Technical Datasheet

ISOMAT-PUA 2230

Two-component, highly resistant, hot spray-applied, pure polyurea protective membrane

Description

ISOMAT-PUA 2230 is a two-component, highly resistant, ultra fast-curing, 100% solids, hot spray-applied, pure polyurea membrane obtained from reaction of an aromatic, isocyanate prepolymer with an amino resin. Thanks to its special composition, the reaction takes place within seconds and the final product delivers excellent mechanical and chemical resistance to any kind of substrate.
It is applied with a special two-component, high pressure and temperature spray gun, offering the following advantages:

- Very high tensile strength (≥ 20 N/mm^2) at high elongation.
- High resistance to aging and abrasion.
- Very quick reaction; gel time in seconds.
- Areas can be returned to service immediately. Pedestrian use may begin within minutes after application.
- Low to no sensitivity to atmospheric conditions, such as relative humidity and temperature.
- ~100% solids and odorless or nearly odorless.
- Excellent physical-mechanical properties: elasticity, crack-bridging ability, abrasion resistance, etc.
- Very high chemical resistance. Recommended for use in cases of heavy chemical loads.
- Thermal stability at very high temperatures.
- Wide range of layer thickness in one application.
- After curing, a vapor-permeable membrane is formed, preventing moisture accumulation.
- Forms a jointless and seamless monolithic surface.
- Can also be safely applied to vertical surfaces.

ISOMAT-PUA 2230 has received an Environmental Product Declaration (EPD) following an assessment of its life-cycle environmental impacts. Registration No: EPD-IES-0016839, The International EPD® System.

Fields of application

Polyurea is used in numerous waterproofing and protection applications, especially when high mechanical strength, chemical resistance, fast completion of works and immediate return-to-service are required.
ISOMAT-PUA 2230 is used in the following:

- Waterproofing applications in infrastructure works (bridges, tunnels, etc.).
- Industrial-grade waterproofing applications.
- As an elastomeric protective coating in truck trailers.
- As a protective layer on industrial floors in parking garages and light to heavy vehicular traffic areas, auto repair shops, etc.
- In water tanks and plumbing installations, in general.
- In wastewater and biological wastewater treatment tanks etc.
- In settling tanks.
- In swimming pools, aquariums, and recreation areas.
- On floors in industrial facilities, craft businesses, warehouses and surfaces subject to high mechanical and/or chemical loads.
- As a protective coating increasing walls' resistance to shock waves after an explosion.

Other areas of use:

- Waterproofing and protection of polyurethane and polystyrene foam.
- Waterproofing of roofs, balconies and terraces.

Technical data

1. Properties of components (at +23˚C)

Form:	
Component A:	Fluid
Component B:	Fluid
Color:	
Component A:	Yellowish
Component B:	White/Grey
Density:	
Component A:	1.11 kg/l
Component B:	1.04 kg/l
(DIN EN ISO 2811-1)	

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Viscosity:	
Component A:	1,050 mPa·s
Component B:	850 mPa·s

2. Application process

Mixing ratio:	1:1 per volume
Application temperature:	from +5˚C to +40˚C
Layer thickness:	1.5-3 mm

3. Membrane features (thickness: 2 mm)

Chemical base:	
Component A:	MDI prepolymer
Component B:	Poly-amino resin
Solids content:	~100%
Colors:	Grey and selected colors upon order
Service temperature:	from -40˚C to +110˚C
Tensile strength: (ISO 37)	22 ± 1 N/mm^2
Elongation at break: (ISO 37)	350 ± 50%
Hardness acc. SHORE A: (EN ISO 868)	≥ 95
Hardness acc. SHORE D: (EN ISO 868)	≥ 50
Abrasion resistance: (H22/1000/1000) (EN ISO 5470-1, loss in weight <3000 mg with an H22 abrasive disk/1000 cycles/1000 g load)	< 140 mg
Tear resistance: (ISO 34-1)	120 ± 10 N/mm
Capillary water absorption: (EN 1062-3, requirement EN 1504-2: w<0.1)	0.08 kg/m^{2}h$^{0.5}$
CO_2 permeability: (EN 1062-6)	Sd > 50 m
Vapor permeability: (EN ISO 7783-2, vapor-permeable Class I, Sd < 5 m)	Sd = 0.80 m
Adhesion strength: (EN 1542, requirement for flexible systems without traffic: 0.8 N/mm^2)	> 2 N/mm^2
Crack-bridging ability: (EN 1062-7)	
-Static:	> 2.5 mm class A_5
-Dynamic:	class $B_{4.2}$
Reaction to fire: (EN 13501-1)	Class F

4. Curing times (at +23˚C)

Gel time:	5 s
Tack-free time:	7 s
Overcoat time:	
-Minimum:	7 s
-Maximum:	24 h
Walkability:	15-20 min
Mechanical load:	24 h

Directions for use

1. Substrate preparation

Polyurea may be applied to most substrates using a suitable primer following appropriate preparation. The substrate must be resistant, dry (moisture content < 4%) and free from loose material, dust, oil, and other contaminants.

1.1 Concrete surfaces

Cavities in the concrete must be filled with proper repair materials. Deep cracks on the substrate must be sealed with one of the polyurethane sealants FLEX PU-30 S/50 S.

After the surface is properly prepared, it is primed with the one-component polyurethane primer PRIMER-PU 100 (or the two-component polyurethane PRIMER-PU 140).

The primer should be applied uniformly over the entire surface using a brush, roller or spray with a consumption of approx. 200 g/m^2.

ISOMAT-PUA 2230 may be applied 2-3 hours after the application of the polyurethane primer and while the surface is still tacky. In any case, the waiting time after the application of the primer should not exceed 24 hours.

Alternatively, DUROFLOOR-PSF two-component, solvent-free epoxy primer is applied using a brush or roller in one layer, with a consumption of 200-300 g/m^2.

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After the application of DUROFLOOR-PSF and while this is still fresh, quartz sand (Ø 0.1-0.4 mm or 0.3-0.8 mm) must be broadcast. The quartz sand must be completely dry. Once the primer has cured, remove any residual quartz sand grains using a high-suction vacuum cleaner.
The membrane must be applied within 24 hours from primer application.

1.2 Smooth – Non-absorbent surfaces
Smooth and non-absorbent surfaces with a moisture content > 4%, as well as surfaces of bituminous membranes or old waterproofing layers, after being cleaned of residue, loose material or anything that might affect adhesion, are primed with the two-component, water-soluble, epoxy primer EPOXYPRIMER-500. The primer is uniformly applied over the entire surface using a roller, brush or spray gun diluted up to 30% by weight with water, with a consumption of 150-200 g/m^2.
ISOMAT-PUA 2230 may be applied within 24-48 hours from priming and as long as the moisture content of the primer drops < 4%.

1.3 Wooden surfaces
The substrate must be resistant, dry (moisture content < 4%), and free from loose material, dust, oil, old paints and other contaminants.
The joints between the panels must be treated and sealed with suitable materials.
After the surface is properly prepared, it is primed with the one-component polyurethane primer PRIMER-PU 100 or the two-component polyurethane PRIMER-PU 140. The primer should be applied uniformly over the entire surface using a brush, roller or spray gun, with a consumption of approx. 200 g/m^2.
ISOMAT-PUA 2230 may be applied 2-3 hours (depending on the weather conditions) after the application of the polyurethane primer and while the surface is still tacky. In any case, the waiting time after the application of the primer should not exceed 24 hours.

1.4 Metal surfaces
The substrate is prepared by brushing, rubbing, sandblasting etc. and then is thoroughly cleaned using an industrial vacuum cleaner to ensure the surface is dry, stable and free from materials that might impair adhesion, such as dust, loose material, oil, rust or corrosion of any type.
Then, the two-component, anti-corrosion epoxy primer EPOXYCOAT-AC is applied with a brush, roller or spray in two layers. The second layer can be applied as soon as the first one has dried. ISOMAT-PUA 2230 is applied within 24 hours from priming.

2. Application – Consumption
Components A and B are packaged in separate containers.
Polyurea is applied using a special high-pressure and high-temperature spray equipment. Material temperature must range between 75˚C-85˚C and pressure must be set between 160-200 bar.
ISOMAT-PUA 2230 is sprayed after the primer has dried (depending on temperature and humidity conditions and the primer selected).
Consumption: approx. 1.0 kg/m^2/mm, depending on the substrate.

Packaging

Set of metal drums (A+B): 400 kg.

Shelf life – Storage

12 months from production date if stored in original, unopened packaging at temperatures between +5˚C and +30˚C. Protect from direct sunlight and frost.

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Remarks

- Substrate temperature must be at least 3˚C above the dew point to avoid the risk of vapor condensation.
- Especially for component A (isocyanate), exposure to temperatures below 5˚C during transport or storage, can cause increase of the viscosity or even crystallization (in case of extremely low temperatures), depending on the time of the exposure and the minimum temperature at which the material was exposed. The process is reversible (by storing the material at room temperature and waiting for the viscosity to return to normal before application) and does not affect the properties and performance of the material.
- The applied membrane is sensitive to UV radiation, so discoloration is possible during exposure. In that case, in order to ensure that the properties of ISOMAT-PUA 2230 are maintained, it is recommended to protect the final surface with the one-component, aliphatic, elastic, polyurethane coat TOPCOAT-PU 720. The membrane is applied by brush, roller or spray within 24 hours from the application of polyurea.
- ISOMAT-PUA 2230 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 j, type SB, is 500 g/l (2010) for the ready-to-use product.
The ready-to-use product ISOMAT-PUA 2230 contains a maximum of 500 g/l VOC.

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Chemical Resistance ANNEX

Chemical substance	Concentration	7d	15d	30d	6m	12m
Aceton	100%	C	C	C		C
Diesel	100%	A	A	A	A	A
Dimethyl formamide	100%	NR	NR	NR	NR	NR
Brake fluid	100%	C	C	C		C
Hexane	100%	A	A	A		A
Hydraulic oil	100%	A	A	A	A	A
Valvoline	100%				A	A
Methanol	100%	C	C	C		C
Engine oil	100%	B	B	B		B
Sodium hydroxide	5%	A	A	A		A
Sodium hydroxide	10%	A	A	A		A
Sodium hydroxide	25%	B	A	A		B
Sodium hydroxide	50%	B	B	B		B
Propylene carbonate	100%	C	C	C		C
Potassium hydroxide	10%				A	
Sulfuric acid	5%	B	B	B		B
Sulfuric acid	10%	B	B	B		B
Sulfuric acid	50%	NR	NR	NR	NR	NR
Sulfuric acid	conc.*	NR	NR	NR	NR	NR
Acetic acid	5%	A	A	A		A
Acetic acid	10%				A	
Water	100%	A	A	A	A	A
Sugar/water	10%				A	
Toluene	100%				NR	NR

***concentrated**

A: No visual effect
B: Light visual effect
C: Affected (swollen, discoloration, etc.)
NR: Not resistant

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CE

2032

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17th km Thessaloniki – Ag. Athanasios
P.O. BOX 1043, 570 03 Ag Athanasios, Greece

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2032-CPR-10.11

DoP No.: ISOMAT-PUA 2230 / 1857-01

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: ≥ 1.0 N/mm^2

Reaction to fire: Euroclass F

Dangerous substances comply with 5.3

CE

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EN 13813 SR-B2,0-AR0,5-IR20

Synthetic Resin screed material for use internally in buildings

DoP No.: ISOMAT-PUA 2230 / 1844-01

Reaction to fire: F_{fl}

Release of corrosive substances: SR

Water permeability: NPD

Wear resistance: AR0,5

Adhesion: B2,0

Impact resistance: IR20

Sound insulation: NPD

Sound absorption: NPD

Thermal resistance: NPD

Chemical resistance: NPD

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