do not use partial quantities to avoid accidental errors in the mixing ratio, otherwise **Mapefloor EP 90** may not harden correctly. If only partial quantities of the components need to be used, weigh them out with high-precision electronic scales to maintain the mixing ratio indicated in the Technical Data table.

Application of the mortar

Apply **Mapefloor EP 90** with a trowel while the **Primer RM / Primer SN** is still fresh (within 30 minutes at +23°C). Compact and float the mortar with a metal trowel.

The surrounding temperature has an effect on the hardening time of the product: at +23°C, **Mapefloor EP 90** remains workable for approximately 50 minutes.

Apply **Mapefloor EP 90** within this period and organise work schedules so that the application cycle may be completed within the time mentioned above.

Cleaning

Remove **Mapefloor EP 90** from tools used to apply the mortar with a solvent cleaner (such as ethyl alcohol) before it hardens.

CONSUMPTION

Approximately 20 kg/m² per cm of thickness.

PACKAGING

26.75 kg kits (A + B + C).

· component A = 1.95 kg;

· component B = 0.8 kg;

· component C = 24 kg.

STORAGE

24 months in its original packaging.

Store the product in an area with a temperature of +10°C to +35°C

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Mapefloor EP 90 component A irritates the skin and eyes. Components A and B may cause sensitisation to those predisposed if they come in contact with the skin.

Mapefloor EP 90 component B is corrosive and may cause burns. It is also harmful if it comes in contact with the skin or if swallowed.

Mapefloor EP 90 component C is not considered hazardous according to current norms and guidelines regarding the classification of mixtures. The product contains low molecular weight epoxy resins that may cause sensitisation if cross-contamination occurs with other epoxy compounds. When applying the product it is recommended to use protective

gloves and goggles and to take the usual precautions for handling chemical. If the product comes in contact with the eyes or skin, wash immediately with plenty of water and seek medical attention.

Mapefloor EP 90 components A and B are also hazardous for aquatic life. Do not dispose of these products in the environment.

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

PRODUCT ONLY FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)				
PRODUCT IDENTITY				
	comp. A	comp. B	comp. C	
Consistency:	liquid	liquid	powder	
Colour:	straw yellow	straw yellow	grey	
Maximum size of aggregate (mm):	–	–	1.2	
Density (g/cm ³):	1.10	0.95	–	
Viscosity (mPa·s):	2,500	50	–	
APPLICATION DATA OF PRODUCT (at +23°C - 50% R.H.)				
Mixing ratio:	A : B : C = 1.95 : 0.80 : 24 by weight			
Colour of mix:	sand grey			
Consistency of mix:	screed mortar			
Density of mix (kg/dm ³):	2.0			
Application temperature:	+10°C to +35°C			
Pot life of mix:	approx. 50 mins.			
Setting time:	4 hours			
Full hardening time:	7 days			
FINAL PERFORMANCE at +23°C				
Performance characteristic	Test method	Requirements according to EN 1504-3 for R4-class mortar	Requirements according to EN 13813 for synthetic resin-based screeds	Performance of product
Compressive strength (MPa):	EN 12190	> 45	not required	50 (after 8 h) 90 (after 1 day) 100 (after 7 days)
Flexural strength (Mpa):	EN 196-1	not required	not required	21 (after 8 h) 31 (after 1 day) 35 (after 7 days)
Compressive modulus of elasticity (GPa):	EN 13412	≥ 20	not required	25
Adhesion to concrete (substrate in MC 0.40 - water/cement ratio = 0.40) according to EN 1766 (MPa):	EN 1542	≥ 2	not required	> 4

Capillary absorption (kg/m ² ·h ^{0.5}):	EN 13057	< 0.5	not required	0.001
Thermal compatibility measured as adhesion according to EN 1542 (MPa): – freeze-thaw cycles with de-icing salts: – storm cycles:	EN 13687-1 EN 13687-2	≥ 2 (after 50 cycles) ≥ 2 (after 30 cycles)	not required	> 4 > 4
BCA wear resistance (µm):	EN 13892-4	not required	< 100	class AR0.5
Bond strength (N/mm ²):	EN 13892-8	not required	> 1.5	3.8 class B2,0
Impact strength (Nm):	EN ISO 6272	not required	> 4	≥ 20 class IR20
Permeability to water (kg/m ² ·h ^{0.5}):	EN 1062-3	not required	declared value	< 0.05
Reaction to fire: – on walls: – on floors:	EN 13501-1	Euroclass		D-s2,d0 B _{FL} -s1

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

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The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement or replace requirements per the TDS in force at the time of the MAPEI product installation.

The most up-to-date TDS can be downloaded from our website www.mapei.com.

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