

Technical Datasheet

ISOFLEX-PU 500

One-component, polyurethane, liquid waterproofing membrane

Description

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

- 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 various substrates, including concrete, cement screed, wood and existing acrylic or hybrid liquid waterproofing membranes.
- Applicable even to irregular substrates.
- When a dark color of ISOFLEX-PU 500 is selected for use as an exposed layer, it is necessary to protect it with TOPCOAT-PU 710 or TOPCOAT-PU 720 in the same color.

Certified according to EN 1504-2 and classified as a coating for surface protection of concrete. Certificate No.: 2032-CPR-10.11. CE marked.

The product has been successfully tested according to the requirements of EAD 030350-00-0402 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).

Technical Assessment Report - SOCOTEC No.: 210568080000018, valid until 31/12/2024.

Also successfully tested by a third-party laboratory for resistance to root penetration, according to CEN/TS 14416:2014.

ISOFLEX PU 500 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 500 is ideal 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.
- In open parking deck systems.
- 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, grey, other colors upon order
Density:	1.39 kg/l
Viscosity:	4,000 ± 500 mPa·s (at +23°C)

2. Properties of the cured membrane

Elongation at break: (ASTM D 412 / EN 527-3)	> 500%
Tensile strength: (ASTM D 412 / EN 527-3)	> 8.0 N/mm ²
SHORE A Hardness:	75 ± 3
Water impermeability: (DIN 1048)	5 atm
Solar Reflectance (SR): (ASTM E903-96)	86%
Infrared Emittance: (ASTM C1371-04a)	0.88
Solar Reflectance Index (SRI): (ASTM E1980-01)	108
Service temperature:	-40°C to +90°C
External fire exposure: (EN 13501-5)	Class B _{roof} - t1*

* Report No: 17/15049-2325 Part 1, APPLUS Laboratories.



ISOFLEX-PU 500

Crack-bridging according to:

EN 1062-7
(Method A): $\geq 3 \text{ mm}$
(Class A5 > 2.5 mm)

Technical Report
TR-013:05-2004 (-30°C): Pass
(max. crack width
1.5 mm)

Technical Report
TR-008:05-2004: Pass (1000 cycles)
(max. crack width 2.0
mm)

According to EAD 030350-00-0402:

Expected working life: W3 (25 years)

Climatic zone: S (Severe)

	Severe
Annual radiant exposure on horizontal surface	$\geq 5 \text{ GJ/m}^2$
Average temperature of the warmest month per year	$\geq 22^\circ\text{C}$

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: $0.01 \text{ kg/m}^2 \cdot \text{h}^{0.5}$
(EN 1062-3,
requirement of EN 1504-2: $w < 0.1$)

CO₂ permeability: $S_d > 50 \text{ m}$
(EN 1062-6)

Water vapor permeability: $S_d = 0.72 \text{ m}$
(EN ISO 7783-2, permeable, Class I < 5 m)

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,
(EN 1062-11, cracking or
after 2000 h) flaking)

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 repair 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 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, rust, corrosion, etc. that might impair adhesion.

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 one or two layers. EPOXYCOAT-AC is applied by roller, brush, or spray. The second layer follows after the first has dried but within 24 hours.

Consumption: 150-200 g/m²/layer.

Application of ISOFLEX-PU 500 should follow within the next 24-48 hours.

2. Application – Consumption

Before application, it is recommended to slightly stir ISOFLEX-PU 500 until fully homogeneous. Excessive stirring should be avoided to prevent air entrapment.

a) Full-surface waterproofing

ISOFLEX-PU 500 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 hours, depending on the weather conditions.

Consumption: 1.0-1.5 kg/m², depending on substrate type.

In case of dense, multiple cracks all over the surface, it is strongly recommended to fully reinforce ISOFLEX-PU 500 membrane with 100 cm wide strips of polyester fleece (60 g/m² or 120 g/m²), which must overlap by 5-10 cm. Two-three hours after priming, the first layer of ISOFLEX-PU 500 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 on the remaining surface. Then, two extra layers of ISOFLEX-PU 500 are applied, completely covering the reinforcement.

Consumption: > 2.50 kg/m², depending on substrate type.

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. Two-three hours after priming, the first ISOFLEX-PU 500 layer is applied and, while is still fresh, a 10 cm wide polyester fleece strip (60 g/m² or 120 g/m²) is embedded lengthwise.

Two extra ISOFLEX-PU 500 layers are applied along the cracks, completely covering the reinforcement.

Consumption: > 250 g/m of crack length, depending on substrate type.

c) Under-tile waterproofing

ISOFLEX-PU 500 is applied by brush or roller, in two layers, over the entire surface.

ISOFLEX-PU 500 should be locally reinforced along joints and wall-floor junctions by embedding a 10 cm wide polyester fleece strip (60 g/m² or 120 g/m²) on its first layer while 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 broadcast. The quartz sand must be completely dry.

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

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 500 is still fresh.

Packaging

ISOFLEX-PU 500 is supplied in metal containers of 1 kg, 6 kg, 12 kg and 25 kg.

Shelf life – Storage

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

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Remarks


- In case of application by spray, it may be diluted, depending on the weather conditions, up to 10%, only with the special solvent SM-28.
- ISOFLEX-PU 500 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 500 must not exceed 750 g/m² per layer.
- Unsealed containers should be used at once and cannot be restored.
- ISOFLEX-PU 500 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 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.

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<p align="center">ISOMAT S.A. 17th km Thessaloniki – Ag. Athanasios P.O. BOX 1043, 570 03 Ag Athanasios, Greece 15</p>
<p align="center">ETA - 15/0206 EAD 030350-00-0402 DoP No.: ISOFLEX-PU 500 / 005-25</p> <p>Roof slope: S1 to S4</p> <p>External fire performance (EN 13501-5): B_{Roof} (t1)</p> <p>Reaction to fire EN (13501-1): NPA</p> <p>Dangerous substances: see section 3.2</p> <p>Water vapor diffusion resistance factor μ: ≈ 1800</p> <p>Watertightness: Watertight</p> <p>Resistance to wind loads: ≥ 50 kPa</p> <p>Resistance to mechanical damage: P1 to P4</p> <p>Working life: W3 (25 years)</p> <p>Lowest surface temperature: TL4 (-30°C)</p> <p>Highest surface temperature: TH4 (90°C)</p> <p>Working life according to the resistance to ageing media (heat and water): W3 (25 years)</p> <p>Resistance to UV radiation in the presence of moisture: Moderate and Severe climatic</p> <p>Resistance to plant roots: NPA</p> <p>Maximum tensile strength /elongation (5°C): 6.8 MPa / 43.9% (Dynamic indentation P4)</p> <p>Maximum tensile strength /elongation (30°C): 7.1 MPa / 39.4% (Dynamic indentation P4)</p> <p>Effects of day joints: 830 KPa</p> <p>Slipperiness: NPA</p>

 2032
<p align="center">ISOMAT S.A. 17th km Thessaloniki – Ag. Athanasios P.O. BOX 1043, 570 03 Ag. Athanasios, Greece 12</p>
<p align="center">2032-CPR-10.11 DoP No.: ISOFLEX-PU 500/1810-01</p> <p align="center">EN 1504-2 Surface protection products Coating</p> <p>Permeability to CO₂: Sd > 50 m</p> <p>Water vapor permeability: Class I (permeable)</p> <p>Capillary absorption: w < 0.1 kg/m²·h^{0.5}</p> <p>Adhesion: ≥ 1.0 N/mm²</p> <p>Artificial weathering: Pass</p> <p>Reaction to fire: Euroclass F</p> <p>Dangerous substances comply with 5.3</p>

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