

MAPEFLOOR I 360 AS

Two-component, self-levelling epoxy formulate used to form strong, anti-static, conductive coatings with good mechanical and chemical resistances



WHERE TO USE

Mapefloor I 360 AS is used to form electrically conductive coatings on concrete substrates and cementitious screeds exposed to medium to heavy traffic.

Once hardened, **Mapefloor I 360 AS** is characterized by the low level of micro-particles and volatile organic compounds (VOC) it releases into the air. This makes it particularly suitable for coating floors in areas such as clean rooms where a high standard of hygiene is required, the dimensions and amount of dust particles and suspended micro-particles need to be constantly monitored and the presence of potential biological and physical pollutants that could interfere with the various processes need to be kept under control.

Mapefloor I 360 AS is used in particular to form anti-static conductive coatings in areas, just for instance as:

- electronic industries;
- pharmaceutical industries;
- laboratories;
- hospitals and operating theatres;
- automotive and aerospace industries;
- storage of flammable materials;
- sterile environments;
- clean rooms.

TECHNICAL CHARACTERISTICS

Mapefloor I 360 AS is a two-component, high solid content epoxy resin-based formulate with a self-levelling consistency, pigmented, containing electrically-conductive fibers according to a formulation developed in the MAPEI R&D laboratories.

Mapefloor I 360 AS is used to make smooth, self-levelling, waterproof, electrically-conductive resin systems having good physical strength and good chemical resistances.

Mapefloor I 360 AS is applied on substrates after treating their surface with **Primer W-AS N**, a special two-component epoxy water-based primer for conductive floorings.

Mapefloor I 360 AS is used to form seamless, self-levelling coatings specific for clean rooms with class ISO 4 particle emissions and class -7.8 VOC emissions according to ISO 14644-8. Decontaminable according to ISO 8690/DIN 25415 with ¹³⁷Cs and ⁶⁰Co.

Mapefloor I 360 AS complies with the principles defined in EN 13813 "Screeds and materials for screeds – Materials for screeds – Properties and requirements", which specifies the requirements for screed materials

used in the construction of internal floors.

ADVANTAGES

- Good physical strength and chemical resistances.
- Waterproof.
- Electrically conductive.
- Dust proof.
- Ease of cleaning and sanitizing (Riboflavin test ISO 4828-1).
- Quick to apply and put into service.
- Spark resistance according to UFGS-09 97 23 and UFGS-09 67 23.14, of the floor coating system.
- Fulfills ATEX 137 requirements.
- Bacteriostatic (ISO 22196).
- Fulfills WHG requirements.

COLOURS

Mapefloor I 360 AS comes pre-pigmented in several RAL colours. Please contact the Head Office for a full list of the colours available.

RECOMMENDATIONS

- Make sure the film of **Primer W-AS N** has completely hardened before applying **Mapefloor I 360 AS**.
- Before applying **Mapefloor I 360 AS**, check the electrical conductivity of the surface of **Primer W-AS N**.
- **Mapefloor I 360 AS** contains special electrically-conductive fibres which may leave the surface appearance uneven, but this will have no effect on the final performance of the product. The fibres may also affect the colour of the coating slightly by being visible on the surface.
- Do not dilute **Mapefloor I 360 AS** with solvent or water.
- Do not apply **Mapefloor I 360 AS** on substrates that have not been prepared as specified and primed.
- Do not apply **Mapefloor I 360 AS** on substrates with oil or grease stains or stains in general.
- Do not mix partial quantities of the components to avoid mixing errors; the product may not harden correctly.
- Do not expose the mixed product to sources of heat.
- Coatings made from **Mapefloor I 360 AS** may change colour or fade if exposed to sunlight but this has no effect on the performance characteristics of the coating.
- The coating may also change colour if it comes into contact with aggressive chemicals. A change in colour, however, does not mean that it has been damaged by the chemical.
- If rooms where the product is being used need to be warmed up, do not use heaters that burn fossil fuels, otherwise the carbon dioxide and water vapor given off into the air will affect the shine on the finish and ruin its appearance. Use electric heaters only.
- Remove aggressive chemicals as soon as possible after they come into contact with **Mapefloor I 360 AS**.
- Use suitable specific cleaning equipment and detergent to clean the coating, depending on the type of dirt or stain to be removed.
- Protect the product from water for at least 24 hours after application.
- Do not apply the product directly on cementitious substrates.
- The temperature of the substrate during the application must be at least 3°C above the dew-point.
- The consumption of **Mapefloor I 360 AS** must never be higher than 2.4 kg/m², otherwise the electrical conductivity of the system could be affected.

APPLICATION PROCEDURE

Surface preparation

The surface of concrete floors must be dry, clean and sound and have no crumbling or detached areas. The compressive strength of concrete substrates must be at least 25 N/mm² and their tensile strength must be at least 1.5 N/mm². The substrate must also be strong enough for its final intended use and to withstand the types of loads acting on the floor.

The moisture content in the substrate must be a maximum of 4% and there must be no capillary rising damp (check by testing it with a sheet of polythene).

The surface of the floor to be treated must be prepared with a suitable mechanical process (e.g. shot-blasting or grinding with a diamond disk) to remove all traces of dirt, cement laitance and crumbling or detached portions and to make the surface slightly rough and absorbent.

Before applying the product remove all dust from the surface with a vacuum cleaner.

Any cracks, holes or surface irregularities must be repaired and smoothed with pourable epoxy resin **Eporip**, or epoxy mortar **Mapefloor EP19** or thixotropic epoxy resin **Mapefloor JA** or **Mapefloor JA Fast**.

Once the substrate has been prepared as specified and the surface has been treated with **Primer SN**, place the special electrically-conductive **Copper Band** self-adhesive strips to the surface. The strips may be placed on the hardened primer near to a wall, a pillar, etc. by applying a piece at least 1-1.5 meters long on the surface of the floor and then folding it up along the wall for at least 50 cm. Be very careful when handling the strips of copper and folding them along the wall, otherwise they may be torn or permanently damaged. The free ends of the strips must then be connected to earth by a qualified electrician.

Only apply **Mapefloor I 360 AS** after applying **Primer W-AS N** and checking the electrical conductivity of the primer.

Before applying **Mapefloor I 360 AS**, remove thoroughly of dust from the surface by vacuum.

Application of Primer SN

Apply the **Primer SN** mixed with **Quartz 0.5** on the substrate with a straight trowel or rake after it has been prepared as specified. Do not broadcast the surface of the primer with quartz sand. Make sure there are no open pores in the surface of the substrate, otherwise air could escape and form small craters or pinholes in the self-levelling subsequent layer. If there are holes or open pores in the substrate fill them with **Eporip** or **Primer SN** made thixotropic with **Additix PE**.

When the **Primer SN** is hardened, sanding the surface and apply by roller a second coat of neat **Primer SN**.

Application of Copper Band and Primer W AS N

The special, self-adhesive, electrically-conductive **Copper Band** strips must be placed on the surface of the hardened **Primer SN**. The number and position of the strips depends on the size and shape of the surface to be coated and the position of any joints, drain channels, pillars, etc, and, in any case, they must be positioned every 80 m² of surface minimum (a circular area around 5 metres in radius). Once the resin system has been applied, the free ends of the strips must be connected to earth by a qualified electrician.

Once the copper strips have been positioned, apply a coat of **Primer W-AS N** electrically-conductive water-based resin over the entire surface with a roller.

After 24 hours curing and obtained a uniformly matt black finish, the electrical resistance measurement will need to be conducted. The resistance to earth R_E value must be $<3 \times 10^3 \Omega$ using 10V.

For further details regarding the preparation and application of **Primer SN** and **Primer W-AS N**, refer to the relative Technical Data Sheets.

Preparation of the product

Stir separately each of the components of **Mapefloor I 360 AS**, then pour the contents of component B into the container of component A and mix again with a low-speed electric mixer (300-400 revs/min) for approx. 2 minutes until a homogeneous mixture is achieved. Do not overmix.

Pour the product into a clean container and briefly mix again.

Apply the product within the pot life indicated in the data table (refers to a temperature of +23°C). Higher surrounding temperatures will reduce the pot life of the mix, while lower temperatures will increase it.

Application of the product

Apply a single coat up to maximum 1.5 mm thick of **Mapefloor I 360 AS** with a notched trowel or rake (with "V" shaped notches) over the entire surface to be treated.

Immediately after spreading on the self-levelling product, back-roll with a spike roller to eliminate any air entrained into the product during mixing. It is recommended to pass over the surface with the roller in two

perpendicular directions. Back-roll intensively especially in the perpendicular direction to that one assumed by the conductive fibres that are visible on the surface after the application.

When the film of **Mapefloor I 360 AS** has hardened, test a reference area of the system to check its conductivity.

The number of checks and measurements of the conductivity of the coating must be proportional to the area to be tested as indicated below:

Size of area	Number of tests
< 10 m ²	1 test every m ²
10 < m ² < 100	10 to 20 tests
> 100 m ²	10 tests every 100 m ²

Tests must be carried out measuring the resistance of the system to the earth connection.

CLEANING

Clean tools used to prepare and apply **Mapefloor I 360 AS** with ethanol immediately after use. Once hardened, the product may only be removed using mechanical means.

CONSUMPTION

Max. 2.4 kg/m² of **Mapefloor I 360 AS**.

PACKAGING

20 kg kit.

- component A: 16 kg;
- component B: 4 kg.

STORAGE

Mapefloor I 360 AS may be stored for 24 months in its original sealed packaging in a dry area at +5°C to +30°C. Protect from frost.

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.

When the product reacts, it generates considerable heat. After mixing components A and B we recommend applying the product as soon as possible and to never leave the container unguarded until it is completely empty.

PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)		
PRODUCT IDENTITY		
	component A	component B

Colour:	coloured	transparent
Consistency:	thick liquid	liquid
Density (g/cm ³):	1.77	1.05
Viscosity at +23°C (Pa s):	6.5 ÷ 8.5 (# 5 - rpm 20)	0.15 ÷ 0.20 (# 2 - rpm 50)
APPLICATION DATA (at +23°C - 50% R.H.)		
Mixing ratio:	comp. A : comp. B = 80 : 20 in weight	
Colour of mix:	coloured	
Consistency of mix:	fluid	
Density of mix (kg/m ³):	1,540	
Viscosity of mix (Pa·s):	1.2 - (# 4 - rpm 50)	
Workability time: – at +10°C: – at +20°C: – at +30°C:	approx. 40 mins. approx. 25 mins. approx. 15 mins.	
Waiting time between applying Primer W-AS N and Mapefloor I 360 AS (the times indicated may vary according to surrounding conditions, such as temperature and relative humidity) Substrate temperature: – +10°C: – +20°C: – +30°C:	min. 26 h 17 h 12 hours	max. 7 days 5 days 4 days
Set to foot traffic: – +10°C: – +20°C: – +30°C:	approx. 30 hours approx. 24 hours approx. 16 hours	
Waiting time for light traffic: – +10°C: – +20°C: – +30°C:	approx. 5 days approx. 3 days approx. 16 hours	
Waiting time before ready for maximum loads: – +10°C: – +20°C: – +30°C:	approx. 10 days approx. 7 days approx. 5 days	
Application temperature:	+8°C to +35°C	
FINAL PERFORMANCE (at +23°C – 50% R.H.)*		
Electrical resistance (EN 1081) (Ohm):	10 ⁴ < R _E < 10 ⁶ <i>these values may vary according to surrounding conditions (temperature and humidity) and the equipment used to take the readings</i>	
Compressive strength after 28 days at +23°C (EN 196-1) (N/mm ²):	56	
Flexural strength after 28 days at +23°C (EN 196-1) (N/mm ²):	52	

Abrasion resistance - Taber abrasion meter (CS17 disk - 1,000 revs. - 1,000 g) after 7 days at +23°C (EN ISO 5470-1) (mg):	67	
Abrasion resistance - Taber abrasion meter (CS10 disk - 1,000 revs. - 1,000 g) after 7 days at +23°C (EN ISO 5470-1) (mg):	33	
Shore D hardness after 3 days at +23°C (DIN 53505):	81	

Essential characteristics	Test method	Requirements according to EN 13813 for synthetic resin-based screeds	Performance of product
BCA wear-resistance	EN 13892-4	$\leq 100 \mu\text{m}$	$< \mu\text{m } 5$
Adhesion strength	EN 13892-8; 2004	$\geq 1.5 \text{ N/mm}^2$	$\geq 3.5 \text{ N/mm}^2$
Impact strength	EN ISO 6272	$\geq 4 \text{ Nm}$	Nm 20
Capillary absorption and water permeability	EN ISO 1062-3	$W < 0,1 \text{ kg/m}^2 \cdot \text{h}^{0,5}$	$0,002 \text{ kg/m}^2 \cdot \text{h}^{0,5}$
Resistance to chemicals	EN 13529	Declared CR value	Shore D reduction $< 50\%$ CR1 (Class II) CR4 (Class II) CR5a (Class I) CR10 (Class II) CR11 (Class II) CR12 (Class II)
Reaction to fire	EN 13501-1	A1 _{FL} to F _{FL}	B _{FL} -s1

Cleanroom testing (CSM standard)

Essential characteristics	Test method	Test parameters	Classification
Concentration of airborne particles from the material when subjected to friction	ISO 14644-1	vs. PA6 Normal force: 300 N	ISO Class: 4
Evaluation of volatile organic compound (VOC) emissions at +23°C and +90°C	ISO 14644-8	From class 0 (high concentration of VOC, equal to 1 g/m^3) to -12 (VOC emissions equal to 10^{-12} g/m^3 or 0.001 ng/m^3)	ISO-ACCM Class -7.8

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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