

Mapefloor System 91

TROWELLED EPOXY MORTAR COATING SYSTEM FOR INDUSTRIAL FLOORS, IDEAL FOR RENOVATING OLD FLOORS; THICKNESS 6 TO 15 mm

Products used for the system:

Primer SN - Mapefloor I 900 - Mapefloor I 300 SL -

Mapeflex PU21 - Mapeflex PU45 - Quartz 1.9 - Quartz 0.5 - Quartz 0.25

DESCRIPTION

MAPEFLOOR SYSTEM 91 is an epoxy mortar coating system used to make industrial floors with a non-slip or smooth finish that are highly resistant to chemical products, resistant to frequent cleaning operations and wear from moving trolleys and vehicles and impermeable to oil and aggressive substances. The system may also be used to level off surfaces with a slight slope and to fill hollows in concrete floors.

Coatings made using **MAPEFLOOR SYSTEM 91** also have an attractive finish.

WHERE TO USE

Coating industrial floors subjected to medium to heavy traffic such as warehouses, supermarkets, storage areas and process areas where forklifts are used intensely. The system may also be used to quickly level off surfaces with a slight slope and to fill hollows in badly deteriorated floors.

MAPEFLOOR SYSTEM 91 is suitable for the following:

- processing and storage areas in the chemical and pharmaceutical industries;
- processing and storage areas in the foodstuffs industry for surfaces subjected to medium to heavy traffic;
- all areas of mechanised warehouses;
- shopping centres in areas with intense pedestrian traffic and where heavy loads are frequently moved around;
- aseptic areas, in areas used for storage;
- in areas where badly deteriorated floors need to be renovated.

PERFORMANCE AND ADVANTAGES

- Non-slip or smooth finish.
- 100% solids content.
- Durable, characterised by its high resistance to wear and abrasion from continuous pedestrian traffic and frequent cleaning operations.
- Resistant to most chemical products, such as diluted acids, base products, oil and fuel.
- Thanks to its highly attractive finish, it is particularly suitable for exhibition areas.
- Easy to clean and sterilize which makes it particularly recommended for use in the foodstuffs industry, especially in areas used by light to medium traffic or for walkways.
- Forms an attractive, seamless, highly functional surface.
- Guarantees an excellent cost-performance ratio.

CHEMICAL RESISTANCE

At room temperature, floors coated with **MAPEFLOOR SYSTEM 91** are resistant to:

- diluted mineral acids such as hydrochloric, nitric, phosphoric and sulphuric acids and limited resistance to organic acids (refer to the chemical resistance table in the **MAPEFLOOR I 300 SL** Technical Data Sheet);
- alkalis, including sodium hydroxide at a concentration of 50%, and detergents normally used for cleaning floors up to a concentration of 20-30%, as long as they do not contain abrasive granules;

- sugars, including when in frequent contact with the floor;
 - mineral oils, diesel, kerosene and petrol.
- Floors coated with **MAPEFLOOR SYSTEM 91** are not suitable for constant exposure to high temperatures.

COLOURS AVAILABLE

MAPEFLOOR SYSTEM 91 is available in 19 colours from the RAL colour chart: refer to the colours in the **MAPECOLOR PASTE** range for **MAPEFLOOR I 300 SL**.

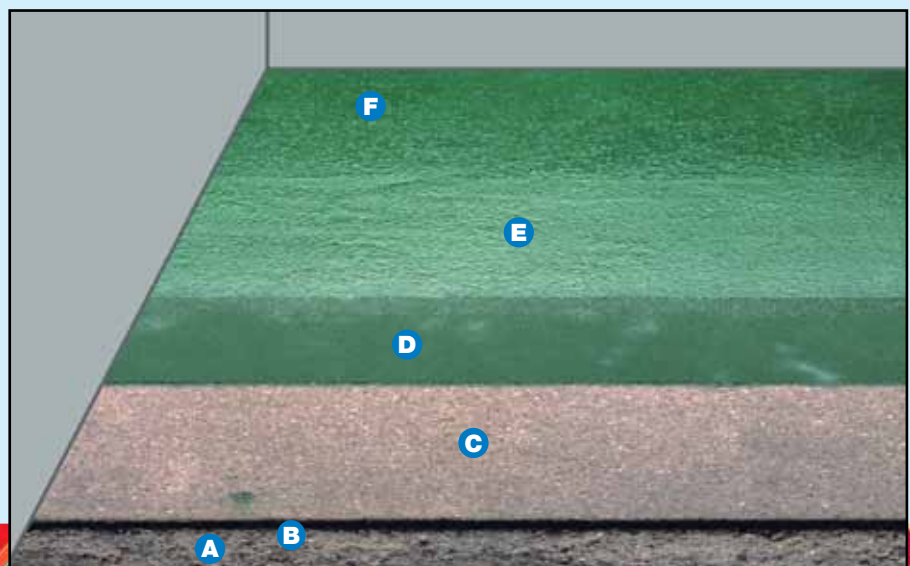
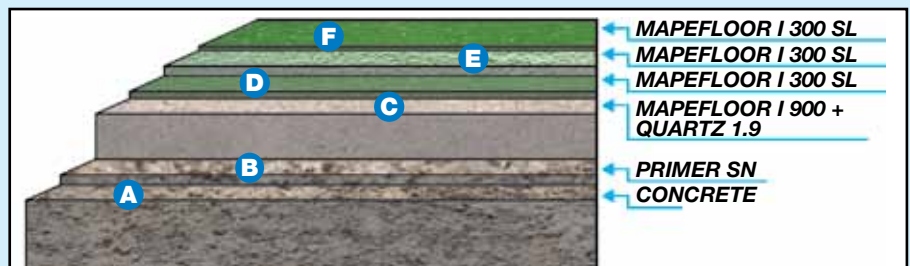
YIELD

The consumption levels indicated below are for a cycle applied at a temperature of +15°C to +25°C on a smooth, compact concrete surface finished with dry shake hardener and prepared with a diamond grinding wheel or by light shot-blasting. Rougher surfaces, or application at lower temperatures, will lead to an increase in consumption and longer hardening times. The consumption of **PRIMER SN** in particular may vary according to the type and depth of the preparation cycle carried out on the substrate.

MAPEFLOOR SYSTEM 91 average thickness 7 mm

Adhesion promoter:

PRIMER SN (A+B) 0.7 kg/m²



Mapecolor System 91

Layer of mortar:

MAPEFLOOR I 900 (A+B)	0.9 kg/m ²
QUARTZ 1.9	11.0 kg/m ²

First smoothing coat:

MAPEFLOOR I 300 SL (A+B + MAPECOLOR PASTE)	0.9 kg/m ²
QUARTZ 0.25	0.2 kg/m ²

Second smoothing coat:

MAPEFLOOR I 300 SL (A+B + MAPECOLOR PASTE)	0.5 kg/m ²
QUARTZ 0.25	0.3 kg/m ²

Finishing coat:

MAPEFLOOR I 300 SL (A+B + MAPECOLOR PASTE)	0.5 kg/m ²
QUARTZ 0.5	0.05 kg/m ²

N.B.: If **MAPEFLOOR I 300 SL** is available in the colour required, do not add **MAPECOLOR PASTE**.

PREPARATION OF THE SURFACE

1. Characteristics of the substrate

Before applying the **MAPEFLOOR SYSTEM 91** cycle, the substrate on which the coating is to be applied must be carefully analysed.

The concrete screed for the substrate must be sound, compact, strong and clean and must be dimensioned according to the static and dynamic loads to which it will be subjected when in service. The flatness must be defined according to the final use.

To get the best results, the following must be checked:

- The roughness of the substrate must be a maximum of 2 mm.
- There must be no materials or debris on the substrate which could potentially impede adhesion of the coating, such as:
 - cement laitance;
 - dust or detached or loose material;
 - protective wax, curing products, paraffin or efflorescence;
 - oil stains or layers of dirty resin;
 - traces of paint or chemical products.
- Any other kind of material or substance that could affect adhesion of the coating must be removed before starting work. If such materials or substances are present, the substrate must be prepared by carrying out a specific preparation cycle. Please contact Mapei Technical Services Department for advice and information.
- The pull-off strength of the substrate must be more than 1.5 MPa.
- The level of moisture in the substrate must be a maximum of 4% and there must be a suitable vapour barrier or no capillary rising damp (check by testing it with a sheet of polythene according to ASTM standards). If these conditions are not met, use **MAPEFLOOR SYSTEM 51** or **MAPEFLOOR SYSTEM 52**.
- If all the above conditions are met, **MAPEFLOOR SYSTEM 91** may be applied on concrete industrial floors, conventional or polymer-modified cementitious screeds, shrinkage-compensated screeds such as those made from **MAPECEM** or **TOPCEM**, old cement terrazzo floors and ceramic floors if prepared according to specification.

2. Preparation of the substrate

It is very important that the surface is prepared as specified to guarantee correct application and the best performance of the **MAPEFLOOR SYSTEM 91** epoxy cycle.

The most suitable method to prepare the surface is milling or, as an alternative, shot-blasting. All dust must then be removed with a vacuum cleaner. Do not use chemical preparation methods, such as acid rinsing. Any defects present, such as holes, pitting, cracking, etc. must be repaired beforehand using either **EPORIP**, **PRIMER SN** or **MAPEFLOOR I 900** fillerized with **QUARTZ 0.5**, depending on the width and depth of the defects and cracks.

If the substrate needs to be consolidated, use **PRIMER MF** or **PRIMER EP** (choose the most suitable product according to the porosity of the substrate, which will also have an effect on the consumption rate). If there are deep hollows or badly deteriorated areas on the substrate, repair these areas beforehand using **MAPEFLOOR I 900** fillerized with **QUARTZ 1.9** or with products from

TECHNICAL DATA (after 7 days at +23°C)

Adhesion (DIN ISO 4624) N/mm²	> 1.5 - failure of substrate
TABER abrasion resistance (CS 17 disk - 1000 revs - 1000 g) (EN ISO 5470-1) mg	90
Compressive strength (EN 196) N/mm²	87
Flexural strength (EN 196) N/mm²	30
Service temperature (air temperature) °C	-20/+60
Finish	shiny

the **MAPEGROUT** range, which may also be used to integrate damaged joints.

If any of the above conditions are not strictly adhered to, the quality of the coating may be poor.

3. Preliminary checks before application

Make sure that all the checks indicated in point 1 "Characteristics of the substrate" have been carried out, and that all the operations indicated in point 2 "Preparation of the substrate" have been carried out correctly.

The surrounding temperature must be higher than +8°C (the ideal application temperature is +15°C to +25°C) and the temperature of the substrate must at least 3°C higher than the dew-point temperature.

4. Preparation and application of the products

Carefully follow the preparation instructions contained in the Technical Data Sheet for each single product used to form the complete system: **MAPEFLOOR I 900** and **MAPEFLOOR I 300 SL**.

Non-slip mortar coating - 6 to 15 mm

• Adhesion promoter (PRIMER SN)

Pour component B (4 kg) into component A (16 kg) and mix with a drill with a spiral mixing attachment to form a smooth, even paste. Spread the product on the surface using a medium-piled roller. Apply the next layer of mortar on the primer while it is still wet.

• Preparing and spreading the mortar (MAPEFLOOR I 900)

Put 180 kg of **QUARTZ 1.9** into a horizontal cement mixer and prepare the **MAPEFLOOR I 900** separately, by pouring component B (5 kg) into component A (10 kg) and mixing with a drill with a spiral mixing attachment to form a smooth, even paste. Switch on the cement mixer and pour the mix in a slow, continuous flow into the mixer with **QUARTZ 1.9** and keep mixing to form a mix with a screed mortar consistency. Pour the mix onto the adhesion promoter while it is still wet using rakes, spacers and an aluminium straight edge. The spacers should consider the next compacting and smoothing operations to bring the mortar down to the final thickness required.

• Compacting and smoothing the mortar

Smooth over the surface of the mortar with a mechanical float (power floater) while the mortar is still wet.

• First smoothing coat for the mortar (MAPEFLOOR I 300 SL)

Pour component B (2 kg) into component A (6 kg), add **MAPECOLOR PASTE** (0.7 kg of **MAPEFLOOR PASTE** for each kit of **MAPEFLOOR I 300 SL**) and mix with a drill at low speed with a spiral mixing attachment to form a smooth, even paste. While mixing, add approximately 1.8 kg of **QUARTZ 0.25** to the paste as soon as it has been prepared and mix again to form a smooth, even compound. The amount of **QUARTZ 0.25** may vary if necessary, depending on the porosity of the mortar. Pour the product on the previous coat and spread it out evenly and uniformly down to a feather edge using a straight trowel or a straight spreader.

• Cutting and sealing expansion joints (MAPEFLOOR PU45)

Cut contraction and expansion joints with a clipper following the same layout as the existing ones. Then seal the joints with **MAPEFLEX PU45**.

For static joints, or joints with very low expansions the sealing with **MAPEFLEX PU45** is also possible. If an anti-slip finish is required, broadcast the wet surface with **QUARTZ 0.5** or **QUARTZ 0.9**.

• Second smoothing coat for the mortar (MAPEFLOOR I 300 SL)

When the previous layer has hardened, and always within 12 hours of application, pour component B (2 kg) into component A (6 kg), add **MAPECOLOR PASTE** (0.7 kg for each kit of **MAPEFLOOR I 300 SL**) and mix with a drill at low speed with a spiral mixing attachment to form a smooth, even paste. While mixing, add approximately 4.8 kg of **QUARTZ 0.25** to the paste as soon as it has been prepared and mix again to form a smooth, even compound. Pour the product on the previous coat and spread it out evenly and uniformly down to a feather edge using a straight trowel or a straight spreader.

• Finishing coat (MAPEFLOOR I 300 SL)

Pour component B (2 kg) into component A (6 kg), add **MAPECOLOR PASTE** and mix with a drill at low speed with a spiral mixing attachment to form a smooth, even paste. While mixing, add 0.8 kg of **QUARTZ 0.5** to the paste as soon as it has been prepared and mix again to form a smooth, even paste. Apply the paste with a medium-piled roller to form an even, seamless coat, making sure that the roller strokes criss-cross over each other to obtain a defect-free surface.

5. Hardening and step-on times

At +25°C **MAPEFLOOR SYSTEM 91** sets to foot traffic after 16 hours, may be used by light loads after 1 to 2 days and is ready for final use once fully hardened after approximately 7 days. Lower temperatures lead to longer hardening and step-on times.

CLEANING AND MAINTENANCE

Regular cleaning and maintenance operations increase the life of a coated floor, improves its aesthetic properties and reduces its tendency to collect dirt. Floors created using the **MAPEFLOOR SYSTEM** are generally easy to clean with neutral detergents, or with alkali detergents diluted at a concentration of from 5 to 10% in water. Special detergents and cleaning tools are readily available for cleaning resin floors. Manufacturers of these detergents supply all the information required for the cleaning procedures to apply. Our Technical Services Department is available for any information required.

NOTES

Recommendations regarding safe use and handling of the products are contained in the Material Safety Data Sheet for each single material in the cycle. However, the use of protective gloves and goggles is recommended when mixing and applying the products.

If the cycle is applied on surfaces, in climatic conditions and/or for final uses not mentioned above, please contact the Technical Services Department at MAPEI S.p.A.