

# BPA-DUALPROOF S – COMPOSITE WATERPROOFING MEMBRANE

Composite waterproofing membrane with self-healing properties

## PRODUCT DESCRIPTION

The Composite Sheet Waterproofing Membrane BPA-DualProof S consists of a PVC-sealing membrane co-extruded with an innovative swelling non-woven. The special feature of this non-woven is its swelling polymers which swell in contact with water, are water-absorbing and equipped with self-healing properties. Pre-applied, the BPA-DualProof S forms a strong mechanical bond with the freshly poured concrete. This prevents any lateral water migration between the membrane and the cured concrete.



## APPLICATION AND APPLICATION AREAS

BPA-DualProof S may be used in all applications where reinforced concrete structures must be protected against groundwater and contaminants. It is suitable for external, single layer structural waterproofing of floor slabs and exterior concrete wall surfaces against soil moisture and non-pressurized and pressurized water. BPA-DualProof S is a Composite Waterproofing Membrane suitable for pre- as well as post-applied use.

Amongst others the application areas include:

- 🔗 Complementary measure for high-quality below grade structural waterproofing according to BS 8102:2009 (combination of Type A and Type B waterproofing).
- 🔗 Suitable for the sealing of prefabricated concrete elements
- 🔗 Complementary measure for the protection of construction-, crack inducer-, and expansion joints (BPA-DualProof S is not suitable as a single measure for the sealing of expansion joints)
- 🔗 Protects concrete against chemical stresses, e.g. aggressive ground water
- 🔗 Barrier against radon and radon gas

## HOW DOES BPA-DUALPROOF S WORK?

Pre-applied, the strong sealing capacity of BPA-DualProof S is obtained through 3 functions:

The first sealing function lies in the PVC-membrane. The second sealing function is achieved through the PP-fleece which forms a permanent, strong mechanical bond with the freshly poured concrete thus preventing any water from tracking between the membrane and the concrete. The third sealing function is only activated if the membrane is damaged and the incoming water activates the swelling non-woven geotextile creating an extremely tight, gel-like film which permanently seals the concrete structure.

When used post-applied, BPA-DualProof S has two sealing functions:

The first sealing function lies in the PVC-membrane. The second sealing function is by the swelling non-woven which upon contact with water actively seals any damages.

Note: loose laid post-applied DualProof S needs a minimum backfilling / soil pressure of 150 kg/m<sup>2</sup>

## CHARACTERISTICS AND ADVANTAGES

- 🔗 BPA-DualProof S can be used both pre- and post-applied.
- 🔗 Provides all Grades of Protection according to EN 13967 and BS 8102 (Type A / Combination Type A and B)
- 🔗 Fast and easy to install
- 🔗 The combination of swelling non-woven and flexible PVC-membrane turns DualProof S into a breathable and fail-safe, state-of-the-art waterproofing unity.
- 🔗 Excellent application properties, overlaps can be either adhered or welded.
- 🔗 The high-performance PVC-membrane can be easily and economically connected/thermally welded to existing sealing products and waterstops.



- 🔗 Protects concrete against chemical attack (like salt and sulphate)
- 🔗 May be used in salt water conditions
- 🔗 Working temperature between -5 and +50 °C (without additional application requirements)
- 🔗 Highly flexible waterproofing and crack bridging in case of concrete cracks caused by strength and shrinkage through the formation of a mechanical bond with the freshly poured concrete
- 🔗 Compatible with bitumen
- 🔗 Self-healing properties of the swelling fleece offers reliable protection even when installed subsequently

## APPROVALS

- 🔗 CE Marking DIN EN 13967
- 🔗 German DIN 18195 Standard - new DIN 18533
- 🔗 German DIN SPEC 20000-202 approved
- 🔗 General German Test Report PG-ÜBB / abP
- 🔗 British standard BS 8102:2009 and Kiwa Certificate (BDA Certificate)

## FORM OF DELIVERY

**BPA-DualProof S** rolls are each wrapped in foil and delivered with a one-sided PVC-edge.

	ARTICLE-NUMBER	ROLL WIDTH	ROLL LENGHT	PACKAGING UNIT	OVERLAPS	
<b>DUALPROOF S 1,2</b>	25-228	2,16	25	7 ROLLS / PALLETT	PVC-EDGE	50 / 100 MM
<b>DUALPROOF S 2,0</b>	25-240	2,16	25	7 ROLLS / PALLETT	PVC-EDGE	100 MM

Shelf life 18 months after production date when stored clean, dry and shaded from sunshine in the original wrapping in temperatures between + 5 °C and + 30 °C. Please refer to the product label for production date and identification number.

Do not stack any sharp items or additional pallets on top of the product for transport and storage. Appropriate load-securing measures must be taken for transport

## TECHNICAL DATA

	ACCREDITATIONS	ACCORDANCE WITH DIN SPEC 20000-202
<b>DUALPROOF S 1,0</b>	GENERAL BUILDING TEST CODE CERTIFICATE, EN13967	NOT RELEVANT
<b>DUALPROOF S 1,2</b>	STANDARD EN13967, DIN SPEC 20000-202	BA PVC-P-1,2-BV-K-PPV-100
<b>DUALPROOF S 2,0</b>	STANDARD EN13967, DIN SPEC 20000-202	BA PVC-P-2,0-BV-K-PPV-100



<b>Product Type</b>	<b>DualProof S</b>		<b>CE</b> <b>0799-CPR-146</b> <b>16</b>		
	Type	BPA-DualProof S 1,2; BPA-DualProof S 2,0			
	Intended use	EN 13967 – Flexible membrane for waterproofing (Building)			
	<b>Type A and Type T Waterproofing membrane with moisture barrier and groundwater barrier</b>				
Material	DualProof S	PVC-P Membrane + PP-Swelling Non-Woven			
Visible defects	DualProof S 1,2 DualProof S 2,0	No visible defects	✓ passed	EN 1850-2	
Straightness	DualProof S 1,2 DualProof S 2,0	≤ 75 mm / 10 m	✓ passed	EN 1848-2	
Mass	DualProof S 1,2 DualProof S 2,0	1,580 2,550	kg/m <sup>2</sup> kg/m <sup>2</sup>	(+ 10% / - 5%) (+ 10% / - 5%) EN 1849-2	
Thickness	DualProof S 1,2 DualProof S 2,0	<b>Membrane</b>		<b>DualProof</b>	EN 1849-2
		1,2 mm 2,0 mm	1,6 mm 2,4 mm	(+ 10% / - 5%) (+ 10% / - 5%)	
Watertightness against water	DualProof S 1,2 DualProof S 2,0	690 kPa			ASTM D 5385
		60 kPa / 24h		✓ tight	EN 1928 (B)
		500 kPa / 72h			EN 1928 (B)
Durability against artificial aging	DualProof S 1,2 DualProof S 2,0	12 Wochen / 70 °C; 60 kPa		✓ tight	EN 1296 EN 1928 (B)
Durability against chemicals	DualProof S 1,2 DualProof S 2,0	28 d / +23 °C; 60 kPa / 24h; 500 kPa / 72h		✓ tight	EN 1847 EN 1928 (B)
		Ca(OH) <sub>2</sub> / H <sub>2</sub> SO <sub>3</sub> / NaCl			
Compatibility with bitumen	DualProof S 1,2 DualProof S 2,0	60 kPa / 24h; 500 kPa / 72h		✓ tight	EN 1548 EN 1928 (B)
Watertightness in case of subsequent cracks	DualProof S 1,2 DualProof S 2,0	DualProof mechanical bond with freshly poured concrete 6,9 bar / ≥ 3,2 mm 6,9 bar / ≥ 3,2 mm		✓ tight	ASTM D 5385
Root resistance	DualProof S 1,2 DualProof S 2,0	Membrane and overlapping		✓ passed	DIN CEN/TS 14416



		g		Sd		μ		EN 1931
			kg/(m <sup>2</sup> s)		m			
Water vapour diffusion resistance	DualProof S 1,2	1,41E-08	kg/(m <sup>2</sup> s)	28,9	m	12391		
	DualProof S 2,0	1,06E-08	kg/(m <sup>2</sup> s)	38,5	m	13653		
Tensile strenght MD / CMD	DualProof S 1,2	≥ 980 / 980		N/50mm				EN ISO
	DualProof S 2,0	≥ 1300 / 1300		N/50mm N/50mm				12311-2 (A)
Elongation at break MD / CMD	DualProof S 1,2	≥ 68 / 68	%					EN ISO
	DualProof S 2,0	≥ 240 / 240	%					12311-2 (A)
Shear resistance in the overlapping	DualProof S 1,2 DualProof S 2,0	Collapse outside of the overlapping:						
		≥ 300 ≥ 300		N/50mm N/50mm				EN 12317-2
Resistance to impact	DualProof S 1,2	≥ 600		mm				EN 12691 (A)
	DualProof S 2,0	≥ 1250		mm				
Tear resistance MD / CMD	DualProof S 1,2	≥ 500 / 500		N				EN 12310-1
	DualProof S 2,0	≥ 625 / 625		N		(Nailshank)		
Resistance to static load	DualProof S 1,2	≥ 20kg / 24h				✓ passed		EN 12730 (A) EN 12730 (B)
	DualProof S 2,0							
Crack bridging ability	DualProof S 1,2	≥ 3,2		mm		✓ passed		ASTM D 5385
	DualProof S 2,0							
Reaction to fire	DualProof S 1,2	Class E						EN ISO 11925-2 EN 13501-1
	DualProof S 2,0							

## ADDITIONAL INFORMATION

BPA-DualProof S can be used in saline or alkaline environments due to its chemical resistance. In addition, the raw material PVC has a very slow decomposition time. The basic materials PP and PVC are thermoplastics known for their recyclability. Please see the BPA-DualProof installation guideline for detailed application instructions.

### Surface Preparation

All surfaces onto which the DualProof S Membrane is to be applied should be sound, solid and free from gaps or voids that are greater than 12mm. All corners, up-stands, pipe / service penetrations, etc. must be detailed correctly (please consult our Technical Department for further advice) prior to the application of the membrane.

DualProof S is designed for use with structural reinforced concrete. The concrete should be designed by a Structural Engineer to EN 1992. Please ensure that the concrete is placed and cured correctly, and that all non- movement construction joints are detailed with CEMflex Active Waterstop.

### Application of DualProof S Membrane

BPA-DualProof S should be placed onto the properly prepared substrate, with the PP-Fleece facing towards the concrete which is to be waterproofed. The edges of the membrane should be overlapped by a minimum of 50mm and the ends of the rolls staggered by a minimum of 300mm. All overlaps should be sealed using either BPA-DualProof CEM 805 Adhesive, or by using suitable heat-welding equipment. The installed membrane should be inspected for damages prior to the placement of



the concrete. In the unlikely event of damage occurring to the membrane, repairs may be completed by simply placing a patch of membrane over the damaged area and bonding with BPA-DualProof CEM 805 Adhesive.

The installed membrane may be cleaned using a soft -brush or a low-pressure system using cold water if required. All standing water or any construction debris must be removed from the membrane prior to placing the concrete.

#### **General Advice**

Application temperature: -5°C - +50°C The above-mentioned temperatures constitute the generally valid area in which no additional measures need to be taken during application.

#### **Environment and Health**

This product does not represent a hazardous substance within the meaning of the EU Hazardous Substances Regulation. A safety data sheet for transport, placing on the market and use is available on the request.

#### **Dangers and Safety**

The essential safety, toxicological, physical and ecological data for the handling of BPA-DualProof S can be taken from the product-specific safety data sheets.

#### **Data**

All technical data stated in this product data sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

#### **Disclaimer**

All above mentioned Information concerning BPA-products, especially any recommendations and advices relating to the application and use of BPA products are given in good faith based on BPA's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with BPA's recommendations.

In practice, the differences in materials, actual site conditions and other factors outside are such that no warranty nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose before proceeding with the full application of the products. BPA reserves the right to change the properties of its products without notice. Users must always refer to the most recent issue of the Data Sheet for the product concerned, copies of which will be supplied on request. All sales of BPA products are subject to our current terms and conditions.

#### **Local Restrictions**

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local product data sheet for the exact description of the application fields.

