Technical Datasheet

ISOFLEX-PU 650

One-component, transparent, UV-stable, polyurethane, liquid waterproofing membrane

Description

ISOFLEX-PU 650 is a one-component, transparent, aliphatic, polyurethane, liquid waterproofing membrane with high solids content. It forms a watertight, elastic and UV-stable membrane that does not turn yellow over time, while providing excellent mechanical and chemical resistance.
Thanks to the high-quality elastomeric and hydrophobic resins it contains, it features long-lasting transparency and elasticity while offering the following advantages:

- Easy and cost-saving application, since no removal of the old substrate (tiles etc.) is required for waterproofing.
- Effective waterproofing and protection of surfaces with old tile layers, wood, glass bricks, plastic materials, etc.
- Continuous membrane, without seams or joints.
- Exceptional resistance to UV radiation and weather conditions (rain, frost).
- Resistance to detergents, oils, seawater.
- Resistance to pedestrian traffic.

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

Fields of application

ISOFLEX-PU 650 is ideal for waterproofing and protection of:

- Flat roofs, terraces and balconies covered with glazed tiles, ceramic tiles, natural stone, wood, microcement coatings, sloped cement screeds, etc.
- Walls made of glass blocks, natural stone, etc.
- Skylight domes, atriums and greenhouses made of glass, plastic materials (polycarbonate sheets), etc.

It is also used as a transparent resin binder for decorative stone carpet floorings. Providing high flexibility, it is ideal for applications to balconies and terraces, indoors or outdoors.
Moreover, it can be used as a transparent sealing membrane over decorative flake floorings.

Technical data

1. Properties of the product in liquid form

Form:	polyurethane prepolymer
Color:	transparent, gloss
Density:	1.0 ± 0.05 kg/l
Viscosity:	900 ± 200 mPa·s (at +23°C)

2. Properties of the cured membrane

Elongation at break: (EN-ISO 527)	> 200%
Tensile strength: (EN-ISO 527)	22 N/mm^2
SHORE D hardness:	45 ± 2
Capillary absorption: (EN 1062-3, requirement of EN 1504-2: w < 0.1)	0.01 kg/m^2·h$^{0.5}$
Bond strength to tiles: (EN 1542)	> 2 N/mm^2 (tile failure)
Bond strength to concrete: (EN 1542)	> 2 N/mm^2 (concrete failure)
Artificial weathering: (EN 1062-11, after 2000 h)	Pass (no blistering, cracking or flaking)
Reaction to fire: (EN 13501-1)	Euroclass F
Drying time: (at +23°C, 40-50% RH) (EN ISO 2811-1)	4-6 h (touch dry)
Service temperature:	from -40°C to +90°C

ISOFLEX-PU 650

Directions for use

I. Application as a transparent liquid waterproofing membrane

1. Substrate
The substrate must be completely dry, clean, free of grease, loose particles, dust, old paints, etc. Surfaces with trapped moisture (e.g. moisture under tiles) must be left to dry completely prior to the application of ISOFLEX-PU 650.

1.1 Non-porous surfaces (e.g. glazed tiles, glass blocks) should be treated with the special adhesion promoter PRIMER-S 165. The surface is cleaned with a cloth that has been soaked with the promoter. The cloth must be frequently changed. The first layer of ISOFLEX-PU 650 is applied 20-30 min after the application of PRIMER-S 165. The adhesion promoter cleans the surface and increases the bond strength of ISOFLEX-PU 650.
PRIMER-S 165 should not be applied on transparent plastic materials (e.g. polycarbonate sheets).
Consumption: 30-70 g/m^2.

1.2 Porous surfaces (e.g. microcement coatings, concrete, natural stone, etc.) must be dry, clean, and free of contaminants and loose material. ISOFLEX-PU 650 is applied directly to the properly prepared substrate.

2. Application
ISOFLEX-PU 650 should be slightly stirred before application. Prolonged stirring should be avoided to prevent air entrapment. ISOFLEX-PU 650 is applied by roller in two-three layers. Each next layer follows after 12-18 hours, depending on the weather conditions, and not later than 24 hours.
Consumption: 0.8-1.2 kg/m^2, in two-three layers, depending on the type of the substrate.

In case thinning is required, ISOFLEX-PU 650 may be thinned up to 3% with SM-28.

Tools should be cleaned with SM-28 solvent while ISOFLEX-PU 650 is still fresh.

3. Finish
ISOFLEX-PU 650 creates a glossy final surface. If a satin-matt finish is desired, apply one layer of VARNISH-PU 650 MF over ISOFLEX-PU 650.

II. Application as a resin binder for decorative stone carpet floorings

The decorative stone carpet flooring by ISOMAT offers a decorative non-slip surface. Thanks to its high flexibility, it is ideal for application on balconies, flat roofs, walkways, pool sides, etc., in residential or commercial spaces.

Exterior spaces

For outdoor stone carpet installation to flat roofs, balconies, etc., it is necessary that the substrate be first waterproofed with one of the following polyurethane liquid waterproofing membranes; ISOFLEX-PU 500, ISOFLEX-PU 510 or ISOFLEX-PU 550. In this case, the stone carpet is applied 24 hours later without priming.
In case the decorative flooring is to be applied to concrete ground slabs, then DUROPRIMER-SG epoxy primer must be applied.
Consumption: 600-1000 g/m^2.

The decorative resin flooring must be applied within 14-24 hours from the application of DUROPRIMER-SG.

Preparation of the decorative resin flooring

Mixing ratio ISOFLEX-PU 650: Natural stones	**Consumption of mixture*** ISOFLEX-PU 650 + Natural stones
1:10 by weight	≈ (1.5 kg + 15 kg) /m^2/cm
1:15 by weight	≈ (1.0 kg + 15 kg) /m^2/cm
1:20 by weight	≈ (0.75 kg + 15 kg) /m^2/cm

*Consumption may increase by 10-15% depending on compaction.

Specific weight of natural stones: 1.5 kg/l
Size of natural stones: 2-4 mm
Minimum stone carpet thickness: 8 mm

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ISOMAT NATURAL COLORED STONES are gradually added to ISOFLEX-PU 650 while stirring continuously with a low-speed mixer for about 5 minutes. It is important to scrape the sides and bottom of the container regularly during mixing to ensure a homogeneous mixture. Consideration should also be given to the color uniformity of the natural aggregates (see remarks at the end of the technical datasheet).
For large-scale applications, mixing of the materials should be carried out in a concrete mixer.
For the easy and correct application of the decorative flooring, it is recommended that NON-STICK AGENT be used during its installation. NON-STICK AGENT is used to improve the slip properties of the smooth metal trowel during the application of decorative stone carpet floorings.
Prior to the application of the decorative resin flooring, a clean cloth is soaked with NON-STICK AGENT and then applied on the surface of the smooth metal trowel.
The mixture of the stone carpet is poured over the prepared surface and applied in one layer using a smooth metal trowel. When the trowel starts to get sticky during the application, NON-STICK AGENT should be applied again.
After hardening of the stone carpet flooring, a layer of ISOFLEX-PU 650 could be optionally applied to enhance the mechanical properties of the system.
Consumption: 250-300 g/m^2.

Interior spaces

Substrate

In general, the substrate must be dry (moisture content < 4%), clean, free of grease, loose particles, dust, etc.
Any existing cavities in concrete should be filled in advance with the appropriate repair materials.

1.1 Porous surfaces (concrete, screed, etc.) should be primed with DUROFLOOR-PSF or PRIMER-PU 100. Consumption: 200-300 g/m^2.

The decorative resin flooring should be applied within 14-24 hours after priming with DUROFLOOR-PSF and 3-4 hours after priming with PRIMER-PU 100.

1.2 Non-porous surfaces (e.g. glazed tiles) should be treated with the special adhesion promoter PRIMER-S 165. The surface is cleaned with a clean cloth been soaked with the promoter. The cloth must be frequently changed. The stone carpet is applied 20-30 min after the application of PRIMER-S 165. The adhesion promoter cleans the surface and increases the bond strength of the stone carpet.
Consumption: 30-70 g/m^2.

Preparation of the decorative resin flooring

Mixing ratio ISOFLEX-PU 650: Natural stones	**Consumption of mixture*** ISOFLEX-PU 650 + Natural stones
1:10 by weight	≈ (1.5 kg + 15 kg) /m^2/cm
1:15 by weight	≈ (1.0 kg + 15 kg) /m^2/cm
1:20 by weight	≈ (0.75 kg + 15 kg) /m^2/cm

*Consumption may increase by 10-15% depending on compaction.

Specific weight of natural stones: 1.5 kg/l
Size of natural stones: 2-4 mm
Minimum stone carpet thickness: 8 mm

ISOMAT NATURAL COLORED STONES are gradually added to ISOFLEX-PU 650 while stirring continuously with a low-speed mixer for about 5 minutes. It is important to scrape the sides and bottom of the container regularly during mixing to ensure a homogeneous mixture. Consideration should also be given to the color uniformity of the natural aggregates (see remarks at the end of the technical datasheet).
For large-scale applications, mixing of the materials should be carried out in a cement mixer machine.
For the easy and correct application of the decorative flooring, it is recommended to use NON-STICK AGENT during its installation. NON-STICK AGENT is used to improve the slip properties of the smooth metal trowel during the application of decorative stone carpet floorings.
Prior to the application of the decorative resin flooring, a clean cloth is soaked with NON-STICK AGENT and then applied on the surface of the smooth metal trowel.
The mixture of the stone carpet is poured over the prepared surface and applied in one layer using a smooth metal trowel.

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When the trowel starts to get sticky during the application, NON-STICK AGENT should be applied again.
After hardening of the stone carpet flooring, a layer of ISOFLEX-PU 650 could be optionally applied to enhance the mechanical properties of the system.
Consumption: 250-300 g/m^2.

III. Application as a transparent sealing membrane over decorative flake floorings

The decorative flake flooring by ISOMAT provides a modern terrazzo-like feeling, suitable for residential and commercial settings, indoors and outdoors. It offers excellent waterproofing and surface protection against weather conditions, inluding UV radiation. It can withstand pedestrian traffic, features resistance to abrasion and chemicals, while delivering an easy-to-clean, smooth final surface.

Substrate preparation

For outdoor use, after the application of the primer, the substrate must be first waterproofed with the elastic, polyurethane, liquid waterproofing membrane ISOFLEX-PU 500.
Next, the UV-stable, elastic, polyurethane topcoat TOPCOAT-PU 720 is applied, creating a highly flexible layer resistant to tear and abrasion.
As an alternative to the waterproofing system ISOFLEX-PU 500 and TOPCOAT-PU 720, only the liquid waterproofing membrane ISOFLEX-PU 600 can be used, which is also UV-stable.

For indoor use, the application of the waterproofing membrane is optional, and TOPCOAT-PU 720 can be applied after priming.

Application

Flakes, also known as chips, come in a wide range of colors and sizes. You can choose the density and pattern to be applied to your floor. Broadcast them on the still fresh layer of TOPCOAT-PU 720 or ISOFLEX-PU 600. Seal the whole system with ISOFLEX-PU 650 waterproofing membrane the next day. This membrane offers protection against wear, weather conditions and UV radiation and dries to a glossy final surface.

To achieve a satin-matt finish, apply the UV-stable transparent one-component polyurethane coating VARNISH-PU 650 MF.

Packaging

ISOFLEX-PU 650 is supplied in metal containers of 1 kg, 5 kg and 20 kg.

Shelf life – Storage

9 months from production date if stored in original, unopened packaging, in dry, frost-free conditions. Recommended storage temperature between +5°C and +35°C.

Remarks

- Surfaces that have been treated in the past with hydrophobic impregnations might cause adhesion problems. It is recommended to test a small area for compatibility prior to full-scale application.
- If a slip-resistant surface is required to reduce the risk of slipping on wet days, the appropriate type of quartz sand should be broadcast on the final wet ISOFLEX-PU 650 layer. For more information, please consult the Technical Support Department.
- In case of application of ISOFLEX-PU 650 to polycarbonate sheets, please consult the Technical Support Department.
- ISOFLEX-PU 650 is not suitable for permanent contact with chemically treated water of swimming pools.
- Low temperatures retard the curing of ISOFLEX-PU 650 while high temperatures accelerate it.
- High atmospheric humidity may affect the finish of ISOFLEX-PU 650.
- The temperature during the application and hardening of the product should be between +8°C and +35°C.
- Unsealed containers shall be used at once and cannot be restored.

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- Please note that ISOMAT NATURAL COLORED STONES are naturally occurring aggregates, meaning that batch-to-batch color variation may occur. To ensure color consistency in the finished floor, it is recommended that same-batch products be used throughout the project. In case products from two different batches are used, equal parts of both batches should be mixed together to achieve a uniform result.
- ISOFLEX-PU 650 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 650 contains a maximum of 500 g/l VOC.

CE

2032

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2032-CPR-10.11

DoP No.: ISOFLEX-PU 650 / 1859-01

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

Reaction to fire: Euroclass F

Dangerous substances comply with 5.3

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