MAPEI

Mapefloor I 302 SL

CE
EN 13813

Two-component multi-purpose epoxy formulation for industrial floors, in compliance with standards applied to the drinks and foodstuffs industry and cleanrooms

SR SYNTHETIC RESINS B2.0 AR0.5-IR20-B_{fl}-s1 IN COMPLIANCE WITH EUROPEAN STANDARDS EN 13813

Cleanroom® Suitable Materials MAPEFLOOR I 302 SL

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DESCRIPTION

Mapefloor I 302 SL is a two-component, coloured epoxy formulate with high solids content used to create self-levelling or multi-layer resin coatings on floors to form an attractive, smooth or non-slip finish.

Some application examples

- Coating floors in the chemical and pharmaceutical industries.
- Coating floors in cleanrooms used in various areas of industry, such as the optics sector, electronics, etc.
- Coating floors in the food industry.
- Coating floors in laboratories.
- Coating floors in aseptic rooms.
- Coating floors in mechanised warehouses.
- Coating floors in shopping centres, residential and tertiary buildings, infrastructure and services.

TECHNICAL CHARACTERISTICS

Mapefloor I 302 SL is a two-component, nonylphenol-free, fillerised epoxy resin-based formulation with high solids content according to a formula developed in MAPEI research laboratories.
It complies with standards applied in the foodstuffs sector - EN 1186, EN 13130 and prCEN/TS 14234 - as well as the Decree of Consumer Goods, which represents the conversion of the European directives 89/109/EEC, 90/128/EEC and 2002/72/EC for contact with food and with HACCP regulations.

Mapefloor I 302 SL is used to form seamless coatings specific for cleanrooms in class ISO 3 and class -5.7 particle emissions, VOC emissions according to ISO 14644-8 standards and has excellent resistance to attack from micro-organisms according to ISO 22196 and ISO 4628-1 standards.
Mapefloor I 302 SL is a highly versatile product and may be used to form both self-levelling and multi-layered coatings on floors.
Mapefloor I 302 SL is particularly suitable for the foodstuffs sector and cleanrooms. After application, surfaces are seamless and flat with a highly attractive finish. **Mapefloor I 302 SL** can also be used as binder for Terrazzo resin based systems such as **Mapefloor System 35 F/M**.
Mapefloor I 302 SL is highly resistant to chemicals and abrasion and has excellent mechanical performance properties (see Technical Data section).
Mapefloor I 302 SL 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.

COLOURS

Please contact Head Office for a full list of the colours available.

RECOMMENDATIONS

- Do not apply **Mapefloor I 302 SL** on damp substrates or on substrates with capillary rising damp (contact MAPEI Technical Services Department).
- Do not dilute **Mapefloor I 302 SL** with solvent or water.
- Do not apply **Mapefloor I 302 SL** on dusty or crumbling substrates.

Mapefloor I 302 SL

- Do not apply **Mapefloor I 302 SL** on substrates with oil or grease stains or stains in general.
- Do not apply **Mapefloor I 302 SL** on substrates that have not been treated with **Primer SN** or with another recommended primer or that 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.
- Coatings made from **Mapefloor I 302 SL** may change colour or fade if exposed to sunlight but this has no effect on its performance characteristics.
- 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 applied 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 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 substrates with moisture content higher than 4% and/or with capillary rising damp (check by testing it with a sheet of polythene).
- The temperature of the substrate must be at least 3°C above the dew-point temperature.

APPLICATION PROCEDURE

Preparation of the substrate

Surfaces to be treated with this product must be flat, clean and dry and must have no capillary rising damp. Also, the substrate screed must be strong enough to withstand the loads to which it will be subjected when in service.
Any cement laitance present on the surface to be treated must be removed mechanically. Any cracks, holes or surface irregularities must be repaired and smoothed with castable epoxy resin **Eporip**, or epoxy mortar **Mapefloor EP19**, or tixotropic epoxy resin **Mapefloor JA** or **Mapefloor JA Fast**.
Before applying **Mapefloor I 302 SL**, all traces of dust must be removed from the surface with a vacuum cleaner and substrates must receive adequate preparation and be treated with primer.

Application of Primer SN

Apply the **Primer SN** as is or mixed with **Quartz 0.5** on the substrate after it has been prepared as specified with a smooth spreader or rake. Immediately after applying **Primer SN** broadcast the surface while still wet with **Quartz 0.5**, depending on the type of coating to be applied. Make sure there are no open pores in the surface of the substrate otherwise air bubbles could escape and form small craters or pinholes in the self-levelling finishing coat. If there are holes or open pores in the substrate fill them with **Eporip** or **Primer SN** thickened with **Additix PE**.

Preparation of the product

The two components which make up **Mapefloor I 302 SL** must be blended together just before application. Briefly mix component A, add component B (catalyser), quartz sand where required and mix with a drill at low-speed to prevent entraining air into the mix until it forms a smooth, even paste. Pour the mix into a clean container and mix again for a short time.

Application of the product

Mapefloor I 302 SL may be used to form non-slip, multi-layer coatings (0.8 to 3.5 mm thick), or self-levelling coatings (2 to 3 mm thick). The application procedures are as follows:

1. Non-slip multi-layered coating - 0.8 to 1.2 mm thick

- Prepare the substrate by shot-blasting or grinding with a diamond disk and remove all traces of dust with a vacuum cleaner.
- With a straight trowel apply a skim coat of **Primer SN** (A+B) mixed with **Mapecolor Paste** and with 20% by weight of **Quartz 0.5**; immediately after applying the primer, fully broadcast the surface with **Quartz 0.5**.
- When the primer has hardened remove any excess sand, sand the surface and remove the last grains of quartz with an industrial-grade vacuum cleaner. Depending on the degree of non-slip finish required, apply a finishing coat of neat **Mapefloor I 302 SL** by medium-pile roller or scratching to zero with a straight trowel. Then backroll with a short-pile roller in a criss-cross pattern.

2. Non-slip multi-layered coating - 3.0 to 3.5 mm thick

- Prepare the substrate by shot-blasting or grinding with a diamond disk and remove all traces of dust with a vacuum cleaner.
- With a straight trowel apply a skim coat of **Primer SN** (A+B) mixed with 20% by weight of **Quartz 0.5**; immediately after applying the primer, fully broadcast the surface with **Quartz 0.5**.
- When the primer has hardened remove any excess sand, sand the surface and remove the last grains of sand with an industrial-grade vacuum cleaner. Apply **Mapefloor I 302 SL** mixed with 50% by weight of **Quartz 0.5**. Pour the product over the floor and spread it evenly with a straight steel trowel.
- Fully broadcast the surface of **Mapefloor I 302 SL**, while still wet, with **Quartz 0.5**.

TECHNICAL DATA (typical values)

PRODUCT IDENTITY		
	component A	**component B**
Colour:	coloured	straw-yellow
Consistency:	thick liquid	liquid
Density (g/cm³):	1.53	1
Viscosity at +23°C (mPa·s):	5500 ÷ 7000 (#5; 20 rpm)	380 ÷ 480 (#2; 50 rpm)

APPLICATION DATA (at +23°C and 50% R.H.)			
Mixing ratio:	component A : component B = 4 : 1		
Consistency of mix:	Viscous		
Density of mix (kg/m³):	1,430		
Viscosity of mix at +23°C (mPa·s):	1200 ± 200 (#3; 20 rpm)		
Gelation Timer (BS 2782-8):	**+10°C** 60 minutes	**+23°C** 30 minutes	**+35°C** 13 minutes
Drying time (ASTM D 5895):	**+10°C** 15 hours (Phase III)	**+23°C** 7 hours (Phase III)	**+35°C** 3.5 hours (Phase III)
Workability time at +23°C:	25 minutes		
Application temperature:	+8°C to +35°C		

FINAL PERFORMANCE			
Waiting time between each coat (min/max):	**+10°C** 35 ÷ 75 hours	**+23°C** 18 ÷ 48 hours	**+35°C** 10 ÷ 24 hours
Set to foot traffic 50% R.H.: **Light traffic 50% R.H.** **Normal traffic/exposure to chemicals 50% R.H.**	**+10°C** 48 hours 3 ÷ 4 days 10 days	**+23°C** 24 hours 48 hours 7 days	**+35°C** 16 hours 24 hours 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. 1,000 cycles/1,000 revs, CS 17 disk) (EN ISO 5470-1) (mg):	70		
Compressive strength after 7 days (EN 196-1) (N/mm²):	50		
Flexural strength after 7 days (EN 196-1) (N/mm²):	20		

Essential characteristics	Test method	Performance of product
Abrasion resistance (Taber test) Note: testing methods for flooring systems according to EN 13813 are also acceptable:	EN ISO 5470-1	828 mg
Permeability to CO_2:	EN 1062-6 (sample treated according to prEN 1062-11)	S_D 255 m
Permeability to water vapour:	EN ISO 7783 - 1-2	Class III
Capillary absorption and permeability to water:	EN 1062-3	0.002 kg/m²·h$^{0.5}$
Resistance to severe chemical attack: **Class I: 3 days with no pressure** **Class II: 28 days** **Class III: 28 days with pressure** **We recommend using test liquids for the 20 classes indicated in EN 13529, which cover all types of the most common chemical agents. Other test liquids may be agreed upon between those interested in the tests**	EN 13529	Class I
Resistance to impact measured on MC (0.40) dressed concrete samples according to EN 1766:	EN ISO 6272-1	Class III
Direct traction adherence test on reference substrate: MC (0.4) as specified in EN 1766, curing time: **– 28 days for one-component systems containing concrete and PCC systems:** **– 7 days for reactive resin systems:**	EN 1542	3.40 N/ mm²

Essential characteristics	Test method	Requirements according to UNI EN 13813 for synthetic resin-based screeds	Performance of product
BCA wear-resistance:	EN 13892-4	≤ 100 µm	< 5 µm
Adhesion strength:	EN 13892-8; 2004	≥ 1.5 N/mm²	3.10 N/mm²
Impact strength:	EN ISO 6272	≥ 4 Nm	20 Nm
Reaction to fire:	EN 13501-1	$A1_{FL}$ to F_{FL}	B_{FL}-s1
CLEANROOM TESTING (CSM standard)			
Performance characteristic	**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 compounds (VOC) emissions at +23°C and +90°C:	ISO 14644-8	From class 0 (high concentration of VOC, equal to 1 g/m³) to -12 (VOC emissions equal to 10^{-12} g/m³ or 0.001 ng/m³)	ISO-ACCm Class -5.7

- When the product has hardened, remove any excess sand and sand the surface removing the last grains of sand with an industrial-grade vacuum cleaner. Depending on the degree of non-slip finish required, apply a finishing coat of neat **Mapefloor I 302 SL** by medium-pile roller or scratching to zero with a straight trowel. Then backroll with a short-pile roller in a criss-cross pattern.

3. Smooth self-levelling coating - 2-3 mm thick

- Prepare the substrate by shot-blasting or grinding with a diamond disk and remove all traces of dust with a vacuum cleaner.
- With a straight trowel apply a skim coat of **Primer SN** (A+B), mixed with 20% by weight of **Quartz 0.5**; immediately after applying the primer, lightly broadcast the surface with **Quartz 0.5** at a rate of up to 0.5 kg/m². For particularly porous substrates the surface will need to be primed several times, without broadcasting the surface with sand, until all the pores in the substrate have been completely filled.
- When the primer has hardened remove all the loose sand with a vacuum cleaner and apply the self-levelling layer of **Mapefloor I 302 SL** mixed with up to 50% by weight of **Quartz 0.25**, depending on the surrounding temperature. Pour the mix onto the floor and spread out evenly using a notched spreader (with "V" shaped teeth). Backroll with a spiked roller several times while the product is still wet to even out the thickness of the coating and to remove any air entrained into the product during the mixing phase.

N.B.: *the examples above are for indication purposes only. The amount of sand added to the* ***Primer SN*** *or* ***Mapefloor I 302 SL*** *may vary according to the surrounding temperature. The amount required may be less at lower temperatures and more at higher temperatures.*

CONSUMPTION

1. *Non-slip multi-layer broadcast system - 0.8-1.2 mm thick*

First coat:

Primer SN (A+B **Mapecolor Paste**)	0.5-0.7 kg/m² (depending on the absorption and roughness of the substrate)
Quartz 0.5: Broadcast in excess **Quartz 0.5**	0.10-0.14 kg/m² 3.0 kg/m²

Finish:

Mapefloor I 302 SL (A+B)	0.6 kg/m²

2. *Non-slip multi-layer broadcast system - 3.0-3.5 mm thick*

First coat:

Primer SN (A+B)	0.5-0.7 kg/m² (depending on the absorption and roughness of the substrate)
Quartz 0.5: Broadcast in excess **Quartz 0.5**	0.10-0.14 kg/m² 3.0 kg/m²

Intermediate coat:

Mapefloor I 302 SL (A+B)	0.9 kg/m²
Quartz 0.5 Broadcast in excess **Quartz 0.5**	0.45 kg/m² 3.0 kg/m²

Finish:
Mapefloor I 302 SL
(A+B) 0.6 kg/m²

3. *Smooth self-levelling system - 2 mm thick*
First coat:
Primer SN (A+B) 0.5-0.7 kg/m² (depending on the absorption and roughness of the substrate)
Quartz 0.5: 0.10-0.14 kg/m²
Lightly broadcast
Quartz 0.5 0.5 kg/m²

Finish:
Mapefloor I 302 SL
(A+B) 2.0 kg/m²
Quartz 0.25: 1.0 kg/m²

The consumption rates above are theoretical and are influenced by the condition of the surface to be treated, absorbency, roughness, the actual conditions on site, etc.

Cleaning
Clean tools used to prepare and apply **Mapefloor I 302 SL** with ethanol immediately after use. Once hardened the product may only be removed mechanically.

PACKAGING
Mapefloor I 302 SL - 20 kg kit (component A = 16 kg + component B = 4 kg.)

STORAGE
24 months in a cool, dry area in its original, sealed packaging at a temperature of +5°C to +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 to never leave the container unguarded until it is completely empty.

PRODUCT FOR PROFESSIONAL USE.

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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All relevant references for the product are available upon request and from www.mapei.com

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2169-5-2021-I (GB)

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