Technical Datasheet

# Ecodur PU 320

## Medium to heavy duty, self-leveling Polyurethane hybrid flooring screed

### Description

**Ecodur PU 320** is a self-leveling, fast- setting flooring system, based on Polyurethane resins and fillers.

- It offers the following advantages:
- High mechanical strength
- Excellent chemical resistance
- Excellent adhesion to the substrate
- May be applied to 7-days concrete
- Quick application
- 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.

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.: 53641 U20).concrete.

### Fields of application

**Ecodur PU 320** 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) | Aggregates and active fillers |
| Colour:<br>Coloring is possible using SUPERCRETE DECO-COLOR pigments in both powder form & Liquid paste form | |
| Density of part A: | 1.0 kg/l |
| Density of part B: | 1.21 kg/l |
| Bulk density of Part C | 1.5 kg/l |
| Bulk density (A+B+C): | 1.8 kg/l |
| Mixing ratio (A:B:C): | 2.5 : 2.8 : 10.7 w/w |
| Pot life: | ~ 20 min at +25°C |
| Minimum hardening temperature: | +8°C |
| Water permeability: (EN 1062-3) | w < 0.05 kg/m$^2$ h$^{0.5}$ |
| Foot traffic: | after 8 hrs at +25°C |
| Final strength: | after 4 days at +25°C |
| Compressive strength: (EN 13892-2) | 48.0 - 52.0 N/mm$^2$ |
| Flexural strength: (EN 13892-2) | 17.0 - 20.0 N/mm$^2$ |
| Abrasion resistance: (EN 13892-4, BCA) | < 50 µm, AR 0.5 |
| Shore D Hardness: | > 80.0 |
| 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): | Bfl - s1* |

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|---|---|---|
| Resistance to thermal shock: *(EN 13687-5):* | ~ | > 2,0 N/mm$^2$ |
| Resistance to severe chemical attack: (EN 13529): | | Class II |
| Application thickness: | | 3 - 6 mm |

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

### Resistance to chemical stress

**Ecodur PU 320** 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 **Ecodur PU 320** 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 **Ecodur PU 320** contact SUPER-CRETE Technical Support Department.

## Directions to use

### Substrate preparation

The surface to be treated must be:

- Dry and stable.
- Free of materials that might impair bonding,e.g. dust, loose particles, grease, etc.
- Protected from underneath moisture attack.

Also, it should meet the following requirements:

Concrete quality: at least C20/25

Cement screed quality: cement content 350 kg/m3 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..

### Priming of the surface

The surface is primed using the water-based epoxy primer ECODUR EP PRIMER. On the still fresh layer quartz sand (Ø 0.3-0.8 mm) is spread. Consumption of quartz sand: approx. 3 kg/m$^2$.

After ECODUR EP PRIMER 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 EPISEAL EK3 or the epoxy paste EPISEAL TX.

**Ecodur PU 320** should be applied, when primer is totally dried, within 24-48 hours from its application, depending on the conditions at the jobsite. Alternatively, **Ecodur PU 320** could be applied for priming as a scratch coat in 1mm thickness. After 24 hours, **Ecodur PU 320** is applied on the cured scratch coat.

### Mixing

**Ecodur PU 320** components are delivered in pre-weighed packages with fixed mixing ratio. Stir components A and B in their containers. Then, add DECO-COLOR pigments to component A in the right dosage while stirring for about 1 min using a low speed mixer (300 rpm).

Following that, pour both components into a clean drum 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.

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

### Application

**Ecodur PU 320** 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 **Ecodur PU 320** 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).

## Consumption

Approx. 1.8 kg/m$^2$/mm of layer thickness.Dry and stable.

## Packaging

**Ecodur PU 320** is available in 24 kg packaging (A+B+C) in the following mixing ratios:

Component A: 5 kg
Component B: 5.6 kg
Component C: 21.4 kg

## Shelf Life - Storage

12 months from production date if stored in original sealed packaging, in areas protected from humidity and direct sunlight.
Recommended storage temperature between +5°C and +35°C.

## Remarks

- 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.
- Do not use the mix that has already begun to set in the mixing tank.
- After application, the fresh surface of **Ecodur PU 320** 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 **Ecodur PU 320** with other binding materials (e.g. cement, gypsum, lime) or other additives, such as solvents.
- **Ecodur PU 320** is not applied on metal surfaces, tile surfaces, wooden or asphalt substrates and lightweight concrete.
- After hardening, **Ecodur PU 320** is totally harmless.
- Please consult the safety instructions written on the packaging before use.
- **Ecodur PU 320** is intended for professional use only.

## Health & safety

Avoid direct contact with this product. Use of safety glasses, rubber gloves, and protective clothing is recommended. If contact occurs, wash affected areas with mild soap and water. Keep product out of reach of children.

Refer to Safety Data Sheet for complete health and safety information.

## Chemical Resistance

| 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 1)*

| 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 mixture (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 |
| 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) | Slight 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 |