Neoproof® Polyurea R

Cold-applied elastomeric polyurea waterproofing coating for long-term protection of various surfaces

Description

Two-component, brushable elastomeric polyaspartic polyurea with excellent resistance to early rain, ideal for the long-term protection of various surfaces. It forms a blister-free and impermeable to moisture film, with high resistance to UV radiation and mechanical stress. Suitable for roof waterproofing.

Classified in the highest *category **W3***, both as a *non-reinforced* and *reinforced* system, for non-compressible substrates (concrete & steel) as well as compressible ones (PU foam, bituminous membrane), in accordance with EAD 030350-00-0402. It has an expected ***service life of 25 years*** *(ETA 24-1247)*, under *severe* climate conditions, across *all surface slope categories*, under *the most adverse low and high surface temperature conditions* defined by the standard, and for the *highest service loads* on non-compressible substrates.

Packing

Sets (A+B) of 19kg, 4,75kg* and 1kg*

**Available only in white shade*

Colours

WHITE

RAL 7035 | OXIDE RED

Fields of application

- Roofs made of concrete, cement tiles, cementitious screeds
- Rooftops where extremely high resistance to ponding water is required
- Metallic surfaces
- Directly over new or old waterproofing coatings
- On top of mineral bitumen membranes
- On top of single-ply PVC and TPO membranes
- Non-exposed surfaces (e.g. under tiles)
- Underground exterior walls
- Water tanks (non-potable water)
- Planter boxes
- Protection of PU foam insulation

*The above surfaces require appropriate preparation and priming prior to the application of **Neoproof® Polyurea R**.*

Properties - Advantages

- Very high mechanical properties – ideal solution for walkable roofs
- Excellent resistance to UV radiation

- Exceptional water uptake resistance – unique resistance to ponding water
- Certified cool roofing properties (for the white *and* the light grey colour shade)
- Excellent adhesion on various substrates
- Remains elastic in a broad range of temperatures from -35°C to +80°C
- Blister-free final surface
- Resistant to early rain in 1 hour after its application
- Demonstrates resistance to root penetration
- Certified high performance under external fire exposure
- Excellent crack-bridging properties
- Applicable by roller or airless spray
- Long pot life
- Compatible with other **Neoproof® Polyurea** coatings
- Ultra-long service life secured

Certificates – Test reports

- Certification according to the European Assessment Document EAD 030350-00-0402 (Liquid Applied Roof Waterproofing Kits)
  European Technical Assessment ETA 24/1247 by the approved Technical Assessment Body Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc), member of EOTA
- CE Certification acc. to EN 1504-2
  Certificate of Conformity No. 1922-CPR-0386
- Certified cool roofing material by the University of Athens
  Evaluation of the optical properties of the coating, both in white and light grey (RAL 7035) colour shades, conducted by the National and Kapodistrian University of Athens – Physics Dept.
- Test report by the external independent quality control laboratory Geoterra (No. 2015/283, 2017/1213 & 2021/483_5)
- Fulfils the requirement LEED v4.1: SS Credit – Heat Island Reduction - Option 1 – High Reflectance Roof, Initial SRI ≥82
- Tested successfully and evaluated for its resistance against root penetration acc. to CEN/TS 14416:2014
  Test Report 23/32304595 by the external independent laboratory LGAI Technological Center S.A. (Applus)
- Certified performance under external fire exposure acc. to EN 13501-5
  System classification $\boldsymbol{B_{roof}}$ ***(t1)*** *based on the classification report No. D/4/1/2023 acc. to EN 13501-5 and the test report No. 65/23/120/1/D-1/*O_{ENV} *of tests conducted acc. to CEN/TS 1187 by the external independent laboratory Łukasiewicz IMBiGS*
- Complies with the V.O.C. content requirements acc. to the E.U. Directive 2004/42/CE

Certified by:

UNIVERSITY OF ATHENS

Technical characteristics	
Mixing ratio A:B (by weight)	13:6
Density (EN ISO 2811-1)	1,45kg/L (±0,1)
Elongation at break (ASTM D412)	400% (±20)
Tensile strength at break (ASTM D412)	8,6MPa (±0,3)
Tensile strength at break (reinforced with Neotextile® NP, ASTM D412)	>10MPa
Adhesion strength (EN 1542)	>3N/mm²
Hardness Shore A (ASTM D2240)	73
Hardness Shore D (ASTM D2240)	22
Crack-bridging properties – Max. width of crack bridged (EN 1062-7 – Method A)	>1,25mm [Class A4(23,5°C)]
Liquid water permeability (EN 1062-3)	<0,01kg/m^{2}h^{0,5}
Permeability to CO_2 – Diffusion-equivalent air-layer thickness Sd (EN 1062-6)	>50m
Water vapour permeability – Diffusion-equivalent air-layer thickness Sd (EN ISO 7783)	>5m (Class II)
Resistance to UV ageing in the presence of moisture (EAD 030350-00-0402)	S, W3 -25 years, I4 (5.000 hours)
Resistance to dynamic indentation (EAD 030350-00-0402)	I4 (-30°C)
Resistance to fatigue movement (EAD 030350-00-0402)	1000 cycles at -10°C (W3 – 25 years)
Service temperature	-35°C min. / +80°C max.
Total Reflectance SR% (ASTM E903-12, ASTM G159-98)	84% (white RAL 9003)
	72% (light grey RAL 7035)
Infrared Emittance (ASTM C1371-04a)	0,90 (white RAL 9003)
	0,89 (light grey RAL 7035)
Solar Reflectance Index SRI (ASTM E1980-01)	106 (white RAL 9003)
	88 (light grey RAL 7035)
Exposure to external fire (EN 13501-5)	B_{roof} (t1)* *Classification report: *No. D/4/1/2023 - Łukasiewicz IMBiGS*
Consumption: 1-1,2kg/m² for two layers (cementitious surface)	

Categorization based on EAD 030350-00-0402

Neoproof® Polyurea R has been tested as a waterproofing system according to European Assessment Document EAD 030350-00-0402. It has successfully passed the most rigorous tests of the standard for both non-compressible substrates (concrete/steel) and compressible substrates (polyurethane foam/bituminous membrane), under demanding conditions simulating *severe climate*, *all surface slope categories*, the *most adverse low and high surface temperature conditions* defined by the standard, as well as the *highest service loads* on non-compressible substrates. It is classified in the highest category **W3** of EAD 030350-00-0402, both as a *non-reinforced* system (System 1) and as a *reinforced* system (System 2), with an *expected service life of 25 years*.

Neoproof® Polyurea R – ETA 24/1247
Substrate: Concrete – Steel / PU foam – Bituminous membrane
System 1: **Neoproof® Polyurea R** (≥1,5kg/m^2)
System 2: **Neoproof® Polyurea R** (≥2,3kg/m^2) reinforced with **Neotextile®**

Service life	Category **W3** (expected service life 25 years)[1]	
Climate zone	Category **S** (severe)[2]	
Roof slope	Categories **S1-S4** (slopes <5% up to >30%)	
User load	Substrate: *Concrete – Steel* **System 1 & System 2** **P4** (special – high)[3] **P3** (normal)[3]	Substrate: *PU foam – Bituminous membrane* **System 1** **P1** (low)[3] **System 2:** **P2** (moderate)[3]
Lowest surface temperature	Category **TL4** (-30°C)	
Highest surface temperature	Category **TH4** (+90°C)	

[1] *Table of categorization for expected working life acc. to EAD 030350-00-0402*

Category	Expected working life
W1	5 years
W2	10 years
W3	25 years

[2] *Table of categorization for climatic zones acc. to EAD 030350-00-0402*

Category	Annual radiant exposure on horizontal surface	Average temperature of the warmest month per year
M (Moderate)	<5GJ/m^2	<22°C
S (Severe)	≥5GJ/m2 and/or	≥22°C

[3] *Table of categorization for user load acc. to EAD 030350-00-0402*

Category	User load	Examples of accessibility
P1	Low	Non accessible
P2	Moderate	Accessible for maintenance of the roof only
P3	Normal	Accessible for maintenance of plant and equipment and to pedestrian traffic
P4	Special - High	Roof gardens, inverted roofs, green roofs

Application conditions

Substrate moisture content	<4%
Relative air humidity (RH)	<85%
Application temperature (ambient - substrate)	+5°C min. / +35°C max.

Curing details

Pot life (RH 50%)**	+5°C	100 minutes
	+23°C	80 minutes
	+35°C	45 minutes
Drying time (RH 50%)	+5°C	8 hours
	+23°C	3 hours
	+35°C	2 hours
Dry to recoat (RH 50%)	+5°C	24 hours
	+23°C	18 hours
	+35°C	10 hours
Early rain resistance	1 hour	
Total hardening	~7 days	

** Low temperatures and low humidity during application and/or curing prolong the above times, while high temperatures and high humidity reduce them*

*** Due to the high viscosity of the mixture over time, for easier application it is recommended to take into account half the time of the one mentioned at the table*

Appropriate primers on usual substrates

Substrate	Primer	Description - Details
Concrete, cement screed	**Acqua Primer NP**	Water-based epoxy primer (Application temperature: +12°C min. / +35°C max.)
	Epoxol® Primer	Solvent-based epoxy primer (Application temperature: +5°C min. / +35°C max.)
	Neodur® Primer 1K	Fast-drying one-component polyurethane primer. Enables the application of the 1st layer of the **Neoproof® Polyurea** system on the same day
	Neodur® Fast Track PR	Fast-drying hybrid (polyurea-polyurethane) primer. Enables the application of the 1st layer of the **Neoproof® Polyurea** system on the same day
	Neopox® Primer WS	Solvent-free epoxy primer for damp surfaces. Ideal for substrates with high moisture content (without ponding water or rising moisture)
Bitumen membranes	**Neopox® Primer BM**	Epoxy primer for applications on bitumen membranes with or without slates
Metal (iron, steel)	**Neopox® Special Primer 1225**	Anti-corrosive epoxy primers. Excellent adhesion on metal surfaces and anti-corrosive protection.
	Neopox® Primer 815	
Inox, galvanized steel, aluminium	**Neotex® Inox Primer**	One-component water-based primer, with high adhesion strength on glossy non-porous substrates
PVC membranes	-	Direct application after treating the surface with solvent **Neotex® 1021**
New PU foam insulation	-	Direct application without primer

Instructions for use

Substrate preparation

The surface must be stable, clean, dry, protected from rising moisture and free of dust, oil, grease and loose materials. Any poorly adhering materials and older coatings should be removed, and the surface should be thoroughly cleaned mechanically or chemically. Depending on the substrate, appropriate mechanical preparation may be required, to smooth the irregularities, open the pores and create the optimum conditions for adhesion. The surfaces should have the appropriate slopes and they should be sufficiently flat, smooth, and continuous (i.e., without holes, cracks, bays, etc.). In the opposite case, they should be treated accordingly (e.g. by proper puttying).

Priming

Prior to the application of **Neoproof® Polyurea R**, the proper **NEOTEX®** primer should be applied, depending on the substrate (see table). In the case of cementitious substrates, it is proposed to apply the water-based epoxy primer **Acqua Primer NP**. In that case, the surface temperature must be higher than +12°C.

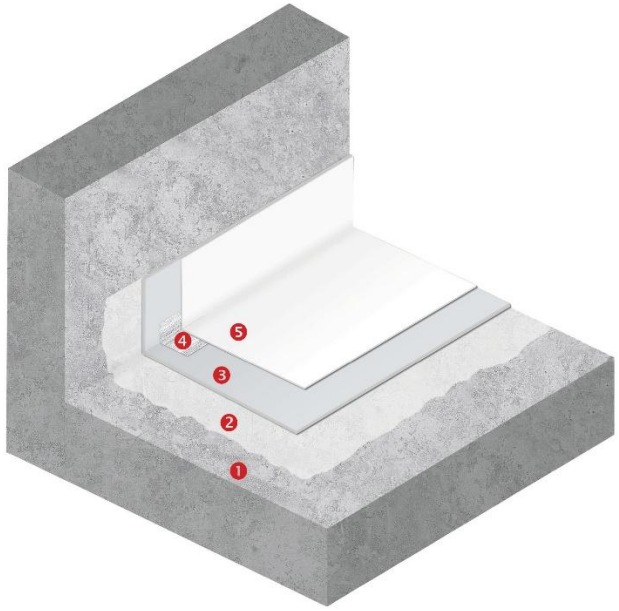
Application

Following the priming of the surface, **Neoproof® Polyurea R** is applied undiluted, in at least two layers by roller, brush or airless spray. Every layer should be applied in a vertical or different direction than the previous one.

Before mixing the two components, component A should be mechanically stirred thoroughly for app. 1 minute. Components A & B are then mixed at the predetermined ratio (13A:6B w/w) and mechanically stirred for app. 3 minutes with a low-speed stirrer until the mixture is homogeneous.

Along the upstands-floor intersections (as well as in all other corners), in construction details (such as around and inside roof drains), along the joints, as well as when covering cracks, it is advisable that **Neoproof® Polyurea R** is locally applied in advance, reinforced with the specially designed non-woven polyester fabric **Neotextile® NP** of 100gr/m^2 weight ("wet-on-wet" application of two layers with the fabric positioned in between).

Indicative systems build-up



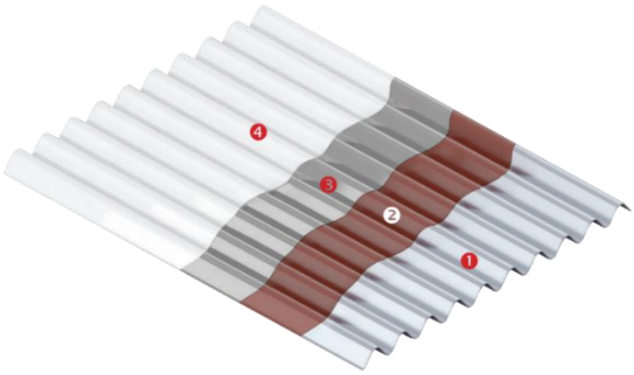
EXPOSED ROOF WATERPROOFING ON CEMENTITIOUS SUBSTRATE

1. Cementitious substrate
2. *Primer:* **Acqua Primer NP or Neodur® Primer 1K**
   *(or alternative appropriate **NEOTEX®** primer)*
3. *Waterproofing base coat:*
   Neoproof® Polyurea R
4. *Corner reinforcement:* **Neotextile® NP tape**
5. *Waterproofing topcoat(s):*
   Neoproof® Polyurea R

*Consumption of **Neoproof® Polyurea R**: 1-1,2kg/m^2 (for two layers)*

FOR A 25-YEAR SERVICE LIFE, BASED ON EAD 030350-00-0402 (ETA 24-1247)

*Consumption of **Neoproof® Polyurea R**: ≥1,5kg/m^2 in 2-3 layers*

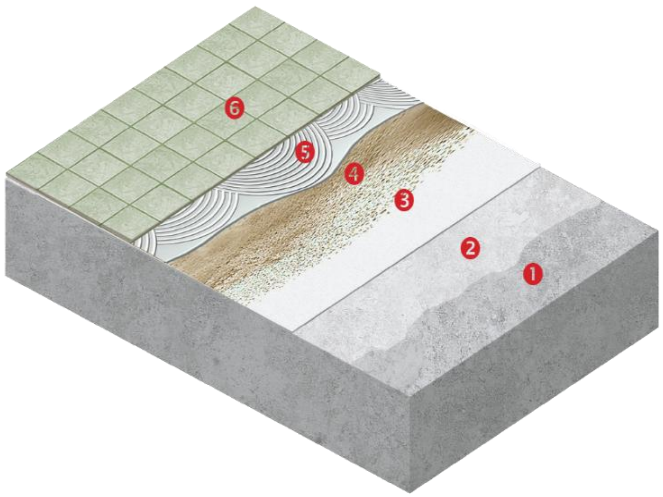


WATEPROOFING OF EXPOSED METAL ROOF

1. Metallic substrate
2. *Primer:* **Neopox® Special Primer 1225**
   *(or alternative appropriate **NEOTEX®** primer)*
3. *Waterproofing base coat:*
   Neoproof® Polyurea R
4. Waterproofing topcoat*:*
   Neoproof® Polyurea R

*Consumption of **Neoproof® Polyurea R**: 1-1,2kg/m² in 2 layers*

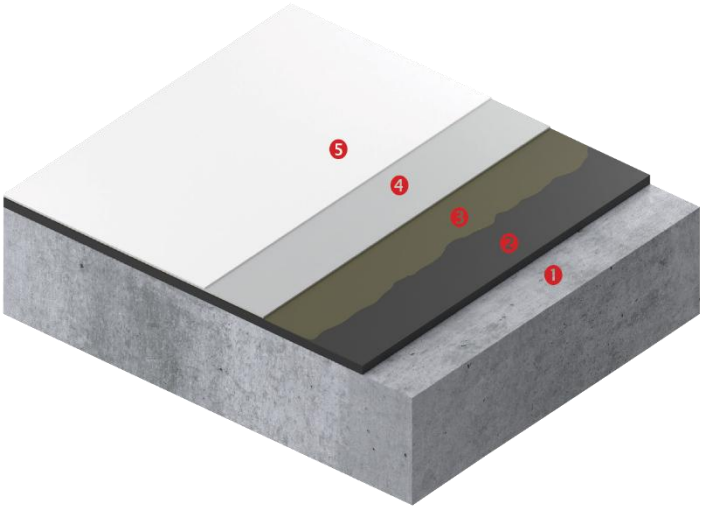
FOR A 25-YEAR SERVICE LIFE, BASED ON EAD 030350-00-0402 (ETA 24-1247)
*Consumption of **Neoproof® Polyurea R**: ≥1,5kg/m² in 2-3 layers*



ROOF / TERRACE / BALCONY WATERPROOFING UNDER TILES

1. Cementitious substrate
2. *Primer:* **Acqua Primer NP**
3. *Waterproofing layers:*
   Neoproof® Polyurea R (min. 2 layers)
4. Quartz sand (broadcast)
5. Elastic tile adhesive
6. Tiles

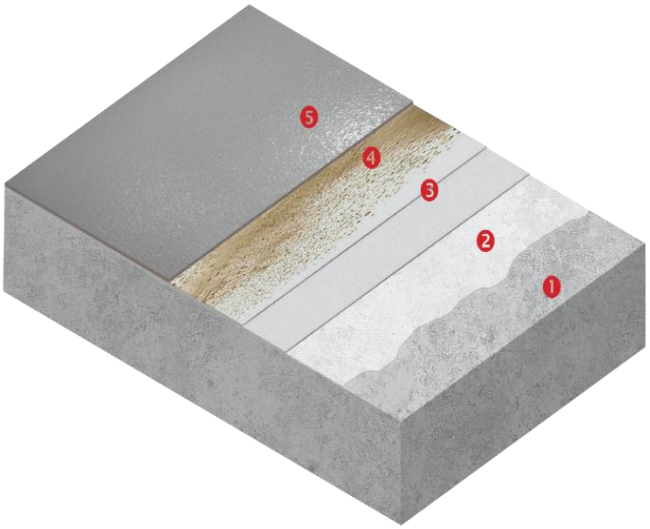
*Consumption of **Neoproof® Polyurea R**: 1-1,2kg/m² (for two layers)*



ROOF WATERPROOFING
ON TOP OF BITUMEN MEMBRANE

1. Cementitious substrate
2. Smooth bitumen membrane
3. *Primer:* **Neopox® Primer BM**
4. *Waterproofing base coat:*
   Neoproof® Polyurea R
5. *Waterproofing topcoat:*
   Neoproof® Polyurea R

*Consumption of **Neoproof® Polyurea R**: 1,2-1,5kg/m² (for two layers)*



EXPOSED ROOF PARKING DECK
WATERPROOFING

1. Cementitious substrate
2. *Primer:* **Acqua Primer NP**
3. *Waterproofing layers:*
   Neoproof® Polyurea R (min. 3 layers)
4. Quartz sand (broadcast)
5. *Wear-resistant waterproof topcoat:*
   Neodur® FT Elastic

*Consumption of **Neoproof® Polyurea R**: ~1,8kg/m² (for 3 layers)*

Special notes

- **Neoproof® Polyurea R** should not be applied under wet conditions, or if wet conditions or rainy weather are expected to prevail during the application or the curing period of the product

- The components should not have been stored at very low or very high temperatures, especially before mixing. Mixing and stirring of the mixture should be preferably done in the shade. The stirring of the mixture must be done mechanically and not manually with a rod, etc.
- Excessive stirring of the material should be avoided, in order to mitigate the risk of air entrapment. After stirring the mixture, it is recommended to apply the material shortly in order to avoid the development of high temperatures and potential hardening inside the can
- Substrate temperature during application and curing must be at least 3°C above dew point to avoid condensation issues
- The application is continued sufficiently in the vertical surfaces of the roof (min. 30cm), in order to form a uniform waterproofing membrane. It is recommended in any case to cover the upstands entirely and to continue the waterproofing application in their horizontal sections.
- The durability of the waterproofing system is enhanced by the increase of the total dry film thickness, which may be achieved through the application of an additional layer or layers
- The consumption of each unreinforced layer of **Neoproof® Polyurea R** should be lower than 1kg/m^2, in order to mitigate the risk of any solvent entrapments in the mass of the waterproofing membrane
- In cases of application under tiles, it is recommended to broadcast quartz sand during the application of the final layer of the product, while it is still fresh, in order to enhance the adhesion of the subsequent layer of the tile adhesive. After the hardening of **Neoproof® Polyurea R**, any loose grains should be removed with a high suction vacuum cleaner. It is advisable to use an elastic tile adhesive (indicative proposed type C2TE S1).
- In cases of projects with higher demand in terms of mechanical resistance and crack bridging, it is recommended that **Neoproof® Polyurea R** is thoroughly reinforced with the non-woven polyester fabric **Neotextile® NP** or the fiber glass reinforcement **Fiberglass Mat 225 P.B.** in the whole application surface
- For the release of any trapped water vapour of the substrate, it is recommended to apply air vents in the whole roof's surface per 20-25m^2
- In case of new cement screed and soon after its laying, it is recommended to create suitable joints (per 15-20m^2 of surface area and at a depth approximately equal to ¾ of the thickness of the cement screed), which shall then be properly sealed (eg with closed-cell PE foam cord and **Neotex® PU Joint** after proper priming of their sides). It is also necessary to create expansion joints around the perimeter, as above, and with a minimum width of 1cm. Any existing joints of the concrete slab should be transferred to the new substrate.

Maintenance instructions

- The total hardening of the film occurs app. 7 days after the application of the final layer, depending also on the atmospheric conditions. During this period, it is advisable that the access to the application area is prohibited or limited only to specialized personnel.
- It is recommended to annually inspect the coating for any damage caused by accidental impact or misuse
- In case of need for local repairs, **Neoproof® Polyurea R** is re-applied in its original dry film thickness at the minimum, after cleaning and priming (if necessary) the affected area. Where appropriate, it is recommended that the non-woven polyester fabric **Neotextile® NP** is used as a reinforcement.

- Periodic cleaning by water-jetting is advisable (combined with a neutral washing agent, if needed), especially in case of heavy accumulation of dirt, dust and pollutants on the surface

Appearance	Viscous liquid
Colours	White, Light grey RAL 7035, Nordic Available in other shades upon request
Packing	Sets (A+B) of 19kg, 4,75kg and 1kg in metallic cans
Cleaning of tools – Stains removal	By **Neotex® 1021** or **Neotex® PU 0413** immediately after application. In case of hardened stains, by mechanical means
Volatile organic compounds (V.O.C.)	V.O.C. limit acc. to the E.U. Directive 2004/42/CE for this product of category AjSB: 500g/l (Limit 1.1.2010) - V.O.C. content of the ready-to-use product <500g/l
UFI code	*Component A:* H990-W0T8-Y00K-8XQ2 *Component B:* QRE0-70PW-W00A-PQ0E
Versions	**Neoproof® Polyurea,** pure aliphatic polyurea waterproofing system, with ultra-long service life **Neoproof® Polyurea H**, hybrid polyurea – polyurethane system **Neoproof® Polyurea C1**, high-build, applicable in a single coat when the substrate is flat and smooth **Neoproof® Polyurea F**, with certification for its reaction to fire **Neoproof® Polyurea AR**, with enhanced resistance to root penetration
Storage stability	*Component A:* 2 years, stored in its original sealed packing, protected from frost, humidity, and exposure to sunlight *Component B:* 1 year, stored in its original sealed packing, protected from frost, humidity, and exposure to sunlight

CE

1922

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1922-CPR-0386

DoP No.: 4950-14

EN 1504-2

Neoproof® Polyurea R

Surface protection products

Coating

Water vapour permeability	Class II
Adhesion strength	≥1.5N/mm^2
Capillary absorption and permeability to water	W<0.1Kg/m^{2}h$^{0.5}$
Permeability to CO_2	S_D>50m
Reaction to fire	Euroclass F
Dangerous substances	Complies with 5.3

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ETA 24/1247

EAD 030350-00-0402

DoP No.: 4951-08

Neoproof® Polyurea R

External fire performance (EN 13501-5)	Broof(t1)
Fire reaction (EN 13501-1)	NPA
Resistance to water vapour	μ=1923
Watertightness	Pass
Resistance to wind loads	≥50kPa
Resistance to mechanical damage	P1-P4
Expected working life	W3 (25 years)
Climatic zone	S (Severe)
Roof slopes	S1-S4
Minimum surface temperature	TL4 (-30°C)
Maximum surface temperature	TH4 (90°C) – TH1 (30°C)
Resistance to ageing media (heat and water)	W3
Resistance to UV radiation in the presence of moisture	W3, S (severe), 5000 hours
Resistance to Plant Roots	NPA
Slipperiness	NPA
Content, emission and/or release of dangerous substances	NPA

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