Technical Datasheet

DUROFLOOR-PU 211

Two-component, solvent-free, self-leveling, polyurethane floor coating

Description

DUROFLOOR-PU 211 is a two-component, solvent-free, colored, polyurethane system, for indoor applications. DUROFLOOR-PU 211 may also be used in outdoor applications, using an aliphatic polyurethane paint as protection.
It offers the following advantages:

- High mechanical strength.
- Hard-elastic properties.
- Good reaction to chemical stresses.
- Excellent adhesion to the substrate by using a proper primer.
- Very good workability and self-leveling properties.
- Low VOCs.
- Able to create an anti-slip final floor surface.
- Easy-to-clean.
- Operating temperature ranges from -40°C to +80°C.

Certified according to EN 1504-2 and classified as coating for surface protection of concrete. Certificate No: 2032-CPR-10.11.
Also certified according to EN 13813 and classified as SR-B2,0-AR0,5-IR4. CE marked.
Certified for safe flooring applications in food handling and processing areas (ISEGA, Germany, Certification No 52987 U 20).

Fields of application

DUROFLOOR-PU 211 is used by adding M32 quartz sand, as a self-leveling coating. It can also be used without adding quartz sand, as a self-leveling floor coating in thin layer. It is suitable for:

- Industrial storage and production spaces.
- Professional kitchens.
- Professional refrigerators and freezers.
- Hospitals and labs.
- Craft industries and warehouses.
- Exhibition areas and shops.
- Office spaces.
- Car repair workshops.
- Parking spaces etc.

It complies with LEED requirements (Rule 1113 – SCQAMD) regarding Volatile Organic Compound (VOC) Limits, categorized as Industrial Maintenance (IM) coatings, Code 19, VOC Limit: <100 g/l.

Technical data

Chemical base:	2-component polyurethane resin
Colors:	RAL 7040 Other colors upon order

As a self-leveling floor coating at application thickness of >1 mm, by adding M32 quartz sand at a ratio of 1:0.7 by weight

Viscosity:	≈ 5,500 mPa.s at +23ºC
Density:	1.58 kg/l
Pot life:	≈ 25 min at +20ºC
Reaction to fire (EN 13501-1):	F_{fl}
Minimum hardening temperature:	+8ºC
Hardness according to SHORE D:	74
Foot traffic:	after 8 h at +23ºC
Coating:	after 24 h at +23ºC
Final strengths:	after 7 days at +23ºC
Abrasion resistance: (BCA method EN 13892-4)	AR 0.5
Impact resistance: (EN ISO 6272)	IR6
Compressive strength: (EN 13892-2)	> 45 N/mm^2
Flexural strength: (EN 13892-2)	> 25 N/mm^2
Adhesion strength:	> 3 N/mm^2 (concrete breaking)

As a self-leveling floor coating at application thickness of about 1 mm without adding quartz sand

Viscosity:	≈ 2,000 mPa.s at +23ºC
Density:	1.25 kg/l

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Mixing ratio (A:B):	100:30 by weight
Pot life:	≈ 25 min at +20ºC
Minimum hardening temperature:	+8ºC
SHORE D Hardness:	70
Foot traffic:	after 8 h at +23ºC
Coating:	after 24 h at +23ºC
Final strengths:	after 7 days at +23ºC
Abrasion resistance: (BCA method, EN 13892-4)	AR 0,5
Impact resistance: (EN ISO 6272)	IR4
Tensile strength: (EN ISO 527-3)	> 17 N/mm^2
Film elongation at break: (EN ISO 527-3)	> 40%
Adhesion strength:	> 3 N/mm^2 (concrete breaking)

Tool cleaning:
Tools must be thoroughly cleaned using the solvent SM-28 right after use.

Directions for use

1. Substrate preparation
The surface of the floor must be:
- Dry and solid.
- Free from materials obstructing bonding, such as dust, loose particles, grease, etc.
- Protected from below-surface moisture.

Moreover, the following conditions must be met:

a) Cementitious substrates:

Concrete quality:	at least C20/25
Cement screed quality:	cement content 350 kg/m^3
Age:	at least 28 days
Moisture content:	less than 4%

b) Iron and steel surfaces:
They should be free from rust or any type of corrosion that prevents bonding.
Moreover, depending on the nature of the substrate, proper preparation should be ensured, 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
The surface is primed using the epoxy primer DUROFLOOR-PSF.
Consumption: 200-300 g/m^2.

After the primer has dried, any existing imperfections (cracks, holes) on the substrate should be filled using DUROFLOOR-PSF, mixed with quartz sand, with a particle size of 0-0.4 mm (or Q35 sand) at a ratio of 1:2 to 1:3 by weight.
Metal surfaces should be primed using the anticorrosive epoxy coating EPOXYCOAT-AC.
DUROFLOOR-PU 211 should be applied within 24 hours from priming.
If DUROFLOOR-PU 211 is intended to be applied after the first 24 hours from priming, the surface must be dusted with quartz sand (0.4-0.8 mm particle size), while the primer is still fresh, in order to ensure good bonding. After the primer has hardened, any loose sand grains should be removed using a high suction vacuum cleaner.

Wet substrate
If the product is intended to be applied on a wet cementitious floor (moisture levels higher than 4%), the surface must be primed using the two-component PRIMER-PU 140 polyurethane primer or the two-component epoxy primer DUROPRIMER-SG.

3. Mixing of DUROFLOOR-PU 211
Components A (resin) and B (hardener) are packaged in two separate containers, at a predefined mixing ratio. Firstly, component A must be stirred well and poured into a clean container.

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Then, the entire content of component B is added to component A while stirring continuously. The two components should be mixed for about 3 minutes using a low speed mixer (300 rpm).
Make sure to properly reach the walls and bottom of the container while stirring, in order for the hardener to be uniformly dispersed. If DUROFLOOR-PU 211 is intended to be used as a self-leveling layer at a thickness higher than 1 mm, add M32 quartz sand at a ratio of 1:0.7 by weight (polyurethane resin to quartz sand), and keep stirring for about 3 minutes using a low speed mixer (300 rpm), until the resin mortar is completely uniform.

4. Application – Consumption
In any case, after mixing DUROFLOOR-PU 211, the material must be left to settle for about 2-3 minutes. After that, it can be applied. Depending on the type of the floor and the desired form of the final surface, we can consider the following two application cases:

a) Self-leveling flooring – Smooth final surface
The resin mortar is applied by combing strokes, using a notched trowel at a thickness of > 1 mm.
Consumption of DUROFLOOR-PU 211 (A+B): 0.93 kg/m^2/mm.
Consumption of M32 quartz sand: 0.65 kg/m^2/mm.

The self-leveling layer should be rolled using a special spiked roller, to help trapped air escape. This way, we avoid the formation of bubbles.

b) Self-leveling flooring (without adding quartz sand) – Smooth final surface
DUROFLOOR-PU 211 (A+B) is applied by combing strokes, using a notched trowel at a thickness of about 1 mm.
Consumption of DUROFLOOR-PU 211 (A+B): 1.25 kg/m^2/mm.

The self-leveling layer should be rolled using a special spiked roller to help trapped air escape. This way, we avoid the formation of bubbles.

c) Slip-resistant final surface
A new DUROFLLOR-PU 211 layer is applied to the hardened surface of DUROFLOOR-PU 211, with a consumption of approx. 300 g/m².

Then, quartz sand (M32 sand or 0.1-0.4mm particle size sand) is broadcast to saturation into the still fresh layer, to achieve the desired anti-slip effect.
Consumption of quartz sand: 3-4 kg/m^2.
After DUROFLOOR-PU 211 has hardened, any loose grains should be removed with a high suction vacuum cleaner. Finally, a finishing layer of DUROFLOOR-PU 211 is applied.
Consumption: 150-250 g/m^2.

In outdoor applications of DUROFLOOR-PU 211, the above process for a slip-resistant surface is carried out in the same way, with the aliphatic polyurethane coating DUROFLOOR-PU used as a final protective layer.

Packaging

DUROFLOOR-PU 211 is supplied in 16 kg containers (A+B). Components A and B are provided in predetermined mixing ratios by weight. M32 quartz sand is available in 25 kg bags.

Shelf life – Storage

12 months from production date in its original, unopened packaging, stored in areas protected from moisture and sunlight. Recommended storage temperature: +5°C to +35°C.

Remarks

- The processing time of polyurethane systems is affected by ambient temperature. The ideal temperature of application is between +15°C and +25°C, in order to ensure optimal workability and curing time. Low room temperature (<+15°C) will delay the curing time, while at higher temperatures (>+30°C), curing takes place faster. It is recommended to mildly preheat the materials during winter, and to store them in a cool room before use in the summer.
- Bonding between successive layers may be severely affected by moisture or dirt.
- In case recoat time is longer than expected or old floors are to be overlaid again, the substrate should be thoroughly cleaned and ground before applying the new layer.

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- During the application of DUROFLOOR-PU 211, substrate temperature must be at least 3 degrees higher than dew point.
- Applying different manufacturing codes of DUROFLOOR-PU 211 in the same project may bring about color variations.
- After hardening, DUROFLOOR-PU 211 is totally harmless.
- Please consult the safety instructions written on the packaging before use.
- DUROFLOOR-PU 211 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-PU 211 contains a maximum content of 140 g/l VOC.

CE

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EN 13813 SR-B2,0-AR0,5-IR4

Synthetic Resin screed material for use internally in buildings

DoP No.: DUROFLOOR-PU 211/1870-01

Reaction to fire: F

Release of corrosive substances: SR

Water permeability: NPD

Wear resistance: AR0,5

Adhesion: B2,0

Impact resistance: IR4

Sound insulation: NPD

Sound absorption: NPD

Thermal resistance: NPD

Chemical resistance: NPD

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2032-CPR-10.11

DoP No.: DUROFLOOR-PU 211 / 1877-01

EN 1504-2

Surface protection products

Coating

Permeability to CO_2: Sd > 50m

Water vapor permeability: Class I (permeable)

Capillary absorption: w < 0.1 kg/m^2·h$^{0.5}$

Adhesion: ≥ 0.8 N/mm^2

Reaction to fire: Euroclass F

Dangerous substances comply with 5.3

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