

# MAPEFLOOR CPU+/SR

High-performance polyurethane-cement mortar for screeds from 6 to 12 mm



## DESCRIPTION

High-performance polyurethane-cement mortar developed by MAPEI's Research Laboratories, trowel applied in 6, 9 or 12 mm, for the protection of industrial floors, highly non-slip, antimicrobial and easy to sanitize, featuring high chemical and mechanical performances and thermal shock resistance from -40°C up to +150°C, with operating temperatures range from -40°C to +130°C, depending on the thickness.

## TECHNICAL CHARACTERISTICS

**Mapecfloor CPU+/SR** provides a protective resin system for industrial floors featuring:

- depending on the thickness applied, resistance to thermal shocks due for example to spillage of hot liquids or steam cleaning:
  - 6 mm: -25°C up to +80°C
  - 9 mm: -40°C up to +120°C
  - 12 mm: -40°C up to +150°C;
- fast hardening;
- high slip resistance;
- high chemical resistance against acids, bases, saline solutions, solvents, hydrocarbons in general. For more details, refer to the related chemical resistance table;
- high resistance to impact and abrasion;
- impermeability to liquids in general;
- odourless during application and hardening;
- low VOC content;
- no bacterial growth.
- complies with the requirements to EN 13813 "Screed material and floor screeds – Screed material – Properties and requirements", which specifies the requirements for screed materials 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 required by EN 1504-2, coating (C), according to PI, MC, PR, RC, IR principles ("Concrete surface protection systems").

## ADVANTAGES

- Fulfills HACCP requirements.
- Complies with all Indoor Air Comfort Gold emission requirements for indoor flooring systems, including AgBB in Germany, M1 in Finland and Afsset in France, BREEM, CAM, Singapore Green Label and Global Green Tag. Classified A+, the best class for the lowest emissions.
- Suitable for the food industry.
- Easy to sanitize.
- Non-tainting for food.
- Fast return to service.
- Ease for warehousing management; components A, B and **Mapecolor CPU+** are common to the whole **Mapecolor CPU+** product range.
- Sustainability: it can contribute to LEED credits. EPD (Environmental Product Declaration) compliant.
- Complies with standards applied in the foodstuffs sector *EN 1186*, *EN 13130* and *prCEN/TS 14234*, as well as the *Decree of Consumer Goods* that represent the conversion of *European directive 89/109/EEC*, *90/128/EEC* and *2002/72/EC* regarding contact with foodstuffs.

## WHERE TO USE

**Mapecolor CPU+/SR** is mainly used to create polyurethane-cement based systems with a high no-slip surface profile, for industrial floors especially in dry or wet production and logistic areas, where a durable, resistant and easy to clean and sanitize surface is required.

**Mapecolor CPU+/SR** is typically used in the chemical and pharmaceutical, textile and tanning industries, canning in general, sugar refineries, dairies, wineries and beverage companies in general, meat and fish processing, production and storage areas of food companies in general, commercial and industrial kitchens, freezing rooms and wherever high mechanical and chemical spillages and contact to hot liquids resistances are requested.

## COLOURS

**Mapecolor CPU+/SR** must be mixed with the specific **Mapecolor CPU+** pigment available in grey, beige, red, green, ochre, blue and orange colour. Please, always refer to the Mapei Technical Service for a detailed assessment of the most suitable system and colour for the specific case. The colour also helps to define the overall performance of the system.

## RECOMMENDATIONS

- Do not apply **Mapecolor CPU+/SR** on wet substrate or on concrete younger than 7 days.
- Do not dilute **Mapecolor CPU+/SR** with solvents or water.
- Do not apply **Mapecolor CPU+/SR** on dusty or crumbly substrate.
- Do not apply **Mapecolor CPU+/SR** on substrate contaminated by oil, grease, or dirt in general.
- Do not apply **Mapecolor CPU+/SR** on not properly prepared substrate.
- Do not mix partial quantities of the components to prevent mistakes in the mixing ratios which would cause incorrect hardening of the product.
- Do not expose the mixed product to heat sources.
- Do not apply **Mapecolor CPU+/SR** on ceramic substrate or stone materials in general with no appropriate specific preparation of the laying surface.
- **Mapecolor CPU+/SR** exposed to UV lights could lead to noticeable colour changes; this phenomenon does not affect the performance of the coating in any way.
- The colour of **Mapecolor CPU+/SR** can also change in case of contact with certain chemicals; the colour variation itself is not an indication of chemical aggression on the coating.
- Remove as soon as possible any chemicals in contact with the **Mapecolor CPU+/SR**.
- For cleaning use suitable equipment and detergents depending on type of dirt to be removed.
- Protect **Mapecolor CPU+/SR** from water for at least 24 hours after the application.

# APPLICATION PROCEDURE

## Substrate characteristics

Substrate must be solid, compact, stable, sound, clean, and properly designed for static and dynamic loads foreseen in the operating conditions. The flatness must be defined by the needs of use. At the time of application, compressive strength of the concrete or cementitious mortar used for the repair must be higher than 25 N/mm<sup>2</sup> and the direct tensile strength at least 1.5 N/mm<sup>2</sup>.

The substrate surface must appear visually dry. There must be no capillary rising damp as well (verify with the polythene sheet test).

In the case of substrate such as ceramic tiles, natural stones, or old resinous coatings, they must be perfectly stable and anchored to the substrate, intact, healthy, and clean. These substrates require specific preparation methods for the laying surfaces. In the case of old resinous coatings, it is recommended to also perform a compatibility test with the new system to be applied.

## Substrate preparation

The surface of the floor must be prepared with specific mechanical equipment such as for example shotblasting or milling machine, to remove all traces of dirt, any contamination for the entire thickness concerned, cement laitance, crumbly or detached parts and make the surface rough and absorbent.

Any defects such as holes, pitting, cracks, etc. must be repaired using, for example, **Primer SN** possibly filled with quartz sand or thixotropic agent like **Additix PE** or with **Mapefloor JA** or **Mapefloor JA Fast** depending on the width and depth of the defects and cracks.

For the reconstruction of heavily degraded areas and joints, the filling of large depressions, repairs, or minimal localized changes to slopes, etc., please contact the Technical Service.

Before proceeding with the application of the material, the surface dust must be carefully vacuumed.

## Anchor grooves

The anchoring grooves on the concrete must be made with a suitable mechanical joint saw. The dimensions (depth and width) must be approximately double the thickness of **Mapefloor CPU+/SR**.

They must be provided along the perimeter of the area, near all the vertical lines such as walls and pillars, around the drainage channels and wells, on the thresholds of the doors, around the feet of the machinery, in general along each free edge and the interruptions of the installation, such as joints that clearly define the end of the working day and the beginning following one.

The maximum distance between parallel grooves must not exceed approximately 15 meters. If it exceeds this measure, it will be necessary to make intermediate cut.

In case concrete has not fully completed its hygrometric shrinkage, it is advisable to make the anchor grooves also along the cracks control joints. It will make possible to seal the joint in case the shrinkage crack appears in the joint (therefore also on **Mapefloor CPU+/SR**) even without removing part of the floor, as the entire area straddling the joint is already well anchored.

## Temperature

To avoid the condensation on the surface, the substrate temperature must be at least 3°C above the dew point. The relative humidity of the air must be lower than 80%. The ambient temperature must be between +10°C and +30°C.

In case of application at temperature above +25°C, store the material in sheltered spot at lower temperature. This will allow to get longer pot life and get the application simpler even at high temperature. In case of temperature below +15°C, store the material in a warmer place (heated room temperature) to avoid the risk of too high viscosity of the mix making the application harder and turning into a potential problem of aesthetics effect.

## Application of the primer

Primer is normally not necessary. However, in case of substrate that does not require repair or levelling, it's advisable to use the specific **Mapefloor CPU+/Primer** to saturate the pores of the concrete surface to prevent the potential formation of pinholes on **Mapefloor CPU+/SR**.

For further information regarding the preparation, mixing, consumption, and application details of **Mapefloor CPU+/Primer**, please refer to the related Technical Data Sheet.

## Product preparation

Shake the packs containing the liquid components A, B and **Mapecolor CPU+** pigment.

Pour a pack of component A and a pack of **Mapecolor CPU+** into a clean bucket and mix for a few seconds until a homogeneous mixture is obtained. Then add a pack of component B and mix again with a suitable

low-speed electric mixer until completely blended.

Then slowly and gradually add all component C, continuing to mix for at least three minutes until a homogeneous mixture is obtained. We recommend the use of specific low-speed mixers for mortars, such as those with vertical rotation axis or those with static mixing blades and rotating container. At temperatures lower than +23°C this time could be slightly longer.

Only mix whole packs of components A, B, C and **Mapecolor CPU+** to prevent potential mistakes in the mixing ratios which could compromise the entire system.

### Product application

Immediately after mixing, pour all mixed **Mapecolor CPU+/SR** on the floor and spread it evenly to the required thickness with a smooth trowel or a squeegee fitted with thickness rulers. Once the application has been completed, it is advisable to smooth the surface with a suitable roller. Excess of working with tools on the surface of **Mapecolor CPU+/SR** could reduce the roughness of the applied product due to the bleeding of the resin.

It is advisable to proceed with the installation of the product in such a way as to ensure that the material that has just been poured can be connected to the one already laid when the latter is still fresh and workable. This way the signs of conjunction will be minimized.

Apply the mix within the useful pot life indicated in the table. The higher the temperature, the lower the pot life; the lower the temperature, the higher the pot life.

## CONSUMPTION

### Mapecolor CPU+/SR:

6 mm thickness:

9 mm thickness:

12 mm thickness:

approx. 2.0 kg/m<sup>2</sup> per mm thickness

approx. 12 kg/m<sup>2</sup>

approx. 18 kg/m<sup>2</sup>

approx. 24 kg/m<sup>2</sup>

The consumption is influenced by the roughness and absorption of the substrate as well by the environmental and working conditions of the job site.

## TOOLS CLEANING

Equipment used to prepare and apply **Mapecolor CPU+** product range must be cleaned with thinner for polyurethanes immediately after use. Once the product has hardened, it can only be removed mechanically.

## FLOOR CLEANING

The first cleaning after laying **Mapecolor CPU+/SR** must only be carried out after the product has completely hardened. Early washing could lead to the formation of stains/shading due to the surface not yet perfectly closed and still partially absorbent.

For periodic and extraordinary washing, use suitable and specific machines, equipment and detergents for the type of stains and dirt to be removed.

## PACKAGING

**Mapecolor CPU+** Component A: 2 kg pack

**Mapecolor CPU+** Component B: 2.16 kg pack

**Mapecolor CPU+/SR** Component C: 19 kg bag

**Mapecolor CPU+**: 0.23 kg pack

## STORAGE

12 months in the original sealed packaging and kept in a dry and sheltered spot at temperatures between +10°C and +30°C. Components A and B can be damaged by frost. **Mapecolor CPU+/SR** part C is sensitive to humidity.

## 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](http://www.mapei.com).

When the product reacts, it generates considerable heat. After mixing components A, B and C, 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

	comp. A	comp. B	comp. C	Mapecolor CPU+
Colour	Milky white	Dark brown	White	Grey, beige, red, green, ochre, blue, orange
Appearance	Liquid	Liquid	Powder	Paste
Density	1-1.05 g/cm <sup>3</sup>	1.2 g/cm <sup>3</sup>	–	1.30-1.60 g/cm <sup>3</sup>
Bulk density	–	–	1.85 - 2.05 g/cm <sup>3</sup>	–
Viscosity a +23°C	200-600 mPa·s (# 2 - rpm 20)	100-160 mPa·s (# 1 - rpm 50)	–	6 000-25 000 mPa·s (# 6 – rpm 20)

### APPLICATION DATA

Mixing ratio	A + B + C + <b>Mapecolor CPU+</b> : 2.0 / 2.16 / 19 / 0.23
Colour of the mix (Mapecolor CPU+ included)	grey, beige, red, green, ochre, blue, orange
Consistency of the mix	semi-fluid
Density of the mix	2 000 kg/m <sup>3</sup>
Pot life at +23°C	15 min.
Temperature of the surface	from +10°C to +30°C

### FINAL PERFORMANCE at +23°C and 50% R.H.

Tack free	2-4 h
Pedestrian traffic	8 h
Ready for traffic at 23°C	Light traffic: 24 h
Complete hardening of the product	4 days
Shore D after 28 days (DIN 53505)	85
Slip resistance (EN 13036-4)	Class I (wet internal surfaces) Class II (dry internal surfaces)
Depth of water penetration under positive pressure (EN 12390-8)	No penetration (5 bar/ 3 days)
Adhesion strength (EN 13892-8)	≥ 2 N/mm <sup>2</sup>
Impact resistance (EN ISO 6272)	20 Nm

Essential characteristics	Test method	Requirements according to EN 13813 for cement screeds	Typical values
Flexural strength	EN 13892-2	from F5 to F50	F10
Compressive strength	EN 13892-2	From C5 to C80	C 50
Wear resistance BCA	EN 13892-4	≤AR6	AR0,5
Permeability to water	EN 1062-3	Declared value	w < 0,1 kg/(m <sup>2</sup> ·h <sup>0.5</sup> ) (Class III)



Chemical resistance	EN 13529	CR group number (from 1 to 15 a) and class (1 or 2)	Shore D reduction < 50% CR5a, CR12 (class 2) CR9, CR10, CR1 lactic acid 10 and 90 Vol%, citric acid 50 Vol%, acetic acid 50% (class 2, change of colour clearer)
Reaction to fire class	EN 13501-1	Declared value	B <sub>FL</sub> -s1

**ESSENTIAL CHARACTERISTICS FOR CE MARKING ACCORDING TO EN 1504-2 – TAB. ZA.1d; ZA.1e; ZA.1f; ZA.1g (coating C, principles PI-MC-PR-RC-IR)**

Essential characteristics	Test method	Requirements	Typical values
Abrasion resistance (TABER test): Note: testing methods for flooring systems according to EN 13813 are also acceptable Permeability to CO <sub>2</sub>	EN ISO 5470-1 EN 1062-6	Loss in weight less than 3000 mg with an H22 abrasive wheel /1,000 cycles /1,000 g load S <sub>D</sub> > 50 m	< 3000 mg > 50 m
Permeability to water vapour	EN ISO 7783-1-2	Class I: S <sub>D</sub> < 5 m (permeable to water vapour) Class II: 5 m < S <sub>D</sub> < 50 m Class III: S <sub>D</sub> > 50 m (impermeable to water vapour)	Classe II
Capillary absorption and permeability to water	EN 1062-3	w < 0,1 kg/m <sup>2</sup> ·h <sup>0,5</sup>	w < 0,1 kg/(m <sup>2</sup> ·h <sup>0,5</sup> )
Resistance to thermal shock (1x)	EN 13687-5	Rigid systems with traffic ≥ 2 N/mm <sup>2</sup>	≥ 2 N/mm <sup>2</sup>
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: We recommend using test liquids for the 20 classes indicated in EN 13529, which cover all types of the most commonly used 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	Shore D reduction < 50% Group 5a, Group 12 (class II) Group 9, 10, 11, lactic acid 10 and 90 Vol%, citric acid 50 Vol%, acetic acid 50% (class II, change of colour clearer)
Impact resistance	EN ISO 6272-1	No cracks or delamination after loading Class I: ≥ 4 Nm Class II: ≥ 10 Nm Class III: ≥ 20 Nm	Class III

Direct tensile adherence test	EN 1542	Average (N/mm <sup>2</sup> ) Crack-bridging or flexible systems without traffic: $\geq 0.8$ (0.5) <sup>b</sup> with traffic: $\geq 1.5$ (1.0) <sup>b</sup> Rigid systems <sup>c</sup> ) without traffic: $\geq 1.0$ (0.7) <sup>b</sup> with traffic : $\geq 2.0$ (1.0) <sup>b</sup>	$\geq 2$ N/mm <sup>2</sup>
Reaction to fire class	EN 13501-1	Euroclasses	B <sub>FL</sub> -s1

## Indoor Air Comfort GOLD – VOC Emission

French VOC Regulation  
(Decree of March /April 2011 modified in February 2012)



French CMR components  
(Regulation of April/May 2009)

Pass

Italian CAM Edilizia  
(DM23.06.2022 n.256, GURI n.183 06/08/2022)

Pass

AgBB  
(Regulation AgBB/DIBt)

Pass

Belgian Regulation  
(Royal decree of May 2014)

Pass

Indoor Air Comfort  
(Indoor Air Comfort 8.0 of June 2022)

Pass

Indoor Air Comfort GOLD  
(Indoor Air Comfort GOLD 8.0 of June 2022)

Pass

## 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](http://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](http://www.mapei.com).

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All relevant references for the product are available upon request and from [www.mapei.com](http://www.mapei.com)

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