MAPEFLOOR I 500 W

Water-based epoxy resin for vapour-permeable resin systems for flooring





DESCRIPTION

Mapefloor I 500 W is a two-component, water-based, fillerized epoxy resin according to a formula developed in the MAPEI R&D laboratories. It is suitable to create self-levelling or multi-layer resin systems permeable to water vapour for floors.

TECHNICAL CHARACTERISTICS

- Good chemical resistance;
- good mechanical strength;
- impermeable to water and liquids in general;
- good resistance to wear;
- permeable to water vapour;
- easy to work and apply;
- complies with requirements of EN 13813 "*Screed material and floor screeds - Screed material - Properties and requirements*", which defines the requirements to be applied to materials for screeds used in the construction of internal floors;
- fulfills HACCP requirements;
- fulfills GEV EMICODE EC1 Plus requirements;
- complies with the M1 protocol which includes VOC, formaldehyde and ammonia emission requirements according to EN 16516 and sensory odours testing according to ISO 16000-28.

ADVANTAGES

- Highly versatile; it can be used to form both self-levelling and multi-layer resin systems;
- it can also be used for decorative resin systems;
- surfaces are easy to clean and maintain;
- it can be applied on damp concrete or substrates with rising damp, provided there is no water film on the surface of the substrate;
- it can be applied on green concrete after only 7 days from casting;

- it creates even surfaces with an aesthetically pleasing appearance;
- it does not smell unpleasant during application;
- sustainability: it can contribute to LEED credits. EPD (Environmental Product Declaration) compliant.

WHERE TO USE

Mapefloor I 500 W makes both rough multi-layer and smooth self-levelling seamless resin systems. It is also used to make spatula effect decorative resin system by scratching it with a straight trowel. It is therefore used on cementitious floors, even damp or green (minimum 7 days from casting) or subject to capillary rising damp in various industrial and tertiary sectors such as:

- chemical and pharmaceutical industries;
- food and beverage industries;
- manufacturing industries in general;
- warehouses;
- shops, malls, showrooms;
- schools, museums, theatres, residential centres;
- underground parking lots, ground slabs, etc.

RECOMMENDATIONS

- Do not dilute **Mapefloor I 500 W** with solvent.
- Do not apply **Mapefloor I 500 W** on dusty, crumbling or weak surfaces.
- Do not apply **Mapefloor I 500 W** on substrates with oil or grease stains or dirt 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.
- The surfaces of systems made with **Mapefloor I 500 W** may change colour or fade if exposed to UV rays, but this has no effect on the performance of the resin system.
- The colour of the surfaces can also change in case of contact with aggressive chemicals; a change in colour, however, does not mean that the resin system has been damaged by the chemical.
- Remove aggressive chemicals as soon as possible after they come into contact with **Mapefloor I 500 W**.
- Use suitable specific cleaning equipment and detergent to clean the resin system, depending on the type of dirt or stain to be removed.
- Protect the product from water for at least 24 hours after application.
- The temperature of the substrate during application and hardening process must be at least 3°C higher than the dew point. The relative humidity of the air must be max. 80%.

APPLICATION PROCEDURE

Preparation of the substrate

The surface of concrete flooring must be 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 surface of the floor must be prepared with suitable power tools (e.g. shot-blasting or grinding with a diamond disc) 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, carefully vacuum off the dust from the surface.

Any defects present in the surface, such as holes, pitting, cracking, etc., must be repaired, for example, with **Primer SN** fillerised with quartz sand or made thixotropic with **Additix PE**, or with **Mapefloor JA** or **Mapefloor JA Fast** depending on the width and depth of the defects or cracks. To repair highly deteriorated areas and joints, fill large hollows and to create or slightly modify the slope in confined areas, use **Mapefloor EP19**, pre-dosed, three-component epoxy mortar.

Application of the primer

The substrate on which **Mapefloor I 500 W** is to be applied must be saturated with water just before applying the product. Avoid the formation of puddles or standing water on the surface. Apply **Mapefloor I 500 W** only on damp matt substrates. If the surface of the substrate also needs to be hardened, apply a coat of water-based epoxy primer **Mapecoat I 600 W** diluted with water up to 1:1 by weight. Immediately after the application of the primer, on its still wet surface, lightly broadcast with **Quartz 0.5**.

The use of the primer is always recommended when the self-levelling system **Mapefloor System 53** is going to be applied. Refer to the product Data Sheet for further details on how to apply **Mapecoat I 600 W**.

Preparation of the product

Stir component B thoroughly, then add the content of component A and 5-6% by weight of **Mapecolor Paste** then mix with a suitable low-speed electric mixer (300-400 rpm) to prevent entraining air, adding 2 litres of clean water at the same time. In cold ambient conditions, the amount of water for dilution can be increased up to 3 litres. To ensure the best colour uniformity of the surface of the resinous system, it is important to keep the water dilution ratio of **Mapefloor I 500 W** unchanged during all the application phases at the site.

However, given the presence of the water phase, some moderate variations in colour tone may be visible on the surface of the hardened resin system.

Mix for at least 2 minutes until the product is completely blended.

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

Do not overmix the product to avoid entraining too much air into the mixture.

Stir the product left in the container and not yet poured on the floor surface from time to time during the application phase.

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

Application of the product

Mapefloor I 500 W can be used for slip-resistant, multi-layer (3 to 5 mm thick) or smooth, self-levelling (2 to 4 mm thick) resin systems.

*1. Multi-layer slip-resistant system - thickness approx. 3 mm (**Mapefloor System 51**)*

Pour **Mapefloor I 500 W** on the primed or dampened to saturation substrate as previously described and spread it evenly by straight or notched trowel or rake. Immediately after application, on the still wet surface of **Mapefloor I 500 W**, broadcast in excess with **Quartz 0.5**. For particular requirements, for instance when a high slip-resistance is required, a larger particle size quartz sand can be used for the broadcast. This will increase the consumption of the next finishing coat.

When **Mapefloor I 500 W** has hardened, remove any excess sand, sand the surface, and remove the last grains of quartz by vacuum. Then apply the finishing coat of **Mapefloor I 500 W** with a medium pile roller or scratching to zero with a straight steel trowel followed by back rolling with a medium pile roller, in a criss-cross pattern.

To achieve the maximum surface colour uniformity, it is possible to apply at least one coat of **Mapefloor Finish 59 W** or **Mapecoat I 62 W**; alternatively, one or more coats of a transparent finish can be applied, chosen from the range of **Mapefloor Finish** aliphatic polyurethane products, to enhance the wear resistance and ease of cleaning of the surface.

*2. Multi-layer slip-resistant system - thickness approx. 5 mm (**Mapefloor System 52**)*

Pour **Mapefloor I 500 W** on the primed or dampened to saturation substrate as previously described and spread it evenly by straight or notched trowel or rake. Immediately after application, on the still wet surface of **Mapefloor I 500 W**, broadcast in excess with **Quartz 0.5**.

When **Mapefloor I 500 W** has hardened, remove any excess sand, sand the surface, and remove the last grains of quartz by vacuum. Then apply the intermediate layer of **Mapefloor I 500 W** by pouring the product on the

surface and spreading it by straight trowel or rake. Immediately after application, on the still wet surface of **Mapefloor I 500 W**, broadcast in excess with **Quartz 0.5**.

For particular requirements, for instance when a high slip-resistance is required, a larger particle size quartz sand can be used for the broadcast. This will increase the consumption of the next finishing coat.

When **Mapefloor I 500 W** has hardened, remove any excess sand, sand the surface, and remove the last grains of quartz by vacuum. Then apply the finishing coat of **Mapefloor I 500 W** with a medium pile roller or scratching to zero with a straight steel trowel followed by back rolling with a medium pile roller, in a criss-cross pattern.

To achieve the maximum surface colour uniformity, it is possible to apply at least one coat of **Mapefloor Finish 59 W** or **Mapecoat I 62 W**; alternatively, one or more coats of a transparent finish can be applied, chosen from the range of **Mapefloor Finish** aliphatic polyurethane products, to enhance the wear resistance and ease of cleaning of the surface.

*3. Smooth self-levelling system - thickness approx. 2 to 4 mm (**Mapefloor System 53**)*

Pour **Mapefloor I 500 W** onto the primed substrate as previously described and spread it evenly with a notched trowel or rake with "V" shaped notches in a minimum thickness of 2 mm. Back-roll the surface with a spiked roller several times while the product is still wet to remove any air entrapped during the mixing phase.

To achieve the maximum surface colour uniformity, it is possible to apply at least one coat of **Mapefloor Finish 59 W**; alternatively, one or more coats of a transparent finish can be applied, chosen from the range of **Mapefloor Finish** aliphatic polyurethane products, to enhance the wear resistance and ease of cleaning of the surface.

CONSUMPTION

1. Multi-layer slip-resistant system - thickness approx. 3 mm (Mapefloor System 51)

Primer (if required):

- **Mapecoat I 600 W** (A+B): 0.15-0.50 kg/m²
- Light broadcast with **Quartz 0.5**: 0.5 kg/m²

Base layer:

- **Mapefloor I 500 W** (A+B + **Mapecolor Paste**): 2.5 kg/m²
- Broadcast in excess with **Quartz 0.5**: 5 kg/m²

Finishing layer:

- **Mapefloor I 500 W** (A+B + **Mapecolor Paste**): 0.7 kg/m²

2. Multi-layer slip-resistant system - thickness approx. 5 mm (Mapefloor System 52)

Primer (if required):

- **Mapecoat I 600 W** (A+B): 0.15-0.50 kg/m²
- Light broadcast with **Quartz 0.5**: 0.5 kg/m²

Base layer:

- **Mapefloor I 500 W** (A+B + **Mapecolor Paste**): 2.5 kg/m²
- Broadcast in excess with **Quartz 0.5**: 5 kg/m²

Intermediate layer:

- **Mapefloor I 500 W** (A+B + **Mapecolor Paste**): 2.5 kg/m²
- Broadcast in excess with **Quartz 0.5**: 5 kg/m²

Finishing layer:

- **Mapefloor I 500 W** (A+B + **Mapecolor Paste**): 0.7 kg/m²

3. Smooth self-levelling system - thickness 2 to 4 mm (Mapefloor System 53)

Primer:

- **Mapecoat I 600 W** (A+B): 0.15-0.50 kg/m²
- Light broadcast with **Quartz 0.5**: 0.5 kg/m²

Self-levelling layer:

- **Mapefloor I 500 W** (A+B + **Mapecolor Paste**): 2 kg/m² per mm of thickness (4 kg/m² per 2 mm of thickness)

The consumption rates above are theoretical, considering **Quartz 0.5** for the broadcast, and are influenced by the condition of the surface to be treated, absorbency, roughness, temperature, ambient and jobsite conditions, etc.

TOOLS CLEANING

Clean tools used to prepare and apply **Mapefloor I 500 W** with water immediately after use. Once hardened, the product may only be removed by mechanical means.

PACKAGING

26 kg units:

component A = 2 kg

component B = 24 kg

STORAGE

The product can be stored for 12 months in its original sealed packaging, in a dry place at a temperature between +10°C and +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

PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)

PRODUCT IDENTITY		
	component A	**component B**
Colour:	neutral	straw yellow
Consistency:	liquid	paste
Density:	1.14 g/cm³	2.18 g/cm³
Viscosity at +23°C:	1,600-2,700 mPa·s (# 2 - rpm 10)	55,000-70,000 mPa·s (# 6 - rpm 10)

APPLICATION DATA (at +23°C and 50% R.H.) (A+B)	
Mixing ratio:	component A : component B = 1 : 12
Colour of the mix:	neutral
Consistency of the mix:	fluid
Density of the mix:	2,150 kg/m³
Viscosity of the mix (A+B):	50,000-70,000 mPa·s (# 6 - rpm 10)
Pot life of mix:	20 min.

Application temperature:	+10°C to +30°C (refers to the surroundings, material and substrate)
Waiting time between coats: **- on Mapecoat I 600 W lightly broadcasted with quartz sand:**	min. 6 h max. 72 h surfaces must be dry, clean and with no dust
Hardening time: **– dust dry:** **– set to foot traffic:** **– complete hardening time:**	 approx. 3-4 h approx. 16 h approx. 7 days
The times above are for indication purposes only and are influenced by actual site conditions (e.g. temperature of the surroundings and substrate, relative humidity of the air, etc.)	

FINAL PERFORMANCE	
Taber Test after 7 days (EN ISO 5470-1) (at +23°C, 50% R.H, 1,000 cycles/1,000 g, CS 17 wheel):	110 mg
Permeability to water vapour (UNI EN 12086):	1199 μ

Essential characteristics:	Test method	Requirements according to EN 13813 for synthetic resin-based screeds	Typical values
BCA wear resistance:	EN 13892-4	≤ AR6	AR0.5
Bond strength:	EN 13892-8	≥ B1.5	B2.0
Impact resistance:	EN ISO 6272	≥ IR4	IR20
Reaction to fire class:	EN 13501-1	from $A1_{FL}$ to F_{FL}	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.

Please refer to the current version of the Technical Data Sheet, available from our website www.mapei.com

LEGAL NOTICE

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. www.mapei.com.

ANY ALTERATION TO THE WORDING OR REQUIREMENTS CONTAINED OR DERIVED FROM THIS TDS EXCLUDES THE RESPONSIBILITY OF MAPEI.

TECHNICAL SPECIFICATIONS

Supply and installation of two-component epoxy water-based epoxy resin with neutral color (such as **Mapefloor I 500 W** by MAPEI S.p.A.), to make slip-resistant multi-layer resin systems 3 to 5 mm thick or smooth self-levelling resin systems 2 to 4 mm thick, permeable to water vapour and suitable for damp substrates or substrates with capillary rising damp, to be pigmented with suitable pigment paste (such as **Mapecolor Paste** by MAPEI S.p.A.).

The hardened material must have the following characteristics:

Taber test abrasion resistance (EN ISO 5470) (CS17 wheel - 1,000 g - 1,000 cycles) - after 7 days at +23°C and 50% R.H.:	110 mg
Bond strength (EN 13892-8):	≥ 2.5 N/mm^2

BCA wear resistance (EN 13892-4):	≤ 30 µm
Impact resistance (EN ISO 6272):	≥ 20Nm
Permeability to water vapour (EN 12086):	1199 µ
Reaction to fire class (EN 13501-1):	B_{FL}-s1
Fulfills GEV - EMICODE EC1 Plus requirements	
Fulfills HACCP requirements	
Complies with the M1 protocol which includes VOC, formaldehyde and ammonia emission requirements according to EN 16516 and sensory odours testing according to ISO 16000-28	
Contributes to obtaining LEED credits, EPD (Environmental Product Declaration) compliant	

Mapei S.p.A.

Via Cafiero, 22, 20158, Milano

+39-02-376731 www.mapei.com mapei@mapei.it

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