MAPEFLOOR I 300 SL

Two-component multi-purpose epoxy resin for industrial floors, in compliance with standards applied to the food industry and radon gas tightness





EN 13813

DESCRIPTION

Mapefloor I 300 SL is a two-component, high solid content epoxy resin, according to a formula developed in the MAPEI R&D laboratories, used to create self-levelling or multi-layer resin systems for floors having a smooth or slip-resistant finish and an attractive aesthetic aspect.

TECHNICAL CHARACTERISTICS

- Good chemical resistance;
- Impermeable to water and liquids in general;
- Good resistance to wear;
- Radon-tight. It complies with DIN ISO/TS 11665-13 standards (for thicknesses of 2 mm); it is verified and certified by the IAF-accredited laboratory for radionuclide analysis.
- Fulfils the ISO 8690 /DIN 25415 requirements with contaminants ^{137}Cs and ^{60}Co.
- Complies with the requirements defined by EN 13813 “Screed material and floor screeds - Screed material - Properties and requirements”, which defines the requirements for screed materials used in the construction of interior floors.

BENEFITS AND FEATURES

- Highly versatile; it can be used to form both self-levelling and multi-layer resin systems;
- Surfaces are easy to clean and sanitize;
- Easy maintenance;
- It does not smell unpleasant during application;
- Fulfils HACCP requirements;
- Complies with the standards applied in the foodstuffs sector EN 1186, EN 13130 and prCEN/TS 14234, as well as the Decree of Consumer Goods that represent the conversion of European directive 89/109/EEC, 90/128/EEC and 2002/72/EC for contact with foodstuffs;
- Low VOC emission (CDPH standard);
- Sustainability: it can contribute to LEED credits. EPD (Environmental Product Declaration) compliant.

WHERE TO USE

Mapefloor I 300 SL is used to create smooth self-levelling or rough multi-layer resin systems for floors in various sectors, such as:

- chemical and pharmaceutical industries;
- electronic, optic, mechanic industries, laboratories, etc.;
- aseptic rooms in healthcare environments, operating theatres, hospitals, etc.;
- food industries in general;
- nuclear power plants;
- artisan workshops;
- warehouses;
- offices, museums, showrooms;
- manufacturing industries in general;
- hangars, aeronautical or automotive industries;
- shopping centres, residential and tertiary buildings, infrastructures etc.

COLOURS

Mapefloor I 300 SL can be supplied pre-pigmented or in the neutral version to be coloured at the moment of use with **Mapecolor Paste**. Please contact the Mapei Technical Service for a full list of the colours available.

RECOMMENDATIONS

- Do not apply **Mapefloor I 300 SL** directly on cementitious substrates with moisture content higher than 4 % and/or with capillary rising damp (contact MAPEI Technical Service).
- Do not dilute **Mapefloor I 300 SL** with solvent or water.
- Do not apply **Mapefloor I 300 SL** on dusty or crumbling substrates.
- Do not apply **Mapefloor I 300 SL** on substrates with oil or grease stains or dirt in general.
- Do not apply **Mapefloor I 300 SL** on substrates that have not been previously primed with **Primer SN**, or with another specific primer, and have not been prepared as specified.
- 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.
- To ensure homogeneity of the finishing colour, it is recommended to use **Mapecolor Paste** from the same production batch.
- Do not add **Mapecolor Paste** if the product is supplied pre-pigmented.
- The surfaces of systems made with **Mapefloor I 300 SL** may change colour or fade if exposed to UV rays, but this has no effect on their performance.
- The surface may also change colour if it comes into contact with aggressive chemicals. A change in colour, however, does not imply any damage caused by chemical aggression.
- Remove aggressive chemicals as soon as possible after they come into contact with **Mapefloor I 300 SL**.
- If rooms where the resin system is being used need to be warmed up, do not use heaters that burn hydrocarbons; otherwise, the carbon dioxide and water vapour given off into the air will affect the shine on the finish and ruin its appearance. Use electric heaters only.
- 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 the 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 floors must be dry, clean, and sound, and have no crumbling or detached areas. The minimum compressive strength of the concrete used for the substrate must be at least 25 N/mm², and its 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 maximum 4% and there must be no capillary rising damp. The surface of the floor must be prepared with a suitable mechanical process (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, thoroughly remove all dust from the surface with a vacuum cleaner.

Any defects present in the surface, such as holes, pitting, cracking, etc., must be repaired, with **Primer SN** fillerized 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 create or slightly modify the slope in confined areas, use **Mapefloor EP19**, pre-dosed, three-component epoxy mortar.

Application of Primer SN

Primer SN is usually mixed with **Quartz 0.5** and applied by straight trowel over the entire surface to be treated. Immediately after its application, on the still wet surface, broadcast with **Quartz 0.5**, depending on the type of resin system to be applied. For further information regarding the preparation and application of **Primer SN**, refer to the relevant technical data sheet.

Preparation of the product

Stir component A thoroughly. Add the pigment **Mapecolor Paste** (refer to the following paragraphs for the correct amount to be added, depending on the application method, expressed as a percentage by weight of **Mapefloor I 300 SL** A+B mixture). Then pour in the entire contents of component B and mix with a suitable low-speed electric mixer (300-400 rpm). If required, add quartz sand at the same time. Mix for at least 2 minutes or until a homogeneous mixture is obtained.

If the pre-pigmented version of **Mapefloor I 300 SL** is used, **Mapecolor Paste** must not be added.

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.

Apply the mixture 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 300 SL can be used for slip-resistant, multi-layer (0.8 to 3.5 mm thick) or smooth, self-levelling (2 to 4 mm thick) resin systems.

1. Multi-layer slip-resistant system - thickness 0.8 to 1.2 mm (Mapefloor System 31)

Apply by straight trowel a scratch coat of **Primer SN** mixed with approx. 3-4% by weight of **Mapecolor Paste** and approx. 20% by weight of **Quartz 0.5**. Immediately after the application of the primer, on its still wet surface, broadcast in excess with **Quartz 0.5**.

When the primer 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 300 SL,** mixed with 7% by weight of **Mapecolor Paste** and 5-6% by weight of **Quartz 0.25**, by means of a medium-pile roller or scratching to zero with a straight steel trowel, followed by backrolling with a short-pile roller, in a criss-cross pattern.

2. Multi-layer slip-resistant system - thickness 3.0 to 3.5 mm (Mapefloor System 32)

Apply by straight trowel a scratch coat of **Primer SN** mixed with approx. 20% by weight of **Quartz 0.5**. Immediately after the application of the primer, on its still wet surface, broadcast in excess with **Quartz 0.5**.

When the primer has hardened, remove any excess sand, sand the surface, and remove the last grains of quartz by vacuum.

Apply the intermediate layer of **Mapefloor I 300 SL**, mixed with approx. 3-4% by weight of **Mapecolor Paste** and 35-40% by weight of **Quartz 0.5**, pouring the product onto the floor and spreading it out evenly, scratching to zero with a straight steel trowel. Immediately after the application of the resin, on its still wet surface, broadcast in excess with **Quartz 0.5**. For particular requirements, for instance, when a high slip-resistance property is required, quartz sand of larger grain size can be used. In such cases, the consumption of the following finishing coat will be higher. When **Mapefloor I 300 SL** has hardened, remove excess sand, sand the surface, and remove the last grains of sand with a vacuum cleaner.

Then apply the finishing coat of **Mapefloor I 300 SL,** mixed with 7% by weight of **Mapecolor Paste** and 5-6% by weight of **Quartz 0.25**, by means of a medium-pile roller or scratching to zero with a straight steel trowel, followed by backrolling with a short-pile roller, in a criss-cross pattern.

3. Smooth self-levelling system - thickness 2 to 4 mm (Mapefloor System 33)

Apply by straight trowel a scratch coat of **Primer SN** mixed with approx. 20% by weight of **Quartz 0.5**. Immediately after the application of the primer, on its still wet surface, lightly broadcast with **Quartz 0.5**. Make sure there are no open pores on the surface of the substrate; otherwise, air could escape and form pinholes in the self-levelling layer. If there are any open pores in the substrate, apply a second skim coat of **Primer SN** as previously described and lightly broadcast the surface with **Quartz 0.5**. When the primer has hardened, remove any excess sand and carefully vacuum the surface.

Mix **Mapefloor I 300 SL** with 3-4% by weight of **Mapecolor Paste** and with up to 1:1 by weight of **Quartz 0.25**, depending on the ambient and application conditions; as the temperature and thickness to be applied decrease, the quantity of sand added must be reduced. Pour the product onto the floor and spread it evenly with a notched trowel with “V” shaped notches. Back-roll the surface with a spiked roller several times while the product is still wet to remove any air entrapped in the product during the mixing phase.

Note: *the examples above are for indication purposes only. The amount of quartz sand added to* ***Primer SN*** *or* ***Mapefloor I 300 SL*** *may vary depending on the temperature and roughness of the substrate. Less sand may be required at lower temperatures and more at higher temperatures.*

CONSUMPTION

1. Multi-layer slip-resistant system - thickness 0.8 to 1.2 mm (Mapefloor System 31)

Base layer:

Primer SN (A+B + **Mapecolor Paste**):	0.5-0.7 kg/m²
Quartz 0.5:	0.10-0.14 kg/m²
Broadcast in excess with **Quartz 0.5**:	3.0 kg/m²

Finishing layer:

Mapefloor I 300 SL (A+B + **Mapecolor Paste**):	0.4-0.6 kg/m²
Quartz 0.25:	0.02-0.04 kg/m²

2. Multi-layer slip-resistant system - thickness 3.0 to 3.5 mm (Mapefloor System 32)

Base layer:

Primer SN (A+B)	0.5-0.7 kg/m²
Quartz 0.5:	0.10-0.14 kg/m²
Broadcast in excess with **Quartz 0.5**:	3.0 kg/m²

Intermediate layer:

Mapefloor I 300 SL (A+B + **Mapecolor Paste**):	0.9 kg/m²
Quartz 0.5:	0.34 kg/m²
Broadcast in excess with **Quartz 0.5**:	3.0 kg/m²

Finishing layer:

Mapefloor I 300 SL (A+B + **Mapecolor Paste**):	0.4-0.6 kg/m²
Quartz 0.25:	0.02-0.04 kg/m²

3. Smooth self-levelling system - thickness 2 mm (Mapefloor System 33)

Base layer:

Primer SN (A+B):	0.5-0.7 kg/m²
Quartz 0.5:	0.10-0.14 kg/m²
Light broadcast with **Quartz 0.5**:	0.5 kg/m²

Self-levelling layer:

Mapefloor I 300 SL (A+B + **Mapecolor Paste**):	2.0 kg/m²
Quartz 0.25: *(resin:sand ratio 1:1 by weight))*	2.0 kg/m²

Note: If the pre-pigmented version of **Mapefloor I 300 SL** is used, **Mapecolor Paste** must not be added.
The consumption rates mentioned above are theoretical and are influenced by the actual conditions of the surfaces to be coated, absorbency, roughness, temperature, ambient and job site conditions, etc.

CLEANING

Clean tools used to prepare and apply **Mapefloor I 300 SL** with ethanol or thinner immediately after use. Once hardened, the product can only be removed mechanically.

PACKAGING

20 kg units: comp. A = 15 kg; comp. B = 5 kg.

STORAGE

The product can be stored for 24 months in its original sealed packaging, in a dry place at a temperature between +5°C and +35°C. Protect from frost.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Instruction for the safe use of our products can be found on the latest version of the SDS available from our website www.mapei.com.

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

PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)

PRODUCT IDENTITY		
	component A	**component B**
Colour:	neutral or RAL colours	straw yellow
Consistency:	liquid	liquid
Density:	1.5 g/cm³	1.0 g/cm³
Viscosity at +23°C:	4,500 ± 1,000 mPa·s (# 4 – rpm 20)	200 - 300 mPa·s (# 2 - rpm 50)

APPLICATION DATA (at +23°C and 50% R.H.)	
Mixing ratio by weight:	comp. A : comp. B = 3 : 1
Colour of the mix:	neutral or RAL colours
Consistency of the mix:	fluid
Density of the mix:	1,340 kg/m³
Viscosity of the mix:	900 - 1,200 mPa·s (# 4 - rpm 50)
Pot life:	35 min.
Application temperature:	+8°C to +35°C (refers to the surroundings, material and substrate)
Recoat time:	
- On Primer SN broadcasted in excess with quartz sand:	min. 12 h no maximum limit*
- On Primer SN lightly broadcasted with quartz sand:	min. 18 h max. 24 h *surfaces must be dry and clean with no dust
Hardening time:	

– dust dry:	2-4 hours
- set to foot traffic:	approx. 24 h
– complete hardening:	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	
Compressive strength (EN 196-1):	67 N/mm²(product fillerized with 1:1 by weight of **Quartz 0.25**)
Flexural strength (EN 196-1):	28 N/mm²(product fillerized with 1:1 by weight of **Quartz 0.25**)
Taber Test after 7 days (EN ISO 5470-1) (at +23°C, 50% R.H, 1,000 cycles/1,000 g, CS 17 wheel):	approx. 70 mg
Shore D (DIN 53505):	78

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
Liquid water permeability:	EN 1062-3	declared value	$w < 0.1$ kg/(m ·$h^{0.5}$) class III
Chemical resistance:	EN 13529	CR Group number (1 to 15a) and class (1 or 2)	CR1, CR4, CR11, CR12 (class 2) CR5a (class 1) CR10 (class 2 slight loss of gloss)
Reaction to fire:	EN 13501-1	from $A1_{FL}$ to F_{FL}	B_{FL}-s1

Radon gas performance characteristics	Test method	Typical values
Determination of Radon diffusion coefficient:	DIN ISO/TS 11665-13	R > 3

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.

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, high-solid content epoxy resin (such as **Mapefloor I 300 SL**by MAPEI S.p.A.), to be coloured at the moment of use with specific pigment paste (such as **Mapecolor Paste** by MAPEI S.p.A.), suitable for medium- to high-thickness multi-layer or self-levelling resin systems, to be applied by straight or notched trowel, depending on the type of system, onto the adequately prepared cementitious substrate.

The hardened material must have the following characteristics:

Bond strength (EN 13892-8):	≥ 2.5 N/mm² (failure of concrete)
Compressive strength (EN 196-1):	67 N/mm²
Flexural strength (EN 196-1):	28 N/mm²
TABER abrasion resistance (EN ISO 5470-1) (at +23°C, 1,000 cycles, 1,000 g, CS 17 wheel):	approx. 70 mg
Shore D hardness (DIN 53505):	78
BCA wear resistance (EN 13892-4):	10 µm
Impact resistance (EN ISO 6272):	20 N/m
Water permeability (EN 1062-3):	w 0.002 (kg/m²·$h^{0.5}$)
Chemical Resistance (EN 13529):	CR1, CR4, CR11, CR12 (class 2) CR5a (class 1) CR10 (class 2 slight loss of gloss)
Fire reaction class (EN 13501-1):	B_{FL}-s1
Determination of the Radon diffusion coefficient (DIN ISO/TS 11665-13) (for thicknesses of 2 mm):	R >3
Fulfils HACCP requirements	
Fulfils the ISO 8690 /DIN 25415 requirements with contaminants ^{137}Cs and ^{60}Co.	
Low VOC emission (CDPH standard).	
Contributes to obtaining LEED credits, EPD (Environmental Product Declaration) compliant.	

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