Technical leaflet

ISOFLEX-PU 500

Polyurethane, one component, waterproofing liquid membrane

Description

ISOFLEX-PU 500 is a one-component polyurethane, waterproofing liquid membrane for flat roofs, offering:

- Excellent mechanical, chemical, thermal, UV and weather resistance properties, as it is based on pure, elastomeric, hydrophobic, polyurethane resins.
- A uniform, elastic, waterproof, vapor-permeable sealing layer, without forming seams or joints.
- Excellent bonding to various substrates like concrete, cement mortars, wood and most waterproofing layers.
- Applicability, even on irregular substrates.
- Suitability for green roofs, flower beds, etc.
- Availability in white or other colors. When a dark color of ISOFLEX-PU 500 has been chosen as an exposed layer, it is necessary to cover it with a layer of TOPCOAT-PU 720 of the same color.

Certified with the CE marking as a coating for surface protection of concrete, according to EN 1504-2. Certificate Nr. 2032-CPR-10.11.

In addition, the product has been checked according to the requirements of ETAG-005 and is classified as: W3, S, TL4-TH4, P4 special, which means that its expected working life is 25 years under the worst control conditions, as these are defined by the standard concerning the user loads (P4), the climatic zone (S) and the resistance to maximum and minimum operating temperatures (TL4-TH4).
ISOFLEX-PU 500 is certified as root resistant according to UNE CEN/TS 14416 EX: 2014.

Fields of application

ISOFLEX-PU 500 is ideal for waterproofing:

- Flat roofs and balconies as an exposed waterproofing membrane.
- Underneath tile layers in kitchens, bathrooms, balconies and flat roofs, as long as quartz sand has been broadcasted on its last layer.
- Under thermal insulation boards on flat roofs.
- In construction works, such as highways, bridge decks, tunnels etc.
- Foundations.
- Gypsum and cement boards.
- Old layers of bituminous or EPDM membranes.
- Polyurethane foam.
- Metal surfaces.

Technical data

1. Properties of the product in liquid form

Form:	pre-polymer polyurethane
Colors:	white, grey
Density:	1.39 kg/l
Viscosity:	4,000 ± 500 mPa·sec (at +23^{0}C)

2. Properties of the cured membrane

Elongation at break: (ASTM D 412)	(900 ± 80)%
Tensile strength: (ASTM D412)	6.4 N/mm^2
Hardness according to SHORE A:	75 ± 3
Water impermeability: (DIN 1048)	5 atm

<u>According to ETAG-005:</u>

Expected working life:	W3 (25 years)
Climatic zone:	S (Severe)

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	Severe
Annual radiant exposure on horizontal surface	≥ 5 GJ/m^2
Average temperature of the warmest month per year	≥ 22°C

Minimum surface temperature: TL4

Maximum surface temperature: TH4

Operating temperature: from -40^{0}C to +90^{0}C

User load: P4

Category	**User load**	**Examples of accessibility**
P1	Low	Non-accessible.
P2	Moderate	Accessible for maintenance of the roofing only
P3	Normal	Accessible for maintenance of plant and equipment and to pedestrian traffic.
P4	Special	Roof gardens, inverted roofs, green roofs.

According to EN 1504-2:

Capillary absorption: (EN 1062-3, requirement of EN 1504-2: w < 0.1) — 0.01 kg/m^2·h$^{0.5}$

CO_2 permeability to: (EN 1062-6) — Sd > 50 m

Water vapor permeability: (EN ISO 7783-2, permeable, Class I < 5m) — Sd = 0.72 m

Adhesion: (EN 1542, requirement for flexible systems without trafficking: 0.8 N/mm^2) — > 2.0 N/mm^2

Artificial weathering: (EN 1062-11, after 2000h) — Pass (no blistering, cracking or flaking)

Reaction to fire: (EN 13501-1) — Euroclass F

Directions for use

1. Substrate preparation

In general, the substrate must be dry (moisture content < 4%), clean, free of grease, loose particles, dust etc.

1.1 Concrete substrates

Any existing cavities in concrete should be filled with the appropriate repairing materials in advance.

Intense cracks on the substrate must be sealed with the polyurethane sealants FLEX-PU 20/30 S/40/50 S.

Concrete and other porous surfaces with moisture content < 4% should be treated with the special primer PRIMER-PU 100, at a consumption of approx. 200 g/m^2.

Substrates with moisture content > 4% should be primed with the special epoxy primer – vapor barrier DUROPRIMER-SG, at a consumption of 600-1000 g/m^2.

1.2 Smooth and non-absorptive substrates

Smooth and non-absorptive substrates, as well as bituminous membranes or old waterproofing layers, must be primed with the water-based epoxy primer EPOXYPRIMER 500, thinned with water up to 30% by weight. The product is applied by brush or roller in one coat.

Consumption: 150-200 g/m^2.

Depending on the weather conditions, ISOFLEX-PU 500 is applied within 24-48 hours from priming, as soon as the moisture content falls below 4%.

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1.3 Metal surfaces
Metal surfaces should be:

- Dry and clean.
- Free of grease, loose particles, dust etc. that may hinder adhesion.
- Free of rust or corrosion that may hinder adhesion.

The substrate should be prepared by brushing, rubbing, sandblasting etc. and then thoroughly cleaned from dust. ISOFLEX-PU 500 may be applied without prior priming.

2. Application-Consumption
Before the application, it is recommended to slightly stir ISOFLEX-PU 500, until it becomes homogeneous. Extensive stirring should be avoided, in order to prevent air entrapment in the material.

a) Total waterproofing of the surface
ISOFLEX-PU 500 is applied by brush or roller in 2 layers. The first layer is applied 2-3 hours after priming and while PRIMER-PU 100 is still tacky. The second layer should be applied crosswise after 8-24 hours, depending on the weather conditions.
Consumption: approx. 1.0-1.5 kg/m^2, depending on the substrate.
In case of dense, multiple cracks all over the surface, it is strongly recommended to thoroughly reinforce ISOFLEX-PU 500 membrane with 100 cm wide strips of polyester fleece (60 g/m^2). These placed strips must overlap one another by 5-10 cm. In detail, 2-3 hours after priming, the first layer of ISOFLEX-PU 500 is applied, in order to cover the reinforcement (to a width of 100 cm), and while still fresh, a strip of polyester fabric is embedded. The same application procedure is followed in the remaining surface.
Then, two extra layers of ISOFLEX-PU 500 are applied on the entire surface.
Consumption: approximately 2.0-2.25 kg/m^2, depending on the substrate and type of reinforcement.

b) Local waterproofing of cracks
In this case, the primer is applied on the substrate only along the cracks, to a width of 10-12 cm. 2-3 hours after priming, the first ISOFLEX-PU 500 layer is applied and, while still fresh, a 10 cm wide polyester fleece (60 g/m^2) is embedded lengthwise. Two extra ISOFLEX-PU 500 layers are applied along the cracks, completely covering the reinforcement.
Consumption: approximately 200-250 g/m of crack length.

c) Waterproofing under tiles

ISOFLEX-PU 500 is applied by brush or roller in 2 layers.
ISOFLEX-PU 500 should be locally reinforced along joints and wall-floor junctions, by embedding a 10 cm wide polyester fleece (60 g/m^2) on its first layer, while it is still fresh. Then, two extra ISOFLEX-PU 500 layers are applied along the cracks, completely covering the reinforcement.
After applying the final layer and while this is still fresh, quartz sand *(Ø* 0.3-0.8 mm*)* must be broadcasted. The quartz sand must be completely dry.
Consumption of quartz sand: approx. 3 kg/m^2.
After ISOFLEX-PU 500 has hardened, any loose grains should be removed with a vacuum cleaner.
Tiles should be fixed with a high-performance, polymer-modified tile adhesive, like ISOMAT AK 22, ISOMAT AK 25, ISOMAT AK-ELASTIC, ISOMAT AK-MEGARAPID.

Tools should be cleaned with SM-16 solvent, while ISOFLEX-PU 500 is still fresh.

Packaging

ISOFLEX-PU 500 is supplied in metal containers of 1 kg, 6 kg and 25 kg.

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Storage

12 months from production date, if stored in original, unopened packaging, at temperatures between +5°C and +35°C. Protect from direct sun exposure and frost.

Remarks

- In case of application by spraying, it may be diluted, depending on the weather conditions, up to 10%, only with the special solvent SM-16.
- ISOFLEX-PU 500 is not suitable for contact with chemically treated water of swimming pools.
- Temperature during the application and hardening of the product should be between +8°C and +35°C.
- The consumption of ISOFLEX-PU 500 should not exceed 750 g/m^2 per layer.
- Unsealed packages should be used as soon as they are opened and cannot be restored.

Volatile Organic Compounds (VOCs)

According to the Directive 2004/42/CE (Annex II, table A), the maximum allowed VOC content for the product subcategory i, type SB is 500 g/l (2010) for the ready-to-use product. The ready-to-use product ISOFLEX-PU 500 contains a maximum of 500 g/l VOC.

CE

2032

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2032-CPR-10.11
DoP No.: ISOFLEX-PU 500/1810-01
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

Artificial weathering: Pass

Reaction to fire: Euroclass F

Dangerous substances comply with 5.3

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