MAPEFLOOR FINISH 451

Two-component aliphatic elastic coloured polyaspartic finish resistant to wear and ultra-violet rays

WHERE TO USE

Thanks to its flexibility, extremely simple application procedure and high resistance to abrasion and UV rays, **Mapefloor Finish 451** is recommended as a protective finish for **Mapefloor PU 400**, **Mapefloor PU 400 LV** and/or **Mapefloor PU 410**, used to make protective and watertight coatings for flat and sloping roofs accessible to pedestrians and vehicles use, including external surfaces.

Some application examples

· Protective, abrasion-resistant finish for external waterproof systems made from **Mapefloor PU 400**, **Mapefloor PU 400 LV** and **Mapefloor PU 410** membranes after broadcasting them in excess with quartz sand.
· Coloured finish for bridges and walkways after applying specific, elastic polyurethane waterproofing membranes.

TECHNICAL CHARACTERISTICS

Mapefloor Finish 451 is a two-component, aliphatic, elastic polyaspartic finish with excellent resistance to wear, abrasion and ultra-violet rays.
Surfaces treated with **Mapefloor Finish 451** also have an attractive finish.
Mapefloor Finish 451 has the following characteristics:
· good level of elasticity;
· high resistance to wear and abrasion;
· excellent resistance to ultra-violet rays;
· excellent resistance to atmospheric agents;
· available in various RAL colours. Please contact Head Office for a full list of the colours available.
Thanks to its high resistance to ultra-violet rays and atmospheric agents, **Mapefloor Finish 451** is ideal for use on external surfaces.

Mapecoat Finish 451 applied on concrete supports, it complies with the principles defined in EN 1504-9 ("*Products and systems for protecting and repairing concrete structures. definitions, requirements, quality control and conformity evaluation - General principles for the use and application of systems*") and with the 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) + resistance to chemicals (RC) + increasing resistivity by limiting moisture content (IR).

RECOMMENDATIONS

· The workability of the product is influenced by the surrounding temperature and the temperature of the substrate. Workability time varies according to the surrounding temperature and reduces as the temperature increases. We recommend, therefore, preparing only the quantity to be applied within the maximum workability time (approximately 40 minutes at +23°C).
· Do not dilute **Mapefloor Finish 451** with solvent or water.

· Do not apply **Mapefloor Finish 451** on dusty or crumbling substrates.
· Do not apply **Mapefloor Finish 451** on substrates with oil, grease or stains 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.
· The coating may change colour if it comes into contact with aggressive chemicals. A change in colour, however, does not mean that it has been damaged by the chemical.
· Remove aggressive chemicals as soon as possible after they come into contact with **Mapefloor Finish 451**.
· Use suitable specific cleaning equipment and detergent to clean the coating, depending on the type of dirt or stain to be removed.
· Protect the product from water for at least 24 hours after application.
· The product and resin system containing this product must not be applied on cementitious substrates with a moisture content higher than 4% or with capillary rising damp (check with a sheet of polythene).
· The temperature of the substrate must be at least 3°C above dew-point.

APPLICATION PROCEDURE

Substrate preparation

Apply Mapefloor Finish 451 on the surface of hardened resin broadcast in excess with sand, such as **Mapefloor PU 400**, **Mapefloor PU 400 LV** and **Mapefloor PU 410**, and after removing any excess sand from the surface.
Substrates must be structurally sound with no detached areas and must also be clean, dry and free of all traces of dust, oil, grease and any other compound or substance that could affect adhesion.

Preparation of the product

Mix the two components separately with a low speed electric mixer. Pour component B into the container of component A and mix for several minutes until completely blended.
Only prepare the quantity required within the maximum workability time (approximately 40 minutes at +23°C).

Application of the product

Apply **Mapefloor Finish 451** in a single coat by roller or by straight steel or rubber trowel. If the finish is applied by roller, it is recommended to apply the product in criss-cross strokes and to make sure it is applied uniformly to get an even, attractive finish. If the finish is applied by rubber trowel, consumption will be lower and the surface will be rougher.

CLEANING

Clean tools used to mix and apply the product with polyurethane thinners before it hardens. Once hardened the material may only be removed mechanically.

CONSUMPTION

Consumption depends on the roughness of the substrate, the surrounding temperature and the type of tool used to apply the product. The figures indicated are for application on a substrate at a temperature of +15°C to +25°C. Lower temperatures increase the consumption rate and the hardening time of the product.
Theoretical consumption: 0.6-0.8 kg/m² (it is recommended to carry out a preliminary test to estimate the actual consumption rate for the material).

PACKAGING

Component A: 14 kg.
Component B: 6 kg.

STORAGE

Store the product in a covered, dry place at a temperature of +15°C to +25°C. The product may be stored for 12 months in such conditions.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Mapefloor Finish 451 components A and B may cause sensitisation to those predisposed if it comes in contact with the skin.
Mapefloor Finish 451 component B is inflammable. It is recommended to store the product away from flames and sparks, to avoid smoking, to prevent the build-up of electrostatic charges and to work in well ventilated areas.
During use wear protective gloves and goggles and take the usual precautions for handling of chemicals. If the product comes in contact with the eyes or skin, wash immediately with plenty of clean water and seek medical attention. Wear suitable protection for the respiratory system.

Mapefloor Finish 451 component A is also hazardous for aquatic life; do not dispose of the product in the environment. For further and complete information about the safe use of our product please refer to the latest version of our Safety Data Sheet.
PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)		
PRODUCT IDENTITY		
	comp. A	**comp. B**
Colour:	various RAL colours	transparent colourless
Consistency:	liquid	liquid
Brookfield viscosity at +23°C (mPa·s):	6,000 ÷ 9,000 (rotor 6 - 50 revs)	175 ÷ 300 (rotor 2 - 50 revs)
Density (g/cm³):	1.63 ± 0.05	1.1 ± 0.05
APPLICATION DATA (at +23°C - 50% R.H.)		
Mixing ratio:	comp. A : comp. B = 70 : 30	
Colour of mix:	RAL colours	
Consistency of mix:	fluid paste	
Density of mix (kg/m³):	1,480	
Viscosity of mix (mPa s):	1,500 ± 200 (rotor 4 - 50 revs)	
Pot life at +23°C:	40 mins.	
Dust dry at +23°C, 150 microns on glass:	90 mins.	
Application temperature:	+10°C to +30°C	
Set to foot traffic at +23°C:	24 hours	
Final hardening time at +23°C:	3 days	
FINAL PERFORMANCE		
Maximum deformation after 7 days at +23°C + 14 days at +50°C (DIN 53504) (%):	43	
Tear strength after 7 days at +23°C + 14 days at +50°C (DIN 53515) (N/mm):	97	
Tensile strength after 7 days at +23°C + 14 days at +50°C (DIN 53504) (N/mm²):	12.2	
Taber abrasion resistance (CS17 disk - 1,000 g - 1,000 revs) after 7 days at +23°C (EN ISO 5470-1) (mg):	95	

Shore A hardness (DIN 53505):	85
Shore D hardness (DIN 53505):	40

PERFORMANCE CHARACTERISTICS FOR CE CERTIFICATION ACCORDING TO EN 1504-2 – TAB. ZA. 1d ; ZA.1e; ZA 1f; ZA 1g (coating C, PI-MC-PR-RC-IR)			
Main characteristics	**Test method according to UNI EN 1504-2**	**Requirements**	**Performance of product**
Abrasion resistance (TABER test) Note: testing methods for flooring systems according to EN 13813 are also acceptable	EN ISO 5470-1	Loss in weight less than 3000 mg with an H22 abrasive disk/1,000 cycles/1,000 g load	"800 mg (typical value)"
Permeability to CO_2	EN 1062-6	Permeability to CO_2 S_D > 50 m	S_D 130 m
Permeability to water vapour	EN ISO 7783	Class I: S_D < 5 m (permeable to water vapour) Class II: 5 m < S_D < 50 m Class III: S_D > 50 m (impermeable to water vapour)	Class III
Resistance to thermal shock (1x)	EN 13687-5	After thermal cycles a) no swelling, cracking or delamination b) Average direct traction adherence test (N/mm^2) Cracking or flexible systems with no traffic: ≥ 0.8 (0.5)[b)] with traffic: ≥ 1.5 (1.0)[b)] Rigid systems[c)] with no traffic: ≥ 1.0 (0.7)[b)] with traffic: ≥ 2.0 (1.0)[b)]	3.48 MPa (Flexible system with traffic)
Capillary absorption and permeability to water	EN 1062-3	w < 0.1 $kg/m^2 \cdot h^{0.5}$	0.004 $kg/m^2 \cdot h^{0.5}$
Impact strength measured on MC (0.40) coated concrete samples according to EN 1766. Note: the thickness and design impact load influence which class is chosen	EN ISO 6272 - 1	No cracks or delamination after loading Class I: ≥ 4 Nm Class II: ≥ 10 Nm Class III: ≥ 20Nm	Class II
Direct traction adherence test. Reference substrate: MC (0.40) as specified in EN 1766, curing time: – 28 days for one-component systems containing concrete and PCC systems: – 7 days for reactive resin systems:	EN 1542	Average (N/mm^2) Cracking or flexible systems: with no traffic: ≥ 0.8 (0.5)[b)] with traffic: ≥ 1.5 (1.0)[b)] Rigid systems[c)] with no traffic: ≥ 1.0 (0.7)[b)] with traffic: > 2.0 (1.0)[b)]	3.38 MPa (Flexible system with traffic)
Resistance to severe chemical attack. Class I: 3 days with no pressure Class II: 28 days with no pressure Class III: 28 days with pressure It is advisable to use test liquid for the 20 classes indicated in EN 13529 to cover all common types of chemical agents. Other test liquids may be agreed upon between those interested in the tests	EN 13529	Reduction of hardness less than 50% when measured according to the Buchholz method, EN ISO 2815, or the Shore method from EN ISO 868), 24 hours after removing the coating from immersion in the test liquid	GROUP 1: Class II GROUP 3: Class II GROUP 12: Class II

Exposure to artificial atmospheric agents according to EN 1062-11:2002, 4.2 (radiation, UV rays and humidity) for external applications only. Only white and RAL 7030 require testing	EN 1062-11	After 2,000 hours of artificial bad weather: – no swelling according to EN ISO 4628-2 – no cracking according to EN ISO 4628-4 – no flaking according to EN ISO 4628-5 slight colour variation, loss of brightness and crumbling may be acceptable	No swelling, cracking or flaking
Reaction to fire	EN 13501-1	$A1_{FL}$ 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

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