

MAPEFLOOR I 302 SL

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



DESCRIPTION

Mapefloor I 302 SL is a two-component, high solid content, coloured epoxy resin, according to a formula developed in 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;
- suitable for smooth resin systems for cleanrooms in class ISO 3 for particle emission and class -5.7 for VOC emission according to ISO 14644-8;
- hygienic and sanitizable; certified according to ISO 4628-1 Riboflavin test for cleaning validation;
- it does not allow microbial proliferation according to ISO 22196;
- radon-tight. It complies with DIN ISO/TS 11665-13 standards; it is verified and certified by the IAF-accredited laboratory for radionuclide analysis.
- it complies with requirements of EN 13813 "*Screed material and floor screeds - Screed material - Properties and requirements*", which specifies the requirements for screed materials used in the construction of internal floors.

ADVANTAGES

- Highly versatile; it can be used to form both self-levelling and multi-layer resin systems;
- easy maintenance;
- it does not smell unpleasant during application;
- it fulfils HACCP requirements;
- it 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 302 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;
- cleanrooms in the electronics industry, optics, medical devices, laboratories, etc;
- aseptic rooms in healthcare environments, operating theatres, hospitals, etc.;
- cleanrooms in pharma and food packaging areas, etc;
- food industries in general;
- artisan workshops;
- warehouses;
- offices, museums, showrooms;
- hangars, aeronautical or automotive industries;
- manufacturing industries in general;
- shopping centres, residential and tertiary buildings, infrastructures;
- **Mapefloor I 302 SL** can also be used as a binder for "Terrazzo alla veneziana" resin-based systems, such as **Mapefloor System 35 F/M**.

COLOURS

Please contact MAPEI headquarters for a full list of the colours available.

RECOMMENDATIONS

- Do not apply **Mapefloor I 302 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 302 SL** with solvent or water.
- Do not apply **Mapefloor I 302 SL** on dusty or crumbling substrates.
- Do not apply **Mapefloor I 302 SL** on substrates with oil or grease stains or dirt in general.
- Do not apply **Mapefloor I 302 SL** on substrates which 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.
- The surfaces of systems made with **Mapefloor I 302 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.
- 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.
- Remove aggressive chemicals as soon as possible after they come into contact with **Mapefloor I 302 SL**.
- 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 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 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 on the surface with a vacuum cleaner.

Any defects present in the surface, such as holes, pitting, cracking, etc., must be repaired, for example, with **Primer SN** fillerized with quartz sand or thickened 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 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 the application of **Primer SN** refer to the relevant technical data sheet.

Preparation of the product

Stir component A thoroughly, then pour in all the contents of component B and mix with a suitable low-speed electric mixer (300-400 rpm) adding at the same time, if required, the amount of quartz sand needed. Mix for at least 2 minutes or until a homogeneous mixture is obtained. Do not overmix the product to avoid entraining too much air into the mixture.

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

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 302 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 (such as 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 302 SL**, mixed with 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 (such as 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 **Mapecfloor I 302 SL**, mixed with 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 **Mapecfloor I 302 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 **Mapecfloor I 302 SL**, mixed with 5-6% by weight of **Quartz 0.25**, by means of a medium-pile roller or scratching to zero by 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 (such as Mapecfloor 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, slightly 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 scratch 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 **Mapecfloor I 302 SL** with up to 50% by weight of **Quartz 0.25** depending on the ambient and application conditions; as the temperature and the thickness to be applied decrease, the quantity of sand added must be reduced. Pour the mix onto the floor and spread it evenly by 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 quantity of quartz sand added to **Primer SN** or **Mapecfloor I 302 SL** may vary depending on the temperature. 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 (such as Mapecfloor System 31)

Base layer:

Primer SN (A+B + Mapecolor Paste)	0.5-0.7 kg/m ²
Quartz 0.5	0.10-0.14 kg/m ²
Broadcast in excess with Quartz 0.5	3.0 kg/m ²

Finish:

Mapecfloor I 302 SL (A+B)	0.4-0.6 kg/m ²
Quartz 0.25	0.02-0.04 kg/m ²

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

Base layer:

Primer SN (A+B)	0.5-0.7 kg/m ²
Quartz 0.5	0.10-0.14 kg/m ²
Broadcast in excess with Quartz 0.5	3.0 kg/m ²

Intermediate layer:

Mapefloor I 302 SL (A+B)	0.9 kg/m ²
Quartz 0.5	0.34 kg/m ²
Broadcast in excess with Quartz 0.5	3.0 kg/m ²

Finish:

Mapefloor I 302 SL (A+B)	0.4-0.6 kg/m ²
Quartz 0.25	0.02-0.04 kg/m ²

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

Base layer:

Primer SN (A+B)	0.5-0.7 kg/m ²
Quartz 0.5	0.10-0.14 kg/m ²
Light broadcast with Quartz 0.5	0.5 kg/m ²

Self-levelling layer:

Mapefloor I 302 SL (A+B)	2.0-2.2 kg/m ²
Quartz 0.25	1.0-1.1 kg/m ²

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 302 SL** with ethanol immediately after use. Once hardened, the product can be removed mechanically.

PACKAGING

20 kg units: comp. A = 16 kg + comp. B = 4 kg.

STORAGE

24 months in its original packaging, in a dry place at a temperature between +5°C and +35°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 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:	coloured	straw yellow
Consistency:	thick liquid	liquid
Density:	1.53 g/cm ³	1.0 g/cm ³
Viscosity at +23°C:	5,500 - 7,000 mPa·s (# 5 - rpm 20)	380 - 480 mPa·s (# 2 - rpm 50)

APPLICATION DATA (at +23°C and 50% R.H.)

Mixing ratio:	component A : component B = 4 : 1		
Consistency of the mix:	viscous		
Density of the mix:	1,430 kg/m ³		
Viscosity of mix:	1,200-200 mPa·s (# 3 - rpm 20)		
Gelation Timer (BS 2782-8):	+10 °C 60 minutes	+23 °C 30 minutes	+35 °C 13 minutes
Curing time (ASTM D 5895):	+10 °C 15 hours (Phase III)	+23 °C 7 hours (Phase III)	+35 °C 3.5 hours (Phase III)
Pot life:	approx. 25 minutes		
Application temperature:	+8°C to +35°C (refers to the surroundings, material and substrate)		
Waiting time between each coat (min/max):	+10 °C 35-75 hours	+23 °C 18-48 hours	+35 °C 10-24 hours

FINAL PERFORMANCE

Set to foot traffic 50% R.H.:	+10 °C 48 hours	+23 °C 24 hours	+35 °C 16 hours
Light traffic 50% R.H.:	3-4 days	48 hours	24 hours
Normal traffic/exposure chemical attack 50% R.H.:	10 days	7 days	5 days
Complete hardening time at +23°C and 50% R.H.:	7 days		
Shore D hardness (DIN 53505) after 7 days at +23°C, 50% R.H.:	75		
Taber test after 7 days (at +23°C, 50% R.H., 1000 cycles/1000 g, wheel CS 17):	70 mg		

Compressive strength after 7 days (EN 196-1):	50 N/mm ²
Flexural strength after 7 days (EN 196-1):	20 N/mm ²
Abrasion resistance - Taber test (1000 cycles/1000 g, wheel H22) (ISO 5470-1):	828 mg
Permeability to CO ₂ (EN 1062-6 - sample treated according to EN 1062-11):	S _D 255 m
Permeability to water vapour (EN ISO 7783-1; EN ISO 7783-2):	Class III
Capillary absorption and permeability to water (EN 1062-3):	0.002 kg/m ² ·h ^{0.5}
Resistance to severe chemical attack (EN 13529): Class I: 3 days without pressure Class II: 28 days Class III: 28 days without pressure <i>It is recommended to use test liquid for the 20 classes indicated in EN 13529 which cover all types of the most commonly-used chemical agents. Other test liquids may be agreed upon between those interested in the tests</i>	Group 4: class II Group 10: class II Group 11: class II Group 12: class II
Resistance to impact measured on MC (0.40) coated concrete samples according to EN 1766 (ISO 6272-1):	Class III
Bond strength by pull-off Reference substrate: MC (0.4) as specified in EN 1766. Curing (EN 1542): - 28 days for single component systems containing concrete and PCC systems: - 7 days for systems with reactive resin:	3.40 N/mm ²

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:	EN 13501-1	from Al _{FL} to F _{FL}	B _{FL} -s1

CLEANROOM TESTING (CSM standard)

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: 3
Evaluation of volatile organic compound (VOC) emissions at +23°C and +90°C:	ISO 14644-8	Class from 0 (high VOC concentration of 1 g/m ³) to -12 (VOC emissions of 10 ⁻¹² g/m ³ , or 0.001 ng/m ³) 0 = excellent 1 = very good 2 = good 3 = poor 4 = very poor 5 = not resistant	ISO-ACCM Class -5.7
Chemical resistance (10 test liquids at T +22°C)	ISO 2812		1 / very good

Microbe resistance effectiveness:	ISO 22196	R factor ≥ 3.5 = excellent < 3.5 = very good < 3 = good < 2 = poor < 1 = very poor < 0.2 = not resistant	$R > 3.7$ / excellent
Cleanability (Riboflavin test):	ISO 4628-1	0 = excellent 1 = very good 2 = good 3 = poor 4 = very poor 5 = not resistant	1 / very good

Radon gas performance characteristics	Test method	Results
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. 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, pigmented epoxy resin (such as **Mapecfloor I 302 SL** 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 kind of system, on the duly prepared cementitious substrate.

The hardened material must have the following characteristics:

Shore D hardness (DIN 53505) after 7 days at +23°C, 50% R.H.:	75
Taber test after 7 days (at +23°C, 50% R.H., 1000 cycles/1000 g, wheel CS 17) (EN ISO 5470-1):	70 mg
Abrasion resistance - Taber test (1,000 cycles/1,000 g, wheel H22) (ISO 5470-1):	828 mg
Compressive strength after 7 days (EN 196-1):	50 N/mm ²
Flexural strength after 7 days (EN 196-1):	20 N/mm ²
BCA wear resistance (EN 13892-4):	< 5 µm
Bond strength (EN 13892-8):	3.10 N/mm ²

Impact resistance (EN ISO 6272):	20 Nm
Permeability to CO₂ (EN 1062-6):	S _D 255 m
Permeability to water vapour (EN ISO 7783-1; EN ISO 7783-2):	Class III
Capillary absorption and permeability to water (EN 1062-3):	0.002 kg/m ² ·h ^{0.5}
Chemical Resistance (EN 13529):	Group 4 (class II) Group 10 (class II) Group 11 (class II) Group 12 (class II)
Chemical resistance (10 test liquids at T +22°C) (ISO 2812):	very good
Does not allow microbial proliferation (ISO 22196):	R > 3.7 / excellent
Riboflavin test (ISO 4628-1):	very good
Reaction to fire (EN 13501-1):	B _{FL} -s1
Concentration of airborne particles from the material when subjected to friction (ISO 14644-1):	ISO Class: 3
Evaluation of volatile organic compound (VOC) emissions at +23°C and +90°C (ISO 14644-8):	ISO-ACCM Class -5.7
Determination of the Radon diffusion coefficient (DIN ISO/TS 11665-13):	R > 3
Complies with 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 regarding contact with foodstuffs	
Fulfills HACCP requirements	
Low VOC emission (CDPH standard)	
Contributes to obtaining LEED credits, EPD (Environmental Product Declaration) compliant	



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