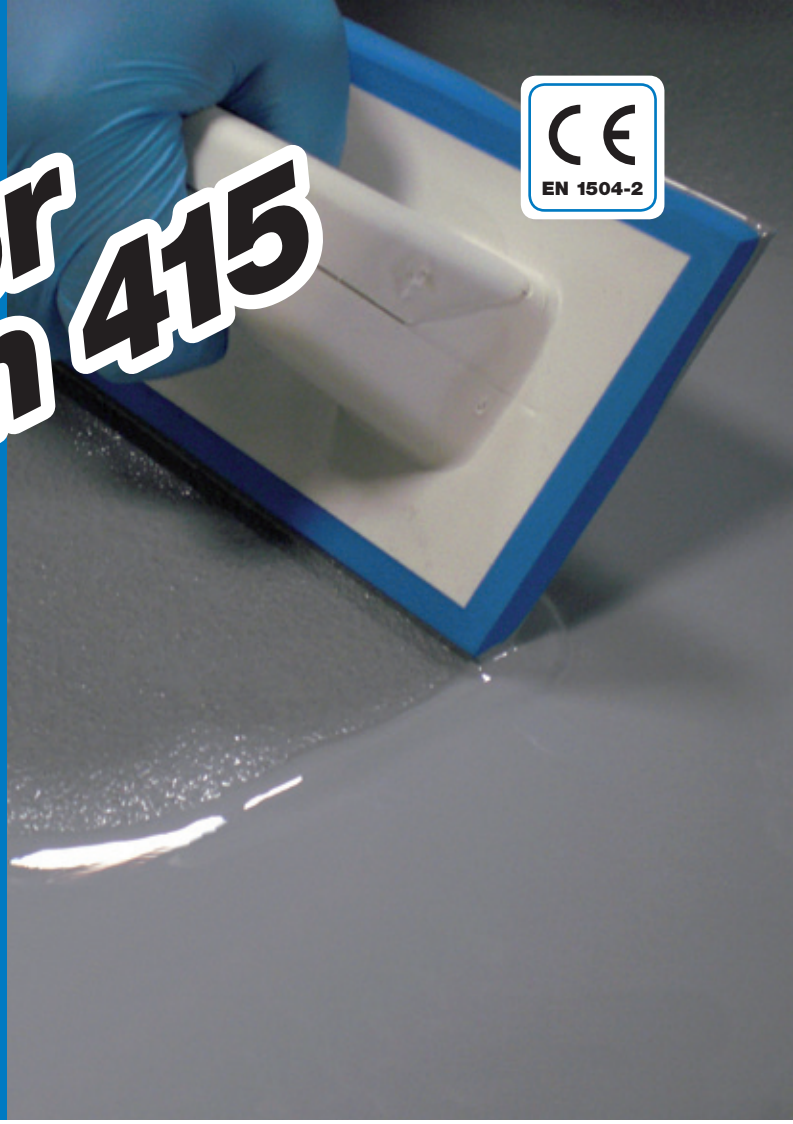
MAPEI

IN COMPLIANCE WITH EUROPEAN STANDARD
EN 1504-2 (C)
PRINCIPLES
PI-MC-PR-RC-IR
SURFACE PROTECTION SYSTEMS FOR CONCRETE

CE
EN 1504-2

Mapefloor Finish 415



Two-component wear-resistant elastic coloured aromatic polyurethane finish

WHERE TO USE

Thanks to its flexibility, extremely simple application procedure and high resistance to abrasion, **Mapefloor Finish 415** is recommended as a protective finish for surfaces coated with **Mapefloor PU 410** for the protection of floor surfaces in car-parking areas (**Mapefloor Parking System ID**).

Some application examples

Protective abrasion-resistant finish for protective and watertight indoor systems made with polyurethane membrane **Mapefloor PU 410** fully broadcast with quartz sand.

TECHNICAL CHARACTERISTICS

Mapefloor Finish 415 is a two-component, elastic, coloured, aromatic polyurethane finish with excellent resistance to wear and abrasion.

Mapefloor Finish 415 has the following characteristics:

- attractive finish;
- good level of elasticity;
- good defect-covering properties;
- high resistance to wear and abrasion;
- easy to apply;
- good chemical resistance to oil and fuel in general.

When **Mapefloor Finish 415** is applied on concrete substrates it complies with the principles defined by EN 1504-9 ("*Products and systems for the protection and repair of concrete structures: definitions, requirements, quality control and conformity assessment. General principles for the use of products and systems*"), and the minimum requirements of EN 1504-2 ("*Protection systems for concrete surfaces*") for class: products for protecting surfaces - coating (C) – protection against the risk of penetration (1.3) protection against ingress (PI) + moisture control (MC) + increasing resistivity by limiting moisture content (IR) + resistance to chemicals (RC).

RECOMMENDATIONS

- The workability time 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. It is recommended, therefore, to prepare only the quantity required within the maximum workability time indicated in the data table.
- Do not apply **Mapefloor Finish 415** on damp substrates or on substrates with capillary rising damp (contact MAPEI Technical Services Department).
- Do not dilute **Mapefloor Finish 415** with solvent or water.
- Do not apply **Mapefloor Finish 415** on dusty or crumbling substrates.
- Do not apply **Mapefloor Finish 415** on substrates contaminated by oil, grease or stains in general.
- Do not mix partial quantities of the components to avoid mixing mistakes; the product may not harden correctly.
- Do not expose the mixed product to sources of heat.

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TECHNICAL DATA (typical values)

PRODUCT IDENTITY		
	comp. A	**comp. B**
Colour:	RAL colours	brown
Consistency:	thick liquid (paste)	liquid
Brookfield viscosity at +23°C (mPa·s):	6400 ÷ 9600 (# 4 - 10 rpm)	70-110 (# 1 - 50 rpm)
Density (g/cm³):	1.40	1.20
APPLICATION DATA (at +23°C - 50% R.H.)		
Mixing ratio:	comp. A : comp. B = 80 : 20	
Colour of mix:	depending on RAL colour chosen	
Consistency of mix:	liquid / paste	
Density of mix (kg/m³):	1.35	
Viscosity of mix (mPa·s):	2,000-2,500	
Pot life (EN ISO 9514):	10 mins. (+ 15%) to reach +40°C	
Workability time:	approx. 20 mins.	
Dust dry at +23°C:	90 mins.	
Application temperature:	+10°C to +30°C	
Set to foot traffic at +23°C:	24 hours	
Complete hardening time at +23°C:	3 days	
FINAL PERFORMANCE		
Elongation at failure after 7 days at +23°C (DIN 53504) (%):	70	
Tear strength after 7 days at +23°C (DIN 53515) (N/mm):	90	
Tensile strength after 7 days at +23°C (DIN 53504) (N/mm²):	15	
Taber abrasion resistance (CS 17 disk - 1,000 g - 1,000 revs) after 7 days at +23°C (EN ISO 5470-1) (mg):	90	
Shore A hardness (DIN 53505):	90	
Shore D hardness (DIN 53505):	65	

- Coatings made from **Mapefloor Finish 415** are subject to changes in colour or yellowing if exposed to sunlight but this has no effect on their performance characteristics. The coating may also 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.
- If rooms where the product will be applied need to be warmed up do not use heaters that burn fossil fuels; the carbon dioxide and water vapour given off into the air will affect the shine of the finish and its final aesthetic appearance.
- Only apply **Mapefloor Finish 415** if the temperature of the substrate is at least 3°C higher than the dew point.

COLOURS

Mapefloor Finish 415 is available in various RAL colours. Please contact Head Office for a full list of the colours available.

APPLICATION PROCEDURE

Preparation of the substrate

Substrates to be coated must be structurally sound and free of crumbling or loose areas, dust, dirt, grease, oil and any other material or substance which could affect adhesion of the product to be applied.
Only apply **Mapefloor Finish 415** on the hardened layer of **Mapefloor PU 410** fully broadcast with **Quartz 0.5**, **Quartz 0.9** or **Quartz 1.2**, depending on the degree of the slip-resistant finish required, and after removing any excess sand.

Preparation of the product

Mix the two components A and B separately in their containers, pour the contents of component B into the container of component A and mix again with a low-speed electric mixer (300-400 rpm), for at least 2 minutes until thoroughly blended. Pour the mix into a clean container and briefly mix again.

MAIN PERFORMANCE CHARACTERISTICS FOR CE CERTIFICATION ACCORDING TO EN 1504-2 – TAB. ZA. 1d, e, f, g (coating C, principles PI-MC-PR-RC-IR)			
Main characteristics	**Test method according to EN 1504**	**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 a H22 abrasive disk/1,000 cycles/1,000 g load	< 3000 mg
Permeability to CO_2:	EN 1062-6 (samples treated according to prEN 1062-11)	S_D > 50 m	S_D 380 m
Permeability to water vapour:	EN ISO 7783-1-2	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 II: (average S_D = 23 m)
Capillary absorption and permeability to water:	EN 1062-3	W < 0.1 kg/m^2·h$^{0.5}$	average W = 0.005 kg/m^2·h$^{0.5}$
Resistance to thermal shock (1x):	EN 13687-5	After thermal cycles a) no swelling, cracking or delamination b) Direct traction adherence test 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]	3.56 N/mm^2 Flexible system (Shore D 40) 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 (EN ISO 868), 24 hours after removing the coating material from immersion in the test liquid	GROUP 1: class II GROUP 3: class II GROUP 12: class II
Resistance to impact measured on MC (0.40) coated concrete samples according to EN 1766: Note: The expected thickness and impact load influence which class is chosen:	EN ISO 6272-1	No cracking after loading or delamination Class I: ≥ 4 Nm Class II: ≥ 10 Nm Class III: ≥ 20 Nm	Class II
Direct tensile adherence test Reference substrate: MC (0.40) as specified by 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 systemsc) *with no traffic*: ≥1.0 (0.7)[b] *with traffic*: ≥2.0 (1.0)[b]	3.5 N/mm^2 Flexible system (Shore D 40) with traffic
Reaction to fire:	EN 13501-1	Euroclasses	B_{FL} - s1
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	Slight colour variation. No swelling, cracking or flaking

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Application of the product
Mapefloor Finish 415 may be applied in a single coat with a roller or with a straight steel or rubber trowel. If the product is applied with a roller, it is recommended to apply it with criss-cross strokes and to make sure it is applied evenly to get a good, attractive finish. When applying the product with a trowel, pour it onto the substrate and spread it out over the broadcast surface of **Mapefloor PU 410** down to a feather edge. After spreading the product, you may also back-roll with a short-pile roller to eliminate any marks left by the trowel. When applying the product with a rubber trowel, its consumption rate and hiding power will be slightly lower and the surface will be slightly rougher compared with application using a steel trowel.
If **Mapefloor Finish 415** hardens in surroundings with more than 60% R.H. in the air the surface may have a slight orange-peel effect finish on the film of coating. This will have no effect on its performance characteristics.

Cleaning
Clean tools used to mix and apply the product with polyurethane thinners before it hardens. Once hardened it 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 hardening time of the product.
Theoretical consumption: 0.5-0.8 kg/m^2 (it is recommended to carry out tests beforehand to get an idea of the actual consumption rate of the product according to the particle size of the aggregate used to broadcast the surface and the type of tool chosen).

PACKAGING
12.5 kg kit:
– component A: 10 kg;
– component B: 2.5 kg.

STORAGE
Store the product in a dry, covered area 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 415 component A is not considered hazardous according to current norms and guidelines regarding the classification of mixtures. **Mapefloor Finish 415** component B irritates the eyes, skin and respiratory system. It may cause irreversible damage if used for long periods and if it comes in contact with the skin may cause allergic reactions to those sensitive to isocyanates. If used at temperatures higher than +60°C the product can emit harmful vapours that could be dangerous and sensitization if inhaled. In case of sickness, seek medical attention. During use wear protective cloths, gloves, goggles and a safety mask to protect the respiratory system and work only in well-ventilated areas. If the product comes into contact with the eyes or skin, wash immediately with plenty of clean water and seek medical attention.
For further and complete information about the safe use of our product please refer to the latest version of our Safety Data Sheet.

RESTRICTED TO PROFESSIONAL USERS.

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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All relevant references for the product are available upon request and from www.mapei.com

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