MAPEFLOOR PU 406

Two-component, coloured, self-levelling, elastic polyurethane resin

WHERE TO USE

Mapefloor PU 406 is suitable for flooring systems in which a good crack-bridging ability is required, as well as a good wear resistance, for instance in indoor and outdoor parking areas. It can also be used as elastic crack suppressant membrane for Terrazzo resin systems like **Mapefloor System 35 F/M**.

TECHNICAL CHARACTERISTICS

Mapefloor PU 406 is a two-component high solids content, low viscosity, medium-elasticity polyurethane resin-based formulation according to a formula developed in MAPEI Research & Development laboratories.
The membrane done with **Mapefloor PU 406** has a good crack-bridging ability even at low temperatures. It also has good resistance to physical stresses.
Mapefloor PU 406 can be reinforced with fiber mesh like **Mapenet 150** when used as elastic crack suppressant membrane for Terrazzo resin flooring systems.
Broadcasting quartz sand on **Mapefloor PU 406** increases its wear resistance properties and makes a slip-resistant finish on the surface.
Mapefloor PU 406 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 ("*Products and systems for the protection and repair of concrete*") for class: products for protecting surfaces – coating (C) – protection against ingress (PI) + moisture control (MC) + physical resistance/surface improvement (PR) + increasing resistivity by limiting moisture content (IR).

RECOMMENDATIONS

- Do not apply **Mapefloor PU 406** on substrates without primer or with a moisture content higher than 4%, or in presence of capillary rising damp (contact our Technical Services Department).
- Do not dilute **Mapecoat PU 406** with solvent or water.
- Do not apply **Mapefloor PU 406** on dusty or crumbling substrates.
- Do not apply **Mapecoat PU 406** on substrates with oil or grease stains or dirt in general.
- 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.
- Protect from water for at least 24 hours after application at +20°C.
- The temperature of the substrate must be at least 3°C higher than the dew-point temperature.

COLOURS

Mapefloor PU 406 comes pre-pigmented in several RAL colours. Please contact the Head Office for a full list of the colours available.

APPLICATION PROCEDURE

1. 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 not capillary rising damp (check by testing it with a sheet of polythene).
The surface of the floor must be prepared with suitable power tools (e.g. shot-blasting or grinding with a diamond disk) 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 cracks, holes and uneven areas in the surface must be repaired and levelled off with **Primer SN** fillerized with quartz sand or made thixotropic with **Additix PE** or **Mapefloor EP19** epoxy mortar or **Mapefloor JA** or **Mapefloor JA Fast** thixotropic resins.

Mapefloor PU 406 can be used:
- as wear resistant layer for elastic polyurethane membranes or cementitious and primed substrates, the kind of system chosen according the class of crack-bridging required, in indoor and outdoor parking areas;
- as elastic crack suppressant membrane, before the application of Terrazzo resin systems, such as **Mapefloor System 35 F/M**.

2. Preparation of the product

Stir components A and B separately, then pour all component B in the component A and mix them with a low-speed electric mixer for a few minutes. Then add approximately 30% by weight of **Quartz 0.25** and mix again for a few minutes until a homogeneous mixture is obtained. Pour the product in a clean container and briefly mix again.

3. Protective and wear resistant layer for resin systems for parking areas

Pour the product onto the floor and spread it out evenly on the surface to be treated using a straight or notched steel trowel or pin rake. While the product is still fresh, back-roll with a spiked roller to release any air entrained into the product during mixing. As soon as the product has been applied, and while still wet, broadcast with **Quartz 0.5, Quartz 0.9** or **Quartz 1.2**, according to the degree of slip-resistance required, approximately 4 kg/m².
When the product has hardened, remove the excess sand, sanding the surface and thoroughly remove the dust and any loose particles by vacuum. A final protective polyurethane topcoat, e.g. **Mapefloor Finish 415, Mapefloor Finish 451 or Mapefloor Finish 450 EU**, must be then applied.

4. Elastic crack suppressant membrane for Terrazzo resin systems

Mapefloor PU 406 must be applied on a suitable hardened layer of primer, e.g. a scratch coat of **Primer SN** mixed with 20% by weight with **Quartz 0.5**, fully broadcast with **Quartz 0.5**. Before the application of the material, all dust and any loose part must be removed by vacuum.
Pour the product onto the floor and spread it out evenly using a serrated or straight steel trowel or a pin rake. While the product is still fresh, place the reinforcement, e.g. **Mapenet 150** or glass or polymer woven textile or knitted, taking care to well press it by suitable steel roller in the layer of resin. The reinforcement must be fully embedded in the resin; in case it's necessary, apply a second layer of **Mapefloor PU 406** prepared and mixed with **Quartz 0.25** as before mentioned at the point concerning then preparation of the product, once the first one has hardened.
When **Mapefloor PU 406** is still wet, broadcast in excess with either **Quartz 0.9** or **Quartz 1.2**; in case a double layer is applied, only broadcast the second one. To enhance crack suppressant property, a previous layer of neat **Mapefloor PU 406** of approx. 0.5 mm average thickness can be applied by straight trowel on the scratch coat of **Primer SN**.
When the product has hardened, remove the excess sand, sanding the surface and thoroughly remove the dust and any loose particles by vacuum.

CONSUMPTIONS

1. ***As protective and wear resistant layer for car parks:***

Mapefloor PU 406 + (A + B)	~1.0 kg/m²
Quartz 0.25	~0.3 kg/m²
Quartz 0.5 or Quartz 0.9 or **Quartz 1.2** (broadcast in excess)	~4.0 kg/m²

2. ***As elastic crack suppressant membrane for Terrazzo resin systems:***

Optional neat layer – average thickness 0.5 mm

Mapefloor PU 406 (A+B)	0.7-0.8 kg/m²

First layer

Mapefloor PU 406 (A+B)	0.5-0.7 kg/m²
Quartz 0.25	0.15-0.21 kg/m²

Reinforcement

e.g. **Mapenet 150**	1 m²

Second layer (if necessary to fully embed the reinforcement)

Mapefloor PU 406 (A+B)	0.5-0.7 kg/m²
Quartz 0.25	0.15-0.21 kg/m²

Quartz 0.9 or **Quartz 1.2**
(broadcast in excess) 2.0-3.0 kg/m²

Note: *the consumptions above are merely indicative. The actual consumptions 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

18 kg units (component A 15 kg + component B 3 kg).

STORAGE

12 months in its original sealed packaging, in a dry area, at a 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.
PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)		
PRODUCT IDENTITY		
	component A	**component B**
Colour:	RAL colours	amber
Consistency:	thick liquid	liquid
Density (g/cm³):	1.40	1.20
Viscosity at +23°C (mPa·s):	7,400 (# 6 - rpm 50)	260 (# 2 - rpm 50)
APPLICATION DATA (at +23°C and 50% R.H.)		
Mixing ratio:	component A : component B = 5:1	
Colour of mix:	RAL colours	
Consistency of mix:	fluid	
Density of mix (kg/m³):	1,360	
Pot-life at +23°C:	approx. 30 min.	
Viscosity of mix (mPa·s):	2,800 (# 5 - rpm 50)	
Application temperature range:	from +8°C to +35°C	
FINAL PERFORMANCE (at +23°C and 50% R.H.)		
Set to light foot traffic:	24 hours	

Complete hardening time:	7 days
Elongation (ISO 37):	170 %
Shore A hardness (DIN 53505):	70
Tear strength (ISO 34-1) (N/mm):	25
Tensile strength (ISO 37) (MPa):	8.5

MAIN CHARACTERISTICS according to CE marking EN 1504-2 – TAB. ZA.1d, e , f. (coating C, PI-MC-PR-IR)			
Main characteristics	Test method	Requirements	Typical value
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 3000 mg with abrading wheel H22/rotation 1000 cycles/load 1000 g	< 3000 mg
Permeability to CO_2	EN 1062-6	S_D > 50 m	S_D 560 m
Permeability to water vapour:	EN ISO 7783	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 · $h^{0,5}$	0.001 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 6272-1	No cracks or delamination after loading Class I: ≥ 4 Nm Class II: ≥ 10 Nm Class III: ≥ 20 Nm	Class II
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]	> 2,0 MPa flexible system with traffic
Resistance to thermal shock (1x):	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]	>2 MPa flexible system 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 -10°C: A5 Dynamic at 0°C: >B4.2 Dynamic at -20°C: B4.1
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.
All relevant references for the product are available upon request and from www.mapei.com

8932-4-2022 en (IT)

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