MAPEFLOOR PU 410

Two-component, self-levelling, polyurethane binder





DESCRIPTION

Mapefloor PU 410 is a two-component, unpigmented, high solid content polyurethane resin-based formulate according to a formula developed in MAPEI Research & Development laboratories, suitable to make multi-layer resin systems for concrete floorings in car parks areas.

TECHNICAL CHARACTERISTICS

- good elasticity even at low temperatures;
- low viscosity;
- good resistance to mechanical stresses;
- **Mapefloor PU 410** has a good crack-bridging capability even at low temperatures up to -10°C.
- complies with the requirements according to EN 13813 "Screed material and floor screeds - Screed material - Properties and requirements", which defines the requirements to be applied to materials for screeds used in the construction of internal floors;
- complies with the principles defined in EN 1504-9 ("*Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - General principles for the use of products and systems*") and the minimum requirements of EN 1504-2, coating (C) according to the PI, MC, PR and IR principles ("*Surface protection systems for concrete*").

ADVANTAGES

- versatility, usable for various resin systems for car parks areas;
- easy to maintain;
- easy to apply;
- sustainability: it can contribute to LEED credits. EPD (Environmental Product Declaration) compliant.

WHERE TO USE

Mapefloor PU 410 is used as layer broadcast in excess with quartz sand in elastic and waterproof resin systems for floors of parking areas **Mapefloor Parking System HE**, for indoor and outdoor areas compliant with the requirements of class OS11a, and **Mapefloor Parking System ID**, for indoor areas compliant with the requirements of the class OS 13. For further information concerning the performance and the characteristics of each system, please refer to the relevant Data Sheets.

COLOURS

Mapefloor PU 410 is supplied unpigmented in neutral colours and must be tinted at the moment of use with **Mapecolor Paste**. Please contact Mapei Technical Service for the list of the colours available.

RECOMMENDATIONS

- Do not apply **Mapefloor PU 410** on cementitious substrates with a moisture content higher than 4% or with capillary rising damp (contact MAPEI Technical Services).
- Do not dilute **Mapefloor PU 410** with solvents or water.
- Do not apply **Mapefloor PU 410** on dusty or crumbling substrates.
- Do not apply **Mapefloor PU 410** on substrates with oil or grease stains or stains in general.
- Do not apply **Mapefloor PU 410** on substrates that have not been treated with **Primer SN,** or with another specific 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.
- 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 the application and the hardening must be at least 3°C higher than the dew-point temperature. The air relative humidity must be max. 80%.

APPLICATION PROCEDURE

Preparation of the substrate

The surface of concrete must be dry, clean and sound and have no crumbling or detached areas. The 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 strength of the substrate must also be suitable for its final use and to the types of loads acting on the flooring.

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 remove all dust from the surface with a vacuum cleaner. 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**, **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.

Preparation of the product

Stir the component A, then add the content of the component B and approx. 7% by weight of **Mapecolor Paste** and briefly mix all together. Then add 30% by weight of **Quartz 0.25** and mix with a suitable low-speed electric mixer (300-400 rpm) for at least 2 minutes until a homogeneous mixture is achieved. 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 +20°C). Higher surrounding temperatures will reduce the pot life, while lower temperatures will increase it.

Application of the product

Mapefloor PU 410 can be used as protective and wearing layer for **Mapefloor Parking System HE** or as waterproof and wear resistant membrane layer for **Mapefloor Parking System ID**.

1. Protective and wearing layer for Mapefloor Parking System HE

Pour **Mapefloor PU 410** on the base layer made of **Mapefloor PU 400 LV**, within 24 hours from its application, and spread it out evenly on the whole surface by straight or notched (with "V" shaped notches) steel trowel in approx. 1 mm thickness. While the product is still wet, back-roll several times with a spiked roller and immediately after broadcast in excess with **Quartz 0.9** or **Quartz 1.2**, depending on the degree of surface slip-resistance required.

When the product has hardened, remove the excess sand, sand the surface and thoroughly remove the last grain of quartz sand by vacuum. Then apply by roller or steel or rubber trowel the aliphatic polyurethane topcoat, coloured, UV resistant **Mapefloor Finish 451**.

For further details concerning the application method of **Mapefloor PU 400 LV** and **Mapefloor Finish 451**, please refer to the relevant Data Sheets.

2. Waterproof and wear resistant membrane layer for Mapefloor Parking System ID

Once the base layer of **Primer SN** broadcast in excess with **Quartz 0.5** has hardened, remove excess sand by vacuum, then pour **Mapefloor PU 410** and spread it out evenly on the whole surface by straight or notched (with "V" shaped notches) steel trowel in approx. 1 mm thickness. While the product is still wet, back-roll several times with a spiked roller and immediately after broadcast in excess with **Quartz 0.5** or **Quartz 0.9** or **Quartz 1.2**, depending on the degree of surface slip-resistance required.

When the product has hardened, remove the excess sand, sand the surface and thoroughly remove the last grain of quartz sand by vacuum. Then apply by roller or steel or rubber trowel the aromatic polyurethane topcoat, coloured, **Mapefloor Finish 415**.

For further details concerning the application method of **Primer SN** and **Mapefloor Finish 415**, please refer to the relevant Data Sheets.

CONSUMPTION

*As protective and wearing layer for **Mapefloor Parking System HE** or as waterproof wear resistant membrane layer for **Mapefloor Parking System ID**:*

Mapefloor PU 410 + (A + B + **Mapecolor Paste**):	1.0 kg/m²
Quartz 0.25:	0.3 kg/m²
Broadcast in excess with **Quartz 0.5** or **Quartz 0.9** or **Quartz 1.2:**	4.0 kg/m²

Note: *the above examples are merely indicative. The actual consumption of the products are influenced by the environmental conditions during application, the temperature of the material and the characteristics of the substrate (e.g. roughness, absorbency, temperature, etc.).*

PACKAGING

19.9 kg units: component A = 16 kg; component B = 3.9 kg.

STORAGE

12 months in its original sealed packaging, in a covered, dry place, at temperature between +10°C and +30°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.

TECHNICAL DATA (typical values)

PRODUCT IDENTITY	component A	component B
Colour:	neutral	amber
Consistency:	thick liquid	liquid
Density:	1.40 g/cm³	1.22 g/cm³
Viscosity at +23°C:	4,000 mPa·s (# 4 - rpm 20)	190 mPa·s (# 2 - rpm 100)

APPLICATION DATA (at +23°C and 50% R.H.)	
Mixing ratio by weight:	component A : component B = 16 : 3.9
Colour of mix:	neutral
Consistency of mix:	fluid
Density of mix:	1,300 kg/m³
Pot-life at +20°C:	30 min.
Viscosity of mix:	1,800 mPa·s (# 3 - rpm 20)
Application temperature (refers to the ambient, material and substrate):	from +10°C to +30°C

FINAL PERFORMANCE (at +23°C and 50% R.H.)	
Dust dry:	2-4 h
Set to light foot traffic:	24 hours
Complete hardening time:	7 days
Elongation to break (neat) (7 days) (DIN 53504):	approx. 112%
Elongation to break fillerized with 30% b.w. of Quartz 0.25 (7 days) (DIN 53505):	80%
Shore A hardness (neat) (7 days) (DIN 53505):	90
Shore A hardness fillerized with 30% b.w. of Quartz 0.25 (7 days) (DIN 53505):	90
Tear strength (neat) (7 days) (DIN 53515):	37 N/mm
Tear strength fillerized with 30% b.w. of Quartz 0.25 (7 days) (DIN 53515):	27 N/mm
Tensile strength (neat) (7 days) (DIN 53504):	10 N/mm²
Tensile strength fillerized with 30% b.w. of Quartz 0.25 (7 days) (DIN 53504):	6.5 N/mm²

Essential characteristics	Test method	Requirements according to EN 13813 for synthetic resin-based screeds	Typical values
Bond strength:	EN 13892-8	≥ B1.5	≥ B1.5
BCA wear resistance:	EN 13892-4	≤ AR6	AR0.5
Impact resistance:	EN ISO 6272	≥ IR4	IR4
Reaction to fire:	EN 13501-1	from $A1_{FL}$ to F_{FL}	B_{FL}-s1

ESSENTIAL CHARACTERISTICS EN 1504-2 - TAB.ZA.1d, e, f (coating C, PI-MC-PR-IR principles)

Essential characteristics	Test method according to EN 1504-2	Requirements	Typical values
Abrasion resistance (TABER test): Note: testing methods for flooring systems according to EN 13813 are also acceptable	EN ISO 5470-1	Weight loss less than 3,000 mg with abrading wheel H22/rotation 1,000 cycles/load 1,000 g	< 3,000 mg
Permeability to CO_2:	EN 1062-6	S_D > 50 m	S_D = 540 m
Permeability to water vapour:	EN ISO 7783-1 EN ISO 7783-2	Class I: S_D < 5 m (permeable to water vapour) Class II: 5m ≤ S_D ≤ 50 m Class III: S_D > 50 m (not permeable to water vapour)	Class II
Capillary absorption and permeability to water:	EN 1062-3	w < 0.1 kg/m²·$h^{0.5}$	w 0.002 kg/m²·$h^{0.5}$
Impact strength measured on samples of coated concrete MC (0.4) in compliance with EN 1766: Note: the thickness and the impact of the foreseen load affect the choice of the class	EN ISO 6272	No cracks or delamination after loading Class I: ≥ 4 Nm Class II: ≥ 10 Nm Class III: ≥ 20 Nm	Class I
Direct tensile adherence test Reference substrate: MC (0.4) as specified in EN 1766. Curing: – 28 days for single component systems containing concrete and PCC systems – 7 days for systems with reactive resin	EN 1542	Average (N/mm²) **Crack-bridging or flexible systems** without traffic: ≥ 0.8 (0.5)[b] with traffic: ≥ 1.5 (1.0)[b] **Rigid systems[c]** without traffic: ≥ 1.0 (0.7)[b] with traffic: ≥ 2.0 (1.0)[b]	3.10 N/mm² flexible system (Shore D = 40) with traffic
Resistance to thermal shock (1 x):	EN 13687-5	After thermal cycling a) no bubbles, cracks and delamination b) direct tensile adherence test Average (N/mm²) **Crack-bridging or flexible systems** without traffic: ≥ 0.8 (0.5)[b] with traffic: ≥ 1.5 (1.0)[b] **Rigid systems[c]** without traffic: ≥ 1.0 (0.7)[b] with traffic: ≥ 2.0 (1.0)[b]	3.5 N/mm² flexible system (Shore D = 40) with traffic
Crack-bridging capability after conditioning according to EN 1062-11:2002, 4.1 - 7 days at +70°C for systems with reactive resin 4.2 - UV radiation and humidity for dispersion systems:	EN 1062-7	The required classes and test conditions are indicated in tables 6 and 7. The required crack resistance must be selected by the design engineer according to local conditions (weather, crack width and crack movement). After testing the required class, no cracking is admitted.	Static at +23°C: class A3 Static at -10°C: class A3 Dynamic at +23°C: class B2 Dynamic at -10°C: class B2
Reaction to fire:	EN 13501-1	from $A1_{FL}$ to F_{FL}	B_{FL}-s1

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

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.

ANY ALTERATION TO THE WORDING OR REQUIREMENTS CONTAINED OR DERIVED FROM THIS TDS EXCLUDES THE RESPONSIBILITY OF MAPEI.

TECHNICAL SPECIFICATION

Supply and installation of high solid content polyurethane resin (such as **Mapefloor PU 410** by Mapei S.p.A.), mixed with 30% by weight of kiln-dried quartz sand with grain size of up to 0.25 mm (such as **Quartz 0.25** by Mapei S.p.A.), suitable for elastic and waterproof protective layers for resin systems for parking areas. The product must be applied by straight or notched trowel in approx. 1 mm thickness. Immediately after the application, on the still wet surface of the product, broadcast in excess with kiln-dried quartz sand with grain size of up to 0.5 mm or 0.9 mm or 1.2 mm (such as **Quartz 0.5** or **Quartz 0.9** or **Quartz 1.2** by Mapei S.p.A.) depending on the degree of surface slip-resistance required.

The hardened product must have the following characteristics:

Bond strength (EN 13892-8):	≥ 1.5 N/mm²
BCA wear resistance (EN 13892-4):	< 50 µm
Impact resistance (EN ISO 6272):	4 Nm
Shore A hardness fillerized with 30% by weight with quartz sand with grain size up to 0.25 mm (7 days) (DIN 53505):	90
Direct tensile adherence test (EN 1542):	3.10 N/mm²
Thermal shock resistance (1 x) (EN 13687-5):	3.5 N/mm²
Tear strength fillerized with 30% by weight with quartz sand with grain size up to 0.25 mm (7 days at +23°C) (DIN 53515):	27 N/mm
Elongation to break fillerized with 30% by weight with quartz sand with grain size up to 0.25 mm (7 days at +23°C) (DIN 53505):	80%
Tensile strength fillerized with 30% by weight with quartz sand with grain size up to 0.25 mm (7 days at +23°C) (DIN 53504):	6.5 N/mm²
Crack-bridging capability (EN 1062-7) static at -10°C: static at +23°C: dynamic at -10°C: dynamic at +23°C:	 Class A3 Class A3 Class B2 Class B2
Capillary absorption and permeability to water (EN 1062-3):	w 0.002 kg/m²·$h^{0.5}$
Permeability to water vapour (EN ISO 7783-1; EN ISO 7783-2):	S_D = 26 m

Permeability to CO_2 (EN 1062-6):	S_D = 540 m
Reaction to fire (EN 13501-1):	B_{FL}-s1

Mapei S.p.A.

Via Cafiero, 22, 20158, Milano

+39-02-376731 www.mapei.com mapei@mapei.it

2065-5-2026 en (IT)

Any reproduction of texts, photos and illustrations published here is prohibited and subject to prosecution