Technical Datasheet

ISOFLEX-PU 510

One-component, polyurethane, liquid waterproofing membrane

Description

ISOFLEX-PU 510 is a one-component, polyurethane, liquid waterproofing membrane.

- Offers excellent mechanical, chemical, thermal, UV and weather resistance properties, as it is based on pure, elastomeric, hydrophobic polyurethane resins.
- Forms a continuous, elastic, waterproof and vapor-permeable membrane, without seams or joints.
- Has strong adhesion to a variety of substrates, including concrete, screed, and existing acrylic or hybrid liquid waterproofing membranes.
- Application is possible even to irregular substrates.
- Constitutes an affordable and reliable waterproofing solution.
- When a dark color of ISOFLEX-PU 510 is selected for use as an exposed layer, it is necessary to cover it with TOPCOAT-PU 710 or TOPCOAT-PU 720 in the same color.

ISOFLEX-PU 510 (white) has been successfully tested by a third-party laboratory for its high solar reflectance, which improves building energy efficiency and, in turn, reduces cooling costs, making it an ideal solution for cool roofs.
Certified according to EN 1504-2 and classified as a coating for surface protection of concrete. CE marked. Certificate No.: 2032-CPR-10.11.
The product has been successfully tested in accordance with the requirements of EAD 030350-00-0402 and is classified as W3, S, TL4-TH4, P4 (Special). This classification indicates an expected working life of 25 years under the most severe conditions defined in the EAD with regard to the user loads (P4), the climatic zone (S), and the minimum and maximum surface temperatures (TL4-TH4).
Technical Assessment Report - SOCOTEC No.: 241168080000013, valid until 31/07/2028.
Also successfully tested by a third-party laboratory for resistance to root penetration, according to CEN/TS 14416:2014.
ISOFLEX PU 510 has received an Environmental Product Declaration (EPD) following an assessment of its life-cycle environmental impacts. Registration No: EPD-IES-0016960, The International EPD® System.

Fields of application

ISOFLEX-PU 510 is suitable for waterproofing:

- Flat roofs and balconies as an exposed waterproofing membrane
- Green roofs and flower beds
- Under tiles in kitchens, bathrooms, balconies and flat roofs, as long as quartz sand has been broadcast 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 membranes
- Polyurethane foam
- Metal surfaces

Technical data

1. Properties of the product in liquid form

Form:	polyurethane prepolymer
Colors:	white, other colors upon order
Density:	1.44 kg/l
Viscosity:	5,500 ± 500 mPa·s (+23°C)

2. Properties of the cured membrane

Elongation at break: (ASTM D 412 / EN 527-3)	> 450%
Tensile strength: (ASTM D 412 / EN 527-3)	> 6.0 N/mm^2
SHORE A hardness:	80 ± 2
Water impermeability: (DIN 1048)	5 atm
Solar Reflectance (SR): (ASTM E903-96, ASTM G159-98)	84%
Infrared Emittance ε (±0,02): (ASTM C1371-04a)	0.90
Solar Reflectance Index: (SRI) (ASTM E1980-01)	106
Service temperature:	from -40°C to +90°C

ISOFLEX-PU 510

Crack-bridging according to:

EN 1062-7
(Method A): ≥ 3 mm
(Class A5 > 2.5 mm)

According to EAD 030350-00-0402:

Expected working life: W3 (25 years)

Climatic zone: S (Severe)

	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 (-30°C)

Maximum surface temperature: TH4 (+90°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: 0.01 kg/m^2·h$^{0.5}$
(EN 1062-3, requirement of
EN 1504-2: w < 0.1)

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

Water vapor permeability: Sd = 0.82 m
(permeable,
EN ISO 7783-2, Class I < 5m)

Adhesion: > 2.0 N/mm^2
(EN 1542, requirement
for flexible systems with no traffic:
0.8 N/mm^2)

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

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

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.
Severe cracks in the substrate must be primed locally and after 2-3 hours (depending on the weather conditions) must be sealed with the polyurethane sealants FLEX PU-30 S or FLEX PU-50 S.
Concrete and other porous surfaces with moisture content < 4% should be treated with the special primer PRIMER-PU 100 with a consumption of approx. 200 g/m^2.
Surfaces with moisture content > 4% should be primed with the special two-component polyurethane primer PRIMER-PU 140 with a consumption of 100-250 g/m^2.

1.2 Smooth and non-absorbent substrates
Smooth and non-absorbent surfaces, bituminous waterproofing membranes coated with granules and existing acrylic or hybrid liquid waterproofing membranes 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 510 is applied within 24-48 hours from priming, as soon as the moisture content falls below 4%.

1.3 Metal surfaces
Metal surfaces should be:
- Dry and clean.
- Free of grease, loose particles, dust, rust, corrosion, etc. that might impair adhesion.

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Having been prepared by brushing, rubbing, sandblasting, etc., and then thoroughly cleaned from dust, metal surfaces are primed with the EPOXYCOAT-AC anti-corrosion epoxy coating in 1 or 2 layers. EPOXYCOAT-AC is applied by roller, brush or spray. The second layer should be applied after the first has dried but within 24 hours.
Consumption: 150-200 g/m^2/layer.

ISOFLEX-PU 510 should be applied within the next 24-48 hours.

2. Application – Consumption
Before application, it is recommended to slightly stir ISOFLEX-PU 510 until fully homogeneous. Prolonged stirring should be avoided to prevent air entrapment.

a) Full-surface waterproofing
ISOFLEX-PU 510 is applied by brush or roller in two 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 h, depending on the weather conditions.
Consumption: 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 fully reinforce ISOFLEX-PU 510 membrane with 100 cm wide polyester fleece strips (60 g/m^2 or 120 g/m^2), which must overlap each other by 5-10 cm. Two-three hours after priming, the first layer of ISOFLEX-PU 510 is applied to a width of 100 cm and while still fresh a strip of polyester fleece is embedded. The same application process is followed in the remaining surface.
Two extra layers of ISOFLEX-PU 510 are applied over the entire surface.
Consumption: >2.50 kg/m^2, depending on the substrate.

b) Local waterproofing of cracks
In this case, the primer is applied on the substrate only across the cracks to a width of 10-12 cm. Two-three hours after priming, the first ISOFLEX-PU 510 layer is applied and, while still fresh, a 10 cm wide polyester fleece strip (60 g/m^2 or 120 g/m^2) is embedded lengthwise. Then, two extra ISOFLEX-PU 510 layers are applied along the cracks, completely covering the reinforcement.
Consumption: 200-250 g/m of crack length.

c) Waterproofing under tiles
ISOFLEX-PU 510 is applied by brush or roller in 2 layers.
ISOFLEX-PU 510 should be locally reinforced along joints and wall-floor junctions by embedding a 10 cm wide polyester fleece strip (60 g/m^2 or 120 g/m^2) on its first layer while is still fresh.
After the application of the final layer and while still fresh, quartz sand (Ø 0.3-0.8 mm) must be broadcast. The quartz sand must be completely dry.
Consumption of quartz sand: approx. 3 kg/m^2.
After 24 hours, any loose grains should be removed with a high-suction vacuum cleaner.
Tiles should be fixed with a high-performance polymer-modified tile adhesive, such as ISOMAT AK-22, ISOMAT AK-24 CRYSTAL GEL, ISOMAT AK-25, ISOMAT AK-ELASTIC, and ISOMAT AK-MEGARAPID.
Tools should be cleaned with SM-28 solvent while ISOFLEX-PU 510 is still fresh.

Packaging

1 kg, 6 kg and 25 kg metal containers.

Shelf life – Storage

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

Remarks

- For spray application, it may be diluted, depending on the weather conditions up to 10%, only with the special solvent SM-28.
- ISOFLEX-PU 510 is not suitable for contact with chemically treated water of swimming pools.
- Temperature during application and hardening should be between +8°C and +35°C.
- The consumption of ISOFLEX-PU 510 must not exceed 750 g/m^2 per layer.
- Unsealed containers should be used as soon as they are opened and cannot be restored.
- ISOFLEX-PU 510 is intended for professional use only.

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Volatile Organic Compounds (VOCs)

According to 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 510 contains a maximum of 500 g/l VOC.

CE

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ETA - 15/0206

EAD 030350-00-0402

DoP No.: ISOFLEX-PU 510 / 005-25-10

Roof slope: S1 to S4

External fire performance (EN 13501-5): B_{Roof} (t1)

Reaction to fire EN (13501-1): NPA

Dangerous substances: see section 3.2

Water vapor diffusion resistance factor μ: ≈ 1800

Watertightness: Watertight

Resistance to wind loads: ≥ 50 kPa

Resistance to mechanical damage: P1 to P4

Working life: W3 (25 years)

Lowest surface temperature: TL4 (-30°C)

Highest surface temperature: TH4 (90°C)

Working life according to the resistance to ageing media (heat and water): W3 (25 years)

Resistance to UV radiation in the presence of moisture: Moderate and Severe climatic

Resistance to plant roots: NPA

Maximum tensile strength /elongation (5°C): 6.8 MPa / 43.9%
(Dynamic indentation P4)

Maximum tensile strength /elongation (30°C): 7.1 MPa / 39.4%
(Dynamic indentation P4)

Effects of day joints: 830 KPa

Slipperiness: NPA

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CE

2032

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2032-CPR-10.11

DoP No.: ISOFLEX-PU 510/1811-02

EN 1504-2

Surface protection products

Coating

Permeability to CO_2: Sd > 50 m

Water vapor permeability: Class I (permeable)

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

Adhesion strength by pull off test: ≥ 2.0 N/mm^2

Artificial weathering: No visual defects (slight loss of gloss)

Reaction to fire: Euroclass F

Dangerous substances comply with 5.3

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