

DUROFLOOR-PUC MF6

Heavy-duty, self-leveling, three-component, polyurethane-cementitious screed

Description

DUROFLOOR-PUC MF6 is a self-leveling, fast-setting flooring system, based on cement and polyurethane resins.

It offers the following advantages:

- High mechanical strength.
- Excellent chemical strength.
- Excellent adhesion to the substrate.
- May be applied on 7-days concrete.
- Quickly applied.
- Very good workability and self-leveling properties.
- Broad operating temperature range.
- Odorless and non-toxic.
- Easy-to-clean.

Certified according to EN 1504-2 and classified as a coating for surface protection of concrete. CE marked. Certificate No.: 2032-CPR-10.11. Classified as a SR-B2-AR0,5-IR10 type floor coating material according to EN 13813. Certified for safe flooring applications in food handling and processing areas (ISEGA, Germany, Certification No 48724 U 18).

Fields of application

DUROFLOOR-PUC MF6 is used in:

- Food and beverage industries.
- Pharmaceutical industries.
- Professional kitchens.
- Professional refrigerators.
- Heavy traffic floors subject to shocks.
- Areas exposed to aggressive chemical substances.
- Hospitals and labs.
- Parking spaces, etc.

Technical data

Chemical base (A+B): 2-component polyurethane resin
 Chemical base C: cementitious powder

Colors: grey *
 white *
 red **
 dark grey **
 green **
 yellow **
 buff **
 black **

* Coloring is possible **exclusively** with COLORPASTE-PUC pigment pastes.

** Coloring is possible using either **COLORPASTE-PUC pigment pastes** or **ISOMAT DECO COLOR pigment powders**.

*In any case, when applying **DUROFLOOR-PUC MF6** flooring system in a specific project, one of the two possible coloring processes should be chosen, either with **COLORPASTE-PUC** or with **ISOMAT DECO COLOR**, but in no case a combination of those two, in order to achieve a perfect color uniformity and stability.*

Density of component A: 1.0 kg/l
 Density of component B: 1.21 kg/l
 Bulk density of component C: 1.5 kg/l
 Bulk density (A+B+C): 1.8 kg/l
 Mixing ratio (A:B:C): 1:1:4.8 w/w
 Pot life: about 20 min at +20°C
 Minimum hardening temperature: +8°C
 Water permeability: (EN 1062-3) $w < 0.05 \text{ kg/m}^2 \text{ h}^{0.5}$
 Foot traffic: after 8 hrs at +23°C
 Final strength: after 4 d at +23°C
 Compressive strength: (EN 13892-2) 48.0-52.0 N/mm²
 Flexural strength: (EN 13892-2) 17.0-20.0 N/mm²
 Abrasion resistance: (EN 13892-4, BCA) < 50 µm, AR 0.5
 Shore D Hardness: > 80.0

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Adhesion strength: (EN 1542)	> 3.0 N/mm ² (concrete failure)
Impact resistance: (EN ISO 6272-1)	≤ 10 Nm, IR10
Reaction to fire (EN 13501-1):	B _{fl} - s1*
Resistance to thermal shock: (EN 13687-5):	> 2,0 N/mm ²
Resistance to severe chemical attack (EN 13529):	Class II
Thickness of application:	3-6 mm

Operating temperature range: from -40°C to +80°C, depending on the thickness of application.

*With epoxy primer EPOXYPRIMER 500 as a system. Report No 18/17898-1886, APPLUS Laboratories – LGAI, Spain, December 2018.

Resistance to chemical stress

DUROFLOOR-PUC MF6 is resistant to a large number of chemical stresses, such as:

- Organic acids, commonly used in the food industry: acetic acid, lactic acid, oleic acid, citric acid, etc.
- Other powerful acids, such as hydrochloric acid, sulphuric acid, etc.
- Variety of alkali, mineral oils and oil products
- Organic solvents, such as xylol, ethanol, ether, etc.

(Chemical resistance – Table 1)

In some cases of chemical stress, it is possible to see specks or discoloration on the final surface of DUROFLOOR-PUC MF6, depending on the consistency of the chemicals, the type of stress and the cleanliness of the floor. For more information, regarding the chemical resistance of DUROFLOOR-PUC MF6, contact ISOMAT Technical Support Department.

Directions for use

1. Substrate

The surface to be processed must be:

- Dry and solid.
- Free from materials that might impair adhesion, such as dust, loose particles, grease, etc.
- Protected from below-surface moisture.

Moreover, the following conditions must be met:

Concrete quality:	at least C20/25
Cement screed quality:	cement content 350 kg/m ³
Age:	at least 7 days

Moreover, proper preparation should be ensured depending on the nature of the substrate, such as brushing, grinding, shot blasting, milling, sandblasting, water blasting, etc. Then, the surface has to be thoroughly cleaned from dust by using a high suction vacuum cleaner.

2. Priming of the surface

The surface is primed using the water-based epoxy primer EPOXYPRIMER-500. On the still fresh layer quartz sand (Ø 0.3-0.8 mm) is spread. Consumption of quartz sand: approx. 3 kg/m².

After EPOXYPRIMER-500 has hardened, any loose grains should be removed with a high suction vacuum cleaner.

Any existing imperfections (cracks, holes) on the substrate should be filled using the epoxy stucco EPOMAX STUCCO or the epoxy paste EPOMAX-EK.

DUROFLOOR-PUC MF6 should be applied, when primer is totally dried, within 24-48 hours from its application, depending on the conditions at the jobsite. Alternatively, DUROFLOOR-PUC MF6 could be applied for priming as a scratch coat in 1mm thickness. After 24 hours, DUROFLOOR-PUC MF6 is applied on the cured scratch coat.

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Wet substrate

If the product is intended to be applied on a wet (moisture level higher than 4%) or new concrete floor (7-28 days), the surface must be primed using the two-component polyurethane primer PRIMER-PU 140. On the still fresh layer quartz sand (\varnothing 0.3-0.8 mm) is spread.

Consumption of quartz sand: approx. 3 kg/m².

After PRIMER-PU 140 has hardened, any loose grains should be removed with a high suction vacuum cleaner.

3. a' mixing method of DUROFLOOR-PUC MF6 with COLORPASTE-PUC pigments

Components of DUROFLOOR-PUC MF6 are packaged at a predefined mixing ratio.

Stir components A and B in their containers and pour them into a clean pot of about 20 l; then, mix for about 30-60 seconds using a low speed mixer (300 rpm). Following that, add 1-2 pigment bags of 300g in paste, COLORPASTE-PUC, while stirring continuously. The dosage of the pigments must be kept constant in order to achieve a uniform aesthetic effect on the application surface. Make sure to properly reach the walls and bottom of the container while stirring the three components, in order to obtain a smooth mixture. Finally, add component C and keep stirring with a low speed mixer until fully homogeneous (approx. 3-4 min.). Do not add water.

3. b' mixing method of DUROFLOOR-PUC MF6 with ISOMAT DECO COLOR pigments

Both DUROFLOOR-PUC MF6 components are packaged at a predefined mixing ratio. Stir components A and B in their containers. Then, add ISOMAT DECO COLOR pigments to component A in the right dosage (see below at **Table A**) while stirring for about 1 min. using a low speed mixer (300 rpm). Following that, pour both components into a clean pot of about 20l and mix for about 30-60 seconds using a low speed mixer (300 rpm). The dosage of the pigments must be kept constant in order to achieve a uniform aesthetic effect on the application surface.

Make sure to properly reach the walls and bottom of the container while stirring the components, in order to obtain a smooth mixture.

Finally, add component C and keep stirring with a low speed mixer until fully homogeneous (approx. 3-4 min.). Do not add water.

Remark:

When applying DUROFLOOR-PUC MF6 flooring system in a specific project, one of the two possible coloring processes should be chosen, either with COLORPASTE-PUC or with ISOMAT DECO COLOR, but in no case a combination of those two, in order to achieve a perfect color uniformity and stability.

4. Application

DUROFLOOR-PUC MF6 is applied right after mixing the components, using a notched trowel. The self-leveling layer should be rolled using a special spiked roller, to help trapped air escape.

This way a bubble-free layer of uniform thickness is achieved. Applying DUROFLOOR-PUC MF6 on surfaces exposed to sun radiation does not affect the mechanical and chemical stresses of the material, but it could bring out variations in the final color (light color shades could become yellowish).

Tool cleaning:

Tools must be thoroughly cleaned with SM-16 right after use. Any hardened material can only be removed mechanically.

Consumption

Approx. 1.8 kg/m²/mm of layer thickness.

Packaging

DUROFLOOR-PUC MF6 is available in 34 kg packaging (A+B+C) in the following mixing ratios:

Component A:	5.0 kg
Component B:	5.0 kg
Component C:	24.0 kg

Shel life – Storage

12 months from production date in sealed packaging, stored in cool and dry conditions.

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Remarks

- The processing time of DUROFLOOR-PUC MF6 is significantly affected by ambient temperature. The ideal temperature of application is between +15°C and +20°C, in order to ensure optimal workability and curing time. Low room temperature (<+15°C) will delay the curing time, while at higher temperatures (>+20°C), curing takes place much faster. It is recommended to mildly preheat the materials during winter, and to store them in a cool room before use in the summer. Especially for component A (isocyanate), exposure to temperatures below 5°C during transport or storage can cause increase of the viscosity or even crystallization (in case of extremely low temperatures), depending on the time of the exposure and the minimum temperature at which the material was exposed. The process is reversible (by storing the material at room temperature and waiting for the viscosity to return to normal before application) and does not affect the properties and performance of the material.
- Before applying the material on cementitious substrates, contraction-expansion joints should be placed at every 25 m² and filled with proper elastic materials after the end of the application.
- After application, the fresh surface of DUROFLOOR-PUC MF6 must be protected for about 4-6 hours (depending on the weather conditions) from moisture, as it may adversely affect the final finishing of the material and disrupt the hardening.
- Do not mix DUROFLOOR-PUC MF6 with other binding materials (e.g. cement, gypsum, lime) or other additives, such as solvents.
- Do not use the mix that has already begun to set in the mixing tank.
- DUROFLOOR-PUC MF6 is not applied on metal surfaces, tile surfaces, wooden or asphalt substrates and lightweight concrete.
- After hardening, DUROFLOOR-PUC MF6 is totally harmless.
- Please consult the safety instructions written on the packaging before use.
- DUROFLOOR-PUC MF6 is intended for professional use only.

Volatile Organic Compounds (VOCs)

According to Directive 2004/42/CE (Annex II, table A), the maximum allowed VOC content for the product subcategory j, type WB is 140 g/l (2010) for the ready-to-use product.

The ready-to-use product DUROFLOOR-PUC MF6 contains a maximum content of 140 g/l VOC.

Mixing ratio of ISOMAT DECO COLOR per 34kg DUROFLOOR-PUC MF6

TABLE A

Red	4 B	4 x 50g red-brown ISOMAT DECO COLOR
Dark Grey	1 C	1 x 50g black ISOMAT DECO COLOR
Green	4 F	4 x 50g green ISOMAT DECO COLOR
Yellow	4 E	4 x 50g ochre ISOMAT DECO COLOR
Buff	0.5 E	25g ochre ISOMAT DECO COLOR
Black	4 C	4 x 50g black ISOMAT DECO COLOR

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CHEMICAL RESISTANCE DUROFLOOR-PUC MF6

TABLE 1

Chemical Compound	Observations after 28 days exposure
Hydrochloric acid (37% w/w)	Slight discoloration
Nitric acid (40% w/w)	Intense discoloration
Lactic acid (90% w/w)	No effect noticed
Xylene (100% w/w)	No effect noticed
Acetic acid (30% w/w)	Slight discoloration
Sulfuric acid (50% w/w)	No effect noticed
Oleic acid (50% w/w)	No effect noticed
Citric acid (30% w/w)	No effect noticed

TABLE ACCORDING TO EN 1504-2 (CLASS II)

Test group (EN 13529)	Description	Observations after 28 days exposure
1	Petrol	No blistering, flaking or cracking after 28 days. Slight discoloration
2	Aviation fuel	No blistering, flaking or cracking after 28 days. Slight discoloration
4	All hydrocarbons incl. group 2 and 3 except 4 a and 4 b and used motor and gear oils	No blistering, flaking or cracking after 28 days. Slight discoloration
4a	Benzene and benzene containing mixtures (incl. 2 – 4 b)	No blistering, flaking or cracking after 28 days. Slight discoloration
5	Mono- and polyalcohols (up to 48 Vol.-% methanol), glycol ethers	No blistering, flaking or cracking after 28 days. Slight discoloration
5a	All alcohols and glycol ethers (incl. 5)	No blistering, flaking or cracking after 28 days. Slight discoloration

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6	Halogenated hydrocarbons (incl. 6 b)	No blistering, flaking or cracking after 28 days. Slight discoloration
6a	All aliphatic halogenated hydrocarbons (incl. 6 and 6 b)	No blistering, flaking or cracking after 28 days. Slight discoloration
6b	Aromatic halogenated hydrocarbons	No blistering, flaking or cracking after 28 days. Slight discoloration
7	All organic esters and ketones (incl. 7 a)	No blistering, flaking or cracking after 28 days. Slight discoloration
8	Aliphatic aldehydes	No blistering, flaking or cracking after 28 days. Slight discoloration
9	Aqueous solutions of organic acids up to 10 %	No blistering, flaking or cracking after 28 days. Slight discoloration
9a	Organic acids (except formic acid) and their salts (in aqueous solution)	Slightly blistering and discoloration
10	Inorganic acids up to 20 % and acidic hydrolysing salts in aqueous solution (pH < 6) except hydrofluoric acid and oxidizing acids and their salts	No blistering, flaking or cracking after 28 days. Slight discoloration
11	Inorganic bases and their alkaline hydrolysing salts in aqueous solution (pH > 8) except solutions of ammonium and oxidizing solutions of salts (e. g. hypochloride)	No blistering, flaking or cracking after 28 days. Slight discoloration
12	Solutions of inorganic non-oxidizing salts showing a pH = 6 – 8	No blistering, flaking or cracking after 28 days. Slight discoloration
13	Amines and their salts (in aqueous solution)	Blistering and softening followed by destruction of coating
15	Cyclic and acyclic ethers	Flaking and discoloration
15a	Acyclic ethers	No blistering, flaking or cracking after 28 days. Slight discoloration

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CE
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<p style="text-align: center;">EN 13813 SR-B2,0-AR0,5-IR10</p> <p>DoP No.: DUROFLOOR PUC MF6 /1281-01</p> <p>Synthetic resin screed material for use internally in buildings</p> <p>Reaction to fire: B_{fl} - s1</p> <p>Release of corrosive substances: SR</p> <p>Water permeability: NPD</p> <p>Wear resistance: AR0,5</p> <p>Bond strength: B2</p> <p>Impact resistance: IR10</p> <p>Sound insulation: NPD</p> <p>Sound absorption: NPD</p> <p>Thermal resistance: NPD</p> <p>Chemical resistance: NPD</p>

CE
2032
ISOMAT S.A. 17 th km Thessaloniki – Ag. Athanasios P.O. BOX 1043, 570 03 Ag Athanasios, Greece 18
<p style="text-align: center;">2032-CPR-10.11</p> <p>DoP No.: DUROFLOOR-PUC MF6 / 1283-01</p> <p style="text-align: center;">EN 1504-2</p> <p style="text-align: center;">Surface protection products</p> <p style="text-align: center;">Coating</p> <p>Permeability to CO₂: Sd > 50m</p> <p>Water vapor permeability: Class I (permeable)</p> <p>Abrasion resistance: AR 0.5</p> <p>Impact resistance: Class II</p> <p>Resistance to severe chemical attack: Class II</p> <p>Resistance to thermal shock: ≥ 2.0 N/mm²</p> <p>Capillary absorption: w < 0.1 kg/m²·h^{0.5}</p> <p>Adhesion: ≥ 2.0 N/mm²</p> <p>Reaction to fire: B_{fl} - s1</p> <p>Dangerous substances comply with 5.3</p>

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