

# ISOFLEX-PU 500

## One-component, polyurethane, liquid waterproofing membrane

### Description

ISOFLEX-PU 500 is a one-component, polyurethane, liquid waterproofing 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 continuous, elastic, waterproof and vapor-permeable membrane, without seams or joints.
- Excellent bonding to various substrates like concrete, cement mortars, wood and most waterproofing layers.
- Applicability even to irregular substrates.
- Suitability for green roofs, flower beds, etc.
- Availability in white and other colors. When a dark color of ISOFLEX-PU 500 has been chosen as an exposed layer, it is necessary to protect it with a layer of TOPCOAT-PU 720 in the same color.

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

In addition, the product has been successfully tested 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.
- Under tile layers 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, grey
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)	900 ± 80%
Tensile strength: (ASTM D412)	6.4 N/mm <sup>2</sup>
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
<u>Crack-bridging acc. to:</u>	
EN 1062-7 (Method A):	≥ 3mm (Class A5 > 2.5mm)
Technical Report TR-013:05-2004 (-30°C):	Pass (max crack width 1.5mm)
Technical Report TR-008:05-2004:	Pass (1000 cycles) (max crack width 2.0mm)

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According to ETAG-005:

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:  $w < 0.1$ )

CO<sub>2</sub> 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  $< 5\text{m}$ )

Adhesion:  $2.0 \text{ N/mm}^2$   
(EN 1542, requirement for flexible systems with no traffic:  $0.8 \text{ N/mm}^2$ )

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

External fire exposure: CLASS B<sub>roof</sub> - t1\*  
(EN 13501-5)

\*With PRIMER-PU 100 as a system. Report No.: 17/15049-2325 Part 1, APPLUS Laboratories – LGAI, Spain.

## 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.  $200\text{g/m}^2$ .

Surfaces with moisture content  $> 4\%$  should be primed with the special two-component polyurethane primer PRIMER-PU 140, with a consumption of  $150\text{-}250\text{g/m}^2$ .

#### 1.2 Smooth and non-absorbent substrates

Smooth and non-absorbent 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:  $150\text{-}200 \text{ g/m}^2$ .

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%.

#### 1.3 Metal surfaces

Metal surfaces should be:

- Dry and clean.
- Free of grease, loose particles, dust, etc. that might impair adhesion.
- Free of rust or corrosion 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 anticorrosive 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:  $150\text{-}200 \text{ g/m}^2/\text{layer}$ .

# ISOFLEX-PU 500

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 it becomes homogeneous. Excessive stirring should be avoided, in order to prevent air entrapment.

### a) Total waterproofing of the surface

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: approx. 1.0-1.5kg/m<sup>2</sup>, 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 100cm wide strips of polyester fleece (60g/m<sup>2</sup> or 120g/m<sup>2</sup>), which must overlap by 5-10cm. Two-three hours after priming, the first layer of ISOFLEX-PU 500 is applied to a width of 100cm 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 over the entire surface. Consumption: > 2.50kg/m<sup>2</sup>, 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 10-12cm. Two-three hours after priming, the first ISOFLEX-PU 500 layer is applied and, while still fresh, a 10cm wide polyester fleece strip (60g/m<sup>2</sup> or 120g/m<sup>2</sup>) is embedded lengthwise. Two extra ISOFLEX-PU 500 layers are applied along the cracks, completely covering the reinforcement. Consumption: > 250g/m of crack length, depending on substrate type.

### c) Waterproofing under tiles

ISOFLEX-PU 500 is applied by brush or roller in two layers.

ISOFLEX-PU 500 should be locally reinforced along joints and wall-floor junctions by embedding a 10cm wide polyester fleece strip (60g/m<sup>2</sup> or 120g/m<sup>2</sup>) 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 0.3-0.8mm) must be broadcast. The quartz sand must be completely dry. Consumption of quartz sand: approx. 3kg/m<sup>2</sup>.

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-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 1kg, 6kg, 12kg and 25kg.

## 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.

## 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 should not exceed 750g/m<sup>2</sup> per layer.
- Unsealed containers should be used at once and cannot be restored.
- ISOFLEX-PU 500 is intended for professional use only.

# ISOFLEX-PU 500

## 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 500g/l (2010) for the ready-to-use product.

The ready-to-use product ISOFLEX-PU 500 contains a maximum of 500g/l VOC.



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ETA - 15/0206

ETAG 005:2004

DoP No.: ISOFLEX-PU 500 / 005-25

**Working life:** W3 (25 years)

**Climatic zones:** M and S

**Resistance to mechanical damage:** P1 to P4

**Roof slope:** S1 to S4

**Lowest surface temperature:** TL4 (-30°C)

**Highest surface temperature:** TH4 (90°C)

**Use category related to BWR 3:** S/W 2

**External fire performance (EN 13501-5):**  
B<sub>Roof</sub> (t1)

**Reaction to fire EN (13501-1):** NPA

**Water vapour diffusion resistance factor  $\mu$ :**  
 $\approx 1800$

**Watertightness:** Pass

**Resistance to plant roots:** NPA

**Dangerous substances:** None

**Resistance to wind loads:**  $\geq 50$  kPa

**Resistance to slipperiness:** NPA

# ISOFLEX-PU 500



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<sub>2</sub>: Sd > 50 m

Water vapor permeability: Class I (permeable)

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

Adhesion:  $\geq 0.8 \text{ N/mm}^2$

Artificial weathering: Pass

Reaction to fire: Euroclass F

Dangerous substances comply with 5.3

**ISOMAT S.A.**

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