Mapefloor System AS

SELF-LEVELLING EPOXY SYSTEM FOR ANTISTATIC CONDUCTIVE INDUSTRIAL FLOORS; THICKNESS 1.5-2 mm

Products used:
Primer SN - Quartz 0.5 - Primer W-AS N - Copper Band - Mapefloor I 360 AS

DESCRIPTION

MAPEFLOOR SYSTEM AS is a self-levelling epoxy system used to form high-strength, anti-static conductive industrial floors which are highly resistant to chemicals and physical aggression, waterproof, impermeable to aggressive substances and liquids in general and resistant to frequent cleaning.
Coatings made using **MAPEFLOOR SYSTEM AS** also have an attractive finish.

WHERE TO USE

Coatings of industrial floors subjected to medium volumes of traffic requiring a smooth, anti-static and conductive surface which is dust-proof and easy to clean, in areas where the static electricity must be prevented to protect goods, such as in the electronic industries, or for safety purposes, such as in store rooms for flammable goods, and in all those areas requiring conductive antistatic flooring.

MAPEFLOOR SYSTEM AS is used in:
- Electronic industry.
- Pharmaceutical industry.
- Laboratories.
- Clean rooms.
- Hospitals and operating theatres.
- Automotive industry.
- Warehouses.

PERFORMANCE AND ADVANTAGES

- Smooth finish, easy to clean and maintain.
- Waterproof.
- Electrically conductive, discharges static electricity to earthing points.
- Long-lasting.
- Wear and abrasion resistant.
- Resistant to most chemicals, such as diluted acids, base products, lubricants and fuel.
- Dust proof.
- Ease of maintenance.
- Sanitizable.
- May be used to form highly attractive seamless surfaces.
- Quick to apply and put in service.
- Provides an excellent cost effectiveness ratio.
- Spark resistance according to UFGS-09 97 23 and UFGS-09 67 23.14, floor coating systems.
- Fulfills ATEX 137 requirements.
- Fulfills WHG requirements

CHEMICAL RESISTANCE

Floors coated with **MAPEFLOOR SYSTEM AS** are resistant to:
- dilute inorganic acids such as hydrochloric acid, nitric acid, phosphoric acid and sulphuric acid, and limited resistance to organic acids;
- bases, including sodium hydroxide at 50% concentration;
- detergents normally used for cleaning floors, up to 20-30% concentration, as long as they do not contain abrasive granules;
- saline solutions in general;
- oils, lubricants and fuel in general.

ELECTRICAL CONDUCTIVITY

Thanks to the special conductive fillers contained in the products, **MAPEFLOOR SYSTEM AS** prevents from static electricity discharging it to the nearest earthing point without sparking, in compliance with current standards and norms regarding health and safety and the protection of equipment and people in the electronics and chemical industries, hospitals, processing and store areas of flammable materials, etc.

MAPEI

Mapefloor System AS

TECHNICAL DATA (after 7 days at +23°C)	
Direct traction adherence test (EN 1542) N/mm²	≥ 3.5
Abrasion resistance (TABER CS17 disc - 1000 g - 1000 revs - EN ISO 5470-1) mg	67
Abrasion resistance (TABER CS10 disc - 1000 g - 1000 revs - EN ISO 5470-1) mg	33
Shore D hardness after 3 days at +23°C (DIN 53505)	81
Compressive strength after 28 days at +23°C (EN 196-1) N/mm²	56
Flexural strength after 28 days at +23°C (EN 196-1) N/mm²	52
Resistance at earthing point R_E (EN 1081) Ohm	$10^4 < R_E < 10^6$

COLOURS

MAPEFLOOR SYSTEM AS is available in several RAL colours. Please consult MAPEI Technical Service Department for the complete range of colours.

CONSUMPTIONS

The consumptions indicated below are for a system applied at a temperature of between +15°C and +25°C and 80% maximum R.H., on the surface of a smooth, dry, compact, cured cementitious substrate with no rising damp, having suitable strength to withstand the loads to which the floor will be subjected when in service, and in all cases minimum 25 N/mm² compressive strength and minimum 1.5 N/mm² tensile strength, treated by diamond disks grooving or light shot-blasting. Rougher surfaces and lower temperatures lead to higher consumption of the products, extended curing times and causing delays before the area can be put into service.
The consumption of **PRIMER SN** in particular may vary depending on the type and roughness produced by substrate preparation.

MAPEFLOOR SYSTEM AS - thickness 1.5-2 mm

1° coat of primer:

PRIMER SN 0.7 kg/m²
QUARTZ 0.5 0.14 kg/m²
(used as filler in the primer at 20% by weight*)

* The amount of **QUARTZ 0.5** filler may vary according to the roughness and porosity of the substrate and whether the surface of **PRIMER SN** needs to be broadcast before applying another skim coat using the same product.

2° coat of primer:

PRIMER SN 0.2 kg/m²

Earth connection:

COPPER BAND as required - in any case, they must be positioned every 80 m² of surface minimum

Intermediate conductive layer:

PRIMER W-AS N 0.08-0.10 kg/m²

Final anti-static conductive protective layer - 1.5 mm:

MAPEFLOOR I 360 AS
(A+B) approx. 2.4 kg/m²

This system must be strictly adhered to.

SURFACE PREPARATION

1. Characteristics of the substrate

The cementitious substrate must be solid, compact, stable, strong, sound and clean and designed to withstand the static and dynamic loads once in service.
The flatness must be defined according to its final use.
The compressive strength of the concrete or cementitious mortar must be at least 25 N/mm² and its tensile strength must be at least 1.5 N/mm². If the substrate is dressed with ceramic, natural stone or an old resin coating, they must be perfectly stable, firmly bonded to the substrate and must be intact, sound and clean.
These kinds of substrates require specific and adequate preparation. In the case of old resin coatings, it is also recommended to test their compatibility with the new system to be applied.
The moisture content of the substrate must be maximum 4% (test with a suitable hygrometer) and there must be no capillary rising damp (check the substrate with a sheet of polythene).
Wait until new cementitious flooring is fully cured before applying the resin system.
In case of damp substrate or in presence of rising damp, contact MAPEI Technical Service Department.

2. Preparation of the substrate

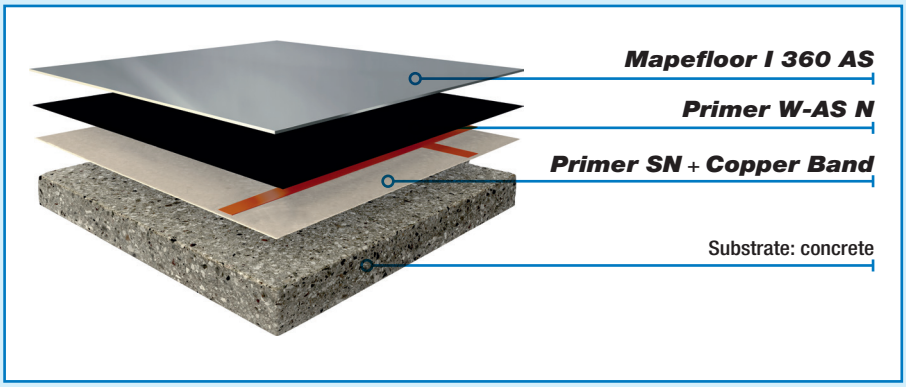
It is very important that the surface is prepared correctly to guarantee perfect adhesion and the best performance of the resin-based system. The most suitable methods to prepare the surface are those of mechanic nature, such as shot-blasting or diamond grinding. Miling is only necessary when a few millimetres of substrate must be removed.
After that, all scraps must be removed carefully and the dust must be removed with a vacuum cleaner.
Once the surface of the substrate has been prepared, it must be sound, compact, clean, dry or slightly damp, absorbent, have a slightly rough finish and have no traces of material that could affect adhesion of the coating, such as:

- cement laitance;
- dust, loose or detached parts;
- protective waxes, curing products, paraffins, efflorescence;
- pollutants of any nature;
- loose residues of existing coating etc.

If required, contact MAPEI Technical Services for advice on the most suitable preparation method. Any defects present in the surface, such as holes, pitting, cracking, etc., must be repaired with **PRIMER SN** mixed 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.
Reintegrate any badly damaged areas or joints, fill hollows in the surface and repair or carry out localized modifications to slopes with **MAPEFLOOR EP19**, ready-mixed epoxy mortar.
If the substrate needs to be strengthened, apply **PRIMER MF** with

a roller in one or more coats until the substrate is completely saturated.

3. Preliminary checks before application
The temperature of the floor, of the ambient and of the product must be higher than +8°C and max. +35°C (the ideal application temperature is between +15°C to +25°C). The temperature of the substrate must be at least 3°C higher than the dewpoint temperature.
The relative humidity of the air must be max. 80%.



PREPARATION AND APPLICATION OF THE PRODUCTS

Carefully follow the preparation instructions according to the Technical Data Sheet for each single product used to form the complete system, **PRIMER SN, PRIMER W-AS N** and **MAPEFLOOR I 360 AS**.

1. Application of the primer **(PRIMER SN)**
Pour component B into component A and mix with a low-speed electric mixer (300-400 rpm) with a spiral mixing attachment for at least 2 minutes to form a smooth, homogenous even mix. While mixing, add 20% by weight kg of **QUARTZ 0.5** to the mix as soon as it has been prepared and continue mixing for a few minutes to form a smooth, even paste. Pour the mix onto the floor to be coated and spread it out evenly and uniformly by straight steel trowel or a rake. Do not broadcast the surface of the primer while it is still fresh, unless a second scratch coat of **PRIMER SN** is required to close all the pores on particularly porous, uneven substrates. After applying the first coat of **PRIMER SN**, if the surface is still porous, not compact or if there are pinholes caused by a substrate which is particularly porous, small craters or pinholes and defects could develop in the **MAPEFLOOR SYSTEM AS** finishing layer. In such cases, skim the surface again with **PRIMER SN**, as described above, until all the porosity has been completely eliminated.
When the **PRIMER SN** is hardened, sanding the surface and apply by roller a second coat of neat **PRIMER SN**.

The final layer of primer must never be broadcast with quartz sand.

2. Installing the earth connections **(COPPER BAND)**
The electric connections of **MAPEFLOOR SYSTEM AS** to the earthing points are made by installing the special strips **COPPER BAND**. The strips are laid on the hardened primer near to a wall, a pillar, etc., by applying a 1-1.5 metre long piece on the surface of the floor, and then folding it up on the wall by at least 50 cm. Be very careful when handling the strips of copper and folding them onto the wall so that they are not torn or damaged. The ends of the copper strips are then connected to the earthing points by a qualified electrician. Each strip connected to an earthing point is enough for around 80 m^2 of **MAPEFLOOR SYSTEM AS** (a circular area around 5 metres in radius). If it is not possible to cover the entire area of the floor by using only these types of connections, the furthest ends will have to be connected by placing **COPPER BAND** on the floor. The layout and number of earthing connections, therefore, are heavily influenced by the shape and layout of the area where **MAPEFLOOR SYSTEM AS** is applied and must be designed for each case. There must be at least two connections to earth in each room coated with **MAPEFLOOR SYSTEM AS** and at least one connection every 80 m^2. If the control joints are reflected on the resin system, the two boards separated by the check joint must be connected electrically with the strip of **COPPER BAND** about 1 metre long. Splay the copper strip in the middle to form a dovetail and place it in the joint, then lay it perpendicular to the joint along the surface for approximately 50 cm on each side of the joint. This operation must be carried out before filling the joints and overcoating with the resin system. When the joints are cut into the finished coating in the same positions as the existing ones, be very careful to avoid cutting the copper strips. For further safety, we recommend opening the joint a little for a few centimetres where the connection strip is placed so that the copper strip may be splayed open even more into a dovetail shape. The pattern of expansion joints, construction joints and dynamic joints must also be reflected on the **MAPEFLOOR SYSTEM AS**. The joints must be then sealed with **MAPEFLEX PU45 FT**.

3. Intermediate conductive layer **(PRIMER W-AS N)**
Stir the two components of **PRIMER W-AS N** separately then pour component A into the container of component B and mix together with a low speed electric mixer for at least 3 minutes until they are thoroughly blended.
Apply a single coat of **PRIMER W-AS N** with a short-pile roller on the hardened primer and over the copper strips placed on the surface. When hardened, **PRIMER W-AS N** will appear homogeneous matt black. The consumption must never exceed 80-100 g/m^2, otherwise the electrical conductivity of the system could be compromised. Never broadcast quartz sand on the surface of **PRIMER W-AS N** while it is still fresh.
When the film of **PRIMER W-AS N** has hardened, test a reference area of the system to check its conductivity. The Resistance to Earth R_E value must be $<3 \times 10^3$ Ω using 10V. (IEC 61340-4-1 or EN 1081).

4. Self-levelling, anti-static conductive layer – approx. 1.5 mm **(MAPEFLOOR I 360 AS)**
Stir component A of **MAPEFLOOR I 360 AS** with a low speed electric mixer for at least 2 minutes until an homogeneous mix is achieved, then add the component B and mix again until they are thoroughly blended.
Apply a single layer up to 1.5 mm thick of **MAPEFLOOR I 360 AS** with a notched trowel or spreader (with “V” shaped notches) over all the surface to be coated.
Immediately after spreading on the self-levelling product, back-roll with a spiked roller to eliminate any air entrapped in the product during mixing. It is recommended to pass over the surface with the roller in two perpendicular directions. Back-roll intensively especially in the perpendicular direction to that one assumed by the conductive fibres that are visible on the surface after the application.
When the film of **MAPEFLOOR I 360 AS** has hardened, test a reference area

of the system to check its conductivity. The number of tests to carry out is proportional to the area to be tested, as follows:

Size of the area	Minimum number of tests to carry out
< 10 m^2	1 test per m^2
10 < m^2 <100	from 10 to 20 tests
> 100 m^2	10 tests per 100 m^2

If a value is not within the required limits, the test must be repeated by moving the probe at least 50 cm. If the second value is valid, the entire area must be accepted.

The values measured may be heavily influenced by the surrounding conditions, the type of device used, the person who takes the measurements or takes part in the test, etc.
We recommend carrying out sample tests beforehand to establish and accept the test methods and to check the devices.

5. Hardening and step-on times
At +20°C **MAPEFLOOR SYSTEM AS** set to foot traffic after approximately 24 hours, and after 3 days for light traffic. Complete hardening and maximum strength are reached after approximately 7 days. Lower temperatures lead to extended curing and lengthen the hardening and step-on times of the coating, higher temperatures may reduce them.

6. Warning
Protect **MAPEFLOOR SYSTEM AS** from water and condensation for at least 24 hours after application.
The conductive fibres in **MAPEFLOOR I 360 AS** may make the colour of the coating slightly different and it may not perfectly match the specified RAL colour. The fibres close to the surface may also be slightly visible.
The colour of the material may vary slightly according the production batch number, even if they are the same RAL colour, and may also vary according to variations in the surrounding conditions during application. Surfaces in the same area should be coated with products from the same production batch.
When the coating is exposed to sunlight or aggressive chemicals, it may yellow or the colour may change. This phenomenon is purely aesthetic and has no effect on the performance of the system.
If the area where the coating is applied needs to be heated, do not use gas or fuel burners; the water vapour and carbon dioxide given off could alter the appearance of the coating. Use electric heaters only.
Higher thicknesses than those indicated cause reductions in electrical conductivity.

CLEANING AND MAINTENANCE

Regular cleaning and maintenance increase the life of the treated floor, improves its aesthetic properties and reduces its tendency to collect dirt.
Floors made using **MAPEFLOOR SYSTEM AS** are generally easy to wash with neutral or alkaline detergents diluted 5-10% in water.
Special detergents and cleaning tools are readily available for cleaning resin floors.
Our Technical Services Department is available for any information required.

NOTES

Recommendations regarding safe handling of the products are contained in the Safety Data Sheet for each single product 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 different surfaces, in climatic conditions and/or for final uses not mentioned above, please contact the Technical Services Department at MAPEI S.p.A.

5903-5-2021-I (GB)