

## WATERPROOFING OF INTERIOR HUMID SPACES WITH A TWO-COMPONENT, POLYURETHANE LIQUID MEMBRANE

**SOLUTION:** Waterproofing of interior humid spaces with the polyurethane, waterproofing liquid membrane **ISOFLEX-PU 550** & tiling.

### Related Materials

<b>ISOFLEX-PU 550</b>	Two-component, polyurethane, solvent-free waterproofing liquid membrane
<b>DUROFLOOR-PSF</b>	Two-component, solvent free epoxy primer
<b>POLYESTER FLEECE 60gr/m<sup>2</sup></b>	Polyester fleece for reinforcing waterproofing layers
<b>FLEX PU-30 S/FLEX PU-50 S</b>	Polyurethane sealants

## I. NATURE OF PROBLEM - REQUIREMENTS

The interiors which are under the influence of permanent moisture, such as professional kitchens, bathrooms, baths, etc., must be sealed, so that no water leakage occurs in the form of moisture in adjacent rooms.

Such a sealing is usually formed behind the tiles, with which the surfaces of humid spaces are usually coated. The primary requirement for sealing is the permanent moisture resistance and durability, as well as reliability over time, because any subsequent repair of the waterproofing layer is difficult and costly.

## II. SOLUTION

The two-component, solvent-free, polyurethane liquid membrane ISOFLEX-PU 550 is an ideal solution for waterproofing surfaces in areas which show permanent moisture. This is a two-component, solvent-free, polyurethane, waterproofing membrane which provides complete water tightness. It is ideal for indoor use, as it contains no solvents and is virtually odorless.

It creates a single membrane without joints, with excellent mechanical, chemical and thermal resistance and permanent elasticity at temperatures between -40°C and +90°C.

It has been certified with the CE marking as a concrete surface protection product in accordance with EN 1504-2. It shows excellent bonding to various surfaces, such as concrete, cement, wood, etc., and to old waterproofing layers. The two-component, polyurethane waterproofing liquid membrane, ISOFLEX-PU 550, is certified for use as a sealant under ceramic tiles fixed with adhesives, according to standard EN 14891.

### III. APPLICATION

#### Substrate preparation

Generally, the substrate must be dry (moisture content <4%) and free from loose particles, dust, grease, etc.

Where necessary, the substrate is smoothed out with suitable materials, in order for a smooth surface to be created before using the polyurethane, waterproofing liquid membrane ISOFLEX-PU 550 and tiling.

#### Surface priming

As soon as the materials that may have been used for smoothing the substrate have dried, the two-component, solvent-free epoxy primer, **DUROFLOOR-PSF** is applied on the clean and dry concrete surface (moisture content < 4%). The primer is evenly applied across the surface with a brush, roller or by spraying.

Consumption of epoxy primer DUROFLOOR-PSF: 200-300 g/m<sup>2</sup>.

#### Application of the two-component, polyurethane, solvent-free, waterproofing liquid membrane, ISOFLEX-PU 550

The two-component, polyurethane, solvent-free, waterproofing liquid membrane, **ISOFLEX-PU 550**, is a two-component product. Components A (resin) and B (hardener) are packed in containers with a pre-determined mixing ratio. Initially, only component A is mixed. Then, component B is fully added to component A and the two components are mixed for approx. 3 minutes with a low-speed mixer (300 rpm). It is important that the mixture is stirred on the walls and the bottom of the container, so that the hardener is uniformly spread.

#### Total waterproofing of the surface

ISOFLEX-PU 550 is applied by brush or roller in 2 layers. The first layer is applied as the epoxy primer DUROFLOOR-PSF has set. The second layer should be applied crosswise after 8-24 hours, depending on the internal space conditions.

Consumption: approx. 1.0-1.5 kg/m<sup>2</sup>, depending on the substrate.

#### A) In case there are individual cracks in the substrate:

As soon as the epoxy primer DUROFLOOR-PSF has set, a coat of the polyurethane waterproofing liquid membrane ISOFLEX-PU 550 is applied along the cracks and, while it is still fresh, a 10 cm wide strip of **polyester fleece** (60 g/m<sup>2</sup>) is embedded. ISOFLEX-PU 550 is totally applied on the remaining surface in a single layer. After 8-24 hours, depending on weather conditions, a total second coat of the polyurethane waterproofing liquid membrane ISOFLEX-PU 550 is applied. After 8-24 hours, depending on the weather conditions, a third layer is applied in the spots where reinforcement has been used for its full coverage.

**Cracks on the substrate (wider than 1 mm) have to be initially primed locally and sealed with the polyurethane sealants FLEX PU-30 S or FLEX PU-50 S. In case of cracks < 1 mm, no sealing is required.**

Total consumption of the polyurethane, waterproofing liquid membrane, ISOFLEX-PU 550: 1.0-1.5 kg/m<sup>2</sup>, depending on the substrate.

### **B) In case there are dense, multiple cracks in the substrate:**

As soon as the epoxy primer DUROFLOOR-PSF has dried, the polyurethane waterproofing liquid membrane ISOFLEX-PU 550 is totally reinforced with 100 cm wide strips of polyester fleece (60 g/m<sup>2</sup>), which overlap one other by 5-10 cm. The first layer of the polyurethane waterproofing liquid membrane ISOFLEX-PU 550 is applied in order to cover the reinforcement (to a width of 100 cm), and while it is still fresh, the strip of polyester fabric is embedded. The same application procedure is followed in the remaining surface. As soon as this layer has set, after 8 - 24 hours depending on weather conditions, two extra layers of the polyurethane waterproofing liquid membrane ISOFLEX-PU 550 are applied on the entire surface of the roof, fully covering the reinforcement. The second coat can be applied as soon as the first one has dried, after 8-24 hours, depending on the weather conditions.

Total consumption of the polyurethane, waterproofing liquid membrane, ISOFLEX-PU 550: 2.0-2.25 kg/m<sup>2</sup>, depending on the substrate.

Waterproofing extends to the vertical surfaces (parapet, stairwell termination, etc.) to a minimum height of 15-20 cm, in order for a watertight basin to be formed.

**Cracks on the substrate (wider than 1 mm) have to be initially primed locally and sealed with the polyurethane sealants FLEX PU-30 S or FLEX PU-50 S. In case of cracks < 1 mm, no sealing is required.**

### **Surface preparation for tiling**

After applying the final universal layer of the two-component, solvent-free, polyurethane, waterproofing liquid membrane, ISOFLEX-PU 550 and while it is fresh, quartz sand (grain size 0.3-0.8 mm) is broadcast. The quartz sand should be completely dry. As soon as ISOFLEX-PU 550 has cured, any loose grains are removed using a high-suction vacuum cleaner.

Quartz sand consumption: approx. 2.5-3.0 kg/m<sup>2</sup>.

### **Fixing - grouting of ceramic tiles**

As long as the last layer of the two-component, solvent-free, polyurethane, waterproofing liquid membrane, ISOFLEX-PU 550 has dried and the loose grains of quartz sand have been removed, it is recommended that the tiles are fixed with high-quality, polymer-modified adhesives, such as **ISOMAT AK 22, ISOMAT AK 25, ISOMAT AK-ELASTIC, ISOMAT AK-MEGARAPID.**

For spaces like bathrooms, baths, etc., it is recommended that the tiles are grouted with the cementitious tile grout, reinforced with polymer components (resins), **MULTIFILL SMALTO 1-8** or the three-component, decorative, solvent-free epoxy grout **MULTIFILL EPOXY GLITTER.**

In areas with special requirements, e.g. professional kitchens, it is recommended to grout the tiles with the two-component, solvent-free epoxy grout, **MULTIFILL-EPOXY THIXO.**

#### IV. NOTES

- The temperature during application and curing of the materials should be between +5°C and +35°C.
- Maximum consumption of the polyurethane, waterproofing liquid membrane for flat roofs, ISOFLEX-PU 550 must not exceed 750 g/m<sup>2</sup> per layer.
- Intense cracks in the substrate must be sealed with the polyurethane sealants **FLEX PU-30 S** or **FLEX PU-50 S**.
- Tools are cleaned with the special polyurethane solvent SM-16, while the two-component, solvent-free, polyurethane waterproofing liquid membrane ISOFLEX-PU 550 is still fresh.