Mapefloor Parking System HE

MULTI-LAYERED, HIGHLY ELASTIC, UV-RESISTANT POLYURETHANE SYSTEM WITH HIGH SOLIDS CONTENT COMPLIANT WITH THE REQUIREMENTS OF CLASS OS 11a (EN 1504-2) FOR COATING ROAD SURFACES IN INDOOR AND OUTDOOR CAR PARKS. TOTAL THICKNESS 5 TO 5.5 mm

Products used for the system:
PRIMER SN - MAPEFLOOR PU 400 LV - MAPEFLOOR PU 410 - MAPECOLOR PASTE - MAPEFLOOR FINISH 451 - QUARTZ 0.25 - QUARTZ 0.5 - QUARTZ 0.9 - QUARTZ 1.2

DESCRIPTION

MAPEFLOOR PARKING SYSTEM HE is a seamless, flexible, multi-layered, polyurethane surface coating system compliant with the requirements of Class OS 11a (EN 1504-2). It has a high crack-bridging capacity, a non-slip finish and is watertight and suitable for vehicular traffic; in particular it is resistant to intense volumes of wheeled vehicles in areas used for car parks, including outdoor car parks, and especially for screeds on roof-top car parks.

MAPEFLOOR PARKING SYSTEM HE is characterised by its excellent resistance to wear, mechanical stress in general, UV rays and chemical products such as oil, fuel, de-icing salts, lubricants, diluted acids, basic solutions and saline solutions in general.
Different colour finishes may be obtained which makes it extremely versatile for marking out areas according to their different use, such as parking areas, transit lanes, pedestrian areas, road signs and markings, etc.

WHERE TO USE

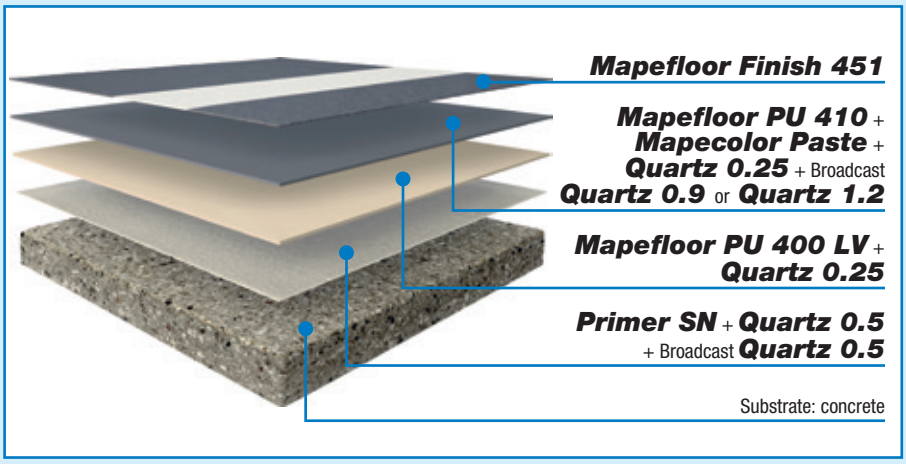
Flexible coating for internal and external concrete floors and cracked cementitious substrates, or those at risk of cracking, in covered car parks, multi-storey car parks, on bridges and on ramps etc.

MAPEFLOOR PARKING SYSTEM HE is used in:

- multi-storey car parks with an intense flow of traffic;
- bridges, ramps;
- on concrete substrates where the waterproof surface coating needs to be highly flexible;
- roof-tops suitable for vehicular traffic.

PERFORMANCE AND ADVANTAGES

- High crack-bridging capacity at temperatures down to -20°C, that is the capacity to support movements in structures due to thermohygrometric variations (static crack-bridging). It also has the capacity to withstand mechanical stress (dynamic crack-bridging).
- Complies with the requirements of Class OS 11a (according to EN 1504-2).
- Surfaces treated with this system become waterproof (within the limits of the system's crack-bridging capacity during settling of the substrate).
- Good resistance to mechanical stress.
- Anti-slip effect.
- Durable, characterised by its high



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Mapefloor Parking System HE

resistance to wear and abrasion from continuous pedestrian traffic.
- Easy maintenance.
- Forms an attractive, flat, seamless, highly functional surface.
- Suitable for both internal and external surfaces.

CHEMICAL RESISTANCE

Surfaces coated with **MAPEFLOOR PARKING SYSTEM HE** are resistant to:
- diluted inorganic acids;
- diluted alkalis, including detergents normally used for cleaning floors, as long as they do not contain abrasive particles;
- mineral oils, diesel, kerosene and petrol.
- saline solutions in general, including those containing de-icing salts.

COLOURS

Please contact MAPEI Technical Service for the list of colours available.

YELD

The consumption levels indicated below are for a cycle applied at a temperature of +15°C to +25°C, max. 80% of air R.H. on a smooth, compact, dry and cured concrete screed, with no capillary rising damp, with suitable physical strengths, broadcast with quartz sand and prepared by grinding with a diamond disk or by light shotblasting. Rougher surfaces, or application at lower temperatures, will lead to an increase in consumption, longer hardening times and longer delay before putting the system into service.
The consumption rate for **PRIMER SN**, in particular, may vary depending on the type and depth of the mechanical method used to prepare the substrate.

MAPEFLOOR PARKING SYSTEM HE
- thickness 5-5.5 mm

1st layer:
PRIMER SN (A+B): 0.7 kg/m²
Fillerized with 20%* by weight with
QUARTZ 0.5 0.14 kg/m²
Fully broadcast the surface with
QUARTZ 0.5 3.0 kg/m²

* The amount of **QUARTZ 0.5** required may vary depending on the roughness and porosity of the substrate and the preparation method used.

2nd layer:
MAPEFLOOR PU 400 LV (A + B): 2 kg/m²
Fillerized with 20-30%* by weight of
QUARTZ 0.25: from 0.4 to 0.6 kg/m²

3rd layer:
MAPEFLOOR PU 410 (A + B + **MAPECOLOR PASTE**): 1 kg/m²
Fillerized with 30%* by weight of
QUARTZ 0.25: 0.3 kg/m²
Fully broadcast the surface with
QUARTZ 0.9:* 4.0 kg/m²

* To get a more pronounced non-slip finish, on external surfaces and access ramps for example, coarser quartz sand may be used, such as **QUARTZ 1.2**.

Note: *When applying on access ramps or other sloping surfaces,* **MAPEFLOOR PU 400 LV** *and* **MAPEFLOOR PU 410** *should be made thixotropic by adding 2-4% by weight of* **ADDITIX PE** *(the dosage depends on the degree of thixotropy that should be obtained).*

Finishing Layer:
MAPEFLOOR FINISH 451 (A + B) 0.6-0.8 kg/m²*

* The actual consumption level depends on the tools used to apply the product and the particle size of the sand used to fully broadcast the surface. A larger particle size will lead to a higher consumption rate.

This system must be strictly adhered to. Consumption of the products and materials is heavily influenced by the absorption, roughness and porosity of the substrate and the surrounding conditions on site during application.

TECHNICAL DATA (after 28 days at +23°C)

Tear strength* (DIN 53515)	27 N/mm
Tear strength (DIN 53515)**	27 N/mm
Elongation at failure* (DIN 53504) at +23°C	450%
Elongation at failure (DIN 53504) at +23°C**	80%
Shore A hardness* (DIN 53505)	73
Shore A hardness (DIN 53505)**	90
Dynamic crack-bridging at -20°C (DIN EN 1062-7)	Class B 3.2
Skid test (EN 13036-4) at + 23°C	dry 105 wet 68
BCA wear resistance (EN 13892-4)	AR 0.5
Capillary absorption and permeability to water (EN 1062-3)	$w < 0.1\ kg/m^2 \cdot h^{0.5}$
Impact strength (EN ISO 6272-1)	20 Nm
Adhesion (EN 13892-8)	$> 1.5\ N/mm^2$
Reaction to fire (EN 13501-1)	B_{FL}-s1

* *Values refer to a* ***MAPEFLOOR PU 400 LV*** *flexible membrane fillerized with 30% by weight of* ***QUARTZ 0.25***
** *Values refer to* ***MAPEFLOOR PU 410*** *membrane fillerized with 30% by weight of* ***QUARTZ 0.25***

SURFACE PREPARATION

1. Characteristics of the substrate
The cementitious screed must be solid, compact, stable, strong, sound and clean and dimensioned according to the static and dynamic design loads it will have to withstand while 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. The installation surface of these kinds of substrate requires 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 a maximum of 4% (check moisture content with a suitable moisture meter) 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 floors or floors which are not fully cured or subject to capillary rising damp, apply a resin system system which is permeable to vapour or which is suitable for application on damp substrates.

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 grinding with a diamond disk. Bush-hammering or scarifying are only required if several millimetres of material need to be removed from the surface. 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, 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**, fillerized with quartz sand or made thixotropic with **ADDITIX PE**, 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 localised modifications to slopes with **MAPEFLOOR EP19**, ready-mixed epoxy mortar.
If the substrate needs to be consolidated, apply **PRIMER MF** with a roller in one or more coats until the substrate is completely saturated.

3. Preliminary checks before application

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

APPLICATION OF THE PRODUCTS

1. Preparation and application of the products

Carefully follow the preparation instructions contained in the Technical Data Sheets for each single product used to form the complete system: **PRIMER SN**, **MAPEFLOOR PU 400 LV**, **MAPEFLOOR PU 410** and **MAPEFLOOR FINISH 451**.

Non-slip multi-layered coating - 5-5.5 mm

Primer (PRIMER SN)

Pour component B into component A and mix with a drill at low speed (300-400 rev/min), with a spiral mixing attachment for at least 2 minutes to form a smooth, even paste. While mixing, add approx. 20% by weight of **QUARTZ 0.5** to the mix as soon as it has been prepared and continue mixing for some minutes to form a smooth, even mix. Pour the product onto the floor to be coated and spread it out evenly and uniformly using a straight steel trowel or a rake. While the product is still wet, fully broadcast the surface with **QUARTZ 0.5**.
Once **PRIMER SN** has hardened, remove all excess sand with an industrial vacuum cleaner.

Flexible intermediate layer (MAPEFLOOR PU 400 LV)

Pour component B into component A and mix with a drill at low speed (300-400 rev/min) to form a smooth, even paste. While mixing, add approx. 20-30% by weight of **QUARTZ 0.25** to the mix as soon as it has been prepared and continue mixing for some minutes to form a smooth, even blend.
Pour the product onto the floor to be coated and spread it out evenly and uniformly using a notched trowel.

Protective intermediate layer (MAPEFLOOR PU 410)

Pour component B into component A. In case a greater hiding power for the following finishing layer is necessary, add approx. 7% by weight of **MAPECOLOR PASTE**, coloured paste, and mix with a drill at low speed (300-400 rev/min) for at least 2 minutes to form a smooth, even compound. While mixing, add approx. 30% by weight of **QUARTZ 0.25** to the mix as soon as it has been prepared and continue mixing for some minutes to form a smooth, even blend
Pour the product onto the floor to be coated and spread it out evenly and uniformly using a straight trowel or a notched trowel (V-shaped notch). While the product is still wet, fully broadcast the surface with 4-6 kg/m^2 by weight of **QUARTZ 0.9** or **QUARTZ 1.2** (depending on the degree of non-slip effect desired).
Once the product has hardened, remove all excess sand with an industrial vacuum cleaner.

Finishig layer (MAPEFLOOR FINISH 451)

Pour component B into component A and mix with a drill at low speed (300-400 rev/min), for at least 2 minutes to form a smooth even paste. Pour the product onto the floor to be coated and spread it out evenly and uniformly using a medium pile roller, or smooth it over the surface with a straight rubber or steel trowel, then, if needed, pass over the surface with a short pile roller, making sure that the roll strokes criss-cross over each other.

Any expansion and contraction joints in the floor (contraction joints may be sealed at the start of work and then covered with the resin system) must be sealed with **MAPEFLEX PU 45 FT**.

2. Hardening and step-on times

At +20°C **MAPEFLOOR PARKING SYSTEM HE** sets to foot traffic after around 24 hours, while it takes around 3 days before light traffic may use the surface. Complete hardening and maximum strength are reached after around one week. Lower temperatures lead to longer hardening times and step-on times for the coating, while higher temperatures reduce them.

3. Recommendations

Protect **MAPEFLOOR PARKING SYSTEM HE** from water and condensation for at least 24 hours after application.
If the coating is exposed to aggressive chemicals it may yellow or the colour may change slightly. This phenomenon is purely aesthetic and has no effect on the performance of the system.
MAPEFLOOR PARKING SYSTEM HE is made up of various layers having different elasticities. The crack-bridging capacity values displayed in the table are referred to the entire system and not to a single layer. Therefore, expansion movement and settlement in the cracks, new or existing, may cause thin cracks on the superficial wear layer, which is more rigid. However, this may not have effect on the the integrity and seamlessly of the **MAPEFLOOR PU 400 LV** layer, which is more flexible.
Do not apply the system if there is a high humidity content in the surrounding air or, if it is about to rain, in case of external applications.
Wear suitable clothing and sweat bands to prevent beads of sweat dripping onto the surface of the wet resin while it is being applied; it may react with the product and form foam.
Never use tools which have just been cleaned with alcohol to apply the products, particularly rollers. We recommend using new rollers. Never dilute any of the products.

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 PARKING SYSTEM HE** are generally easy to wash with neutral detergents, or with alkali detergents diluted at a concentration of 5 to 10% in water. **MAPEFLOOR MAINTENANCE KIT** is available for maintenance operations and includes **MAPELUX LUCIDA** metallic wax, **MAPEFLOOR WAX REMOVER**, special wax remover, and **MAPEFLOOR CLEANER ED** detergent for daily cleaning operations.
Our Technical Services Department is available for any information required.

NOTE
Information regarding safety equipment and handling of the products are contained in the safety data sheets for each component. However, we recommend that protective goggles and gloves are always used when mixing and applying the products.

If the products are to be applied on surfaces or under climatic and/or service conditions which are different from those indicated in the technical data sheet for the system, please contact MAPEI's Technical Services Department.

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