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Authorised and notified according
to Article 29 of the Regulation (EU)
No 305/2011 of the European
Parliament and of the Council of 9
March 2011

MEMBER OF EOTA



European Technical Assessment ETA-18/0239 of 07/05/2018

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:

Regupol® sound and drain 22

Product family to which the above construction product belongs:

Impact sound insulation and drainage for walkable surfaces at the outside of buildings

Manufacturer:

Berleburger Schaumstoffwerk GmbH,
Am Hilgenacker 24
D-57319 Bad Berleburg
Tel. +49 (0)2751 803 0
Internet: www.berleburger.de

Manufacturing plant:

Berleburger Schaumstoffwerk GmbH,
Werk 2,
Industriestrasse 6,
D-57319 Bad Berleburg

This European Technical Assessment contains:

11 pages including 1 annex which form an integral part of the document

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:

European Assessment Document (EAD) No. 040708-00-0402; December 2017

This version replaces:

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II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product and intended use

Technical description of the product

Regupol® sound and drain 22 is a system of rubber fiber mats used for the improvement of impact sound insulation of external floors and rainwater drainage, and protection of water proofing layers.

The rubber fiber mats are made from PU-bonded rubber fibers with top fleece finish, typical installation shown in ANNEX A.

2 Specification of the intended use in accordance with the applicable EAD

The rubber fiber mats are intended for use in areas where impact sound improvement is essential, as well as for rainwater drainage and protection of the water proofing layer e.g. on roof terraces placed above living spaces. Meeting the requirements for safety in case of fire and safety in use in the sense of the Basic Works Requirements 2 and 4 of Regulation (EU) 305/2011 shall be fulfilled.

The impact sound insulation, drainage and protection of the waterproofing liner for walkable surfaces at the outside of buildings, made of dimpled rubber fiber mat laminated with geotextile, 10.000 x 1.250 x 6/15 mm should comply with:

- $\Delta L_{w,p}$ 30 dB (DIN EN ISO 10140) for wooden terraces;
- $\Delta L_{w,p}$ 35 dB (DIN EN ISO 10140) for paving slabs on grit packed bed;
- $\Delta L_{W,(Cl,\Delta)}$ 37 dB (DIN EN ISO 10140) for paving slabs on pedestals;
- $\Delta L_{W,(Cl,\Delta)}$ 28 dB (DIN EN ISO 10140) for wooden terraces on pedestals;
- $\Delta L_{W,(Cl,\Delta)}$ 35 dB (DIN EN ISO 10140) for ceramic tiles on pedestals;
- $s'_t = 21 \text{ MN/m}^3$ (EN 29052-1);
- $\Delta \epsilon = -6,8\%$ (DIN EN 1605);
- $q_{20Pa/0,010} = 0,018 \text{ l/(m*s)} / q_{20Pa/0,015} = 0,025 \text{ l/(m*s)}$ (DIN EN ISO 12958);
- Fire behavior class E (DIN EN 13501)
- Resistance to oxidation (DIN EN ISO 13438)
- Resistance to hydrolysis (DIN EN 12447)
- Resistance to ozone (DIN EN 1844)
- Resistance to weathering (in dependence on DIN EN 12224)

The rubber fibre mats are to be installed according to the manufacturers installation manual.

The provisions made in this European Technical Assessment are based on an assumed intended working life of the Regupol® sound and drain 22 of 10 years, for parts subject to wear: The assumed service life for gaskets is 5 years.

The indications given on the working life cannot be interpreted as a guarantee given by the producer or Assessment Body, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

Characteristic	Assessment of characteristic
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3.1 Safety in case of fire (BWR2)

Reaction to fire

The product is classified as Euroclass E in accordance with EN 13501-1, and the EC Delegated regulation 2016/364/EU.

3.2 Safety in use (BWR4)

Tensile strength and elongation at break
 Stress-strain characteristics in compression
 Geometry: Nominal length and width, thickness
 Mass per unit area
 Dynamic stiffness

No Performance Assessed
 No Performance Assessed
 10.000 x 1.250 x 15 mm, dimpled
 No Performance Assessed
 The determination of the dynamic stiffness in accordance with EN 29052-1 of the impact sound insulation with normed load yielded the following average value: $s't = 21 \text{ MN/m}^3$

The determination of the dynamic stiffness based on EN 29052-1 of the impact sound insulation with increased load (7 kN/m²) yielded the following average value: $s't = 37 \text{ MN/m}^3$

Compressive stress and creep

The product shows 11 kPa compressive stress at 10% strain according to EN 826
 The compressive creep & total thickness reduction of the product is 2,3 mm or 13,3% of the nominal thickness; determined in accordance with EN 1606
 Stage according to EN 16069: CC (2,3/0,8/3,9)10

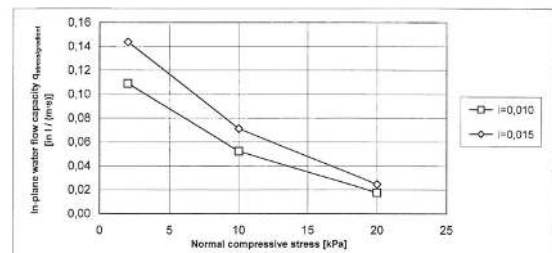
Deformation under specified load and temperature conditions

After being compressively strained with 40 kPa for 48 hours (level A) and afterwards additionally strained with 70°C temperature for 168 hours (level B), the product shows a deformation of $\Delta_\epsilon = -6,8\%$. Test according to EN 1605, test condition 2.

Water flow capacity

Hydraulic gradient i	Test direction	Normal compressive stress [kPa] / Thickness (1 layer) [mm]			
		2 / 16,08	10 / 14,19	20 / 12,86	-
0,010	MD	0,109	0,062	0,018	-
0,015		0,144	0,071	0,025	-
-	-	-	-	-	-

$1 \text{ m}^3/\text{s} = 10^3 \text{ l}/(\text{m} \cdot \text{s})$



The water flow capacity of the product is determined in accordance with EN ISO 12958.

Characteristic**Assessment of characteristic**

Resistance to: Oxidation, Hydrolysis, Ozone, Weathering,

series	Kind of aging	Compressive stress at 10 % strain σ_{10} [kPa]	Dynamic stiffness σ_1 [MN/m ³]
C	Without aging	13	18
A	Resistance to oxidation according to EN ISO 13438 at 180 °C for 28 days	12	21
B	Resistance to hydrolysis in water according to EN 12447 at 70 °C for 78 days	10	17
C	Resistance to ozone according to EN 1844	10	15
D	Resistance to weathering in accordance with EN 12224	12	19

The resistance to oxidation of the mat is determined in accordance with EN 13468.

The hydrolysis resistance of the mat is determined in accordance with EN 12447.

The change of compressive stress in kPa at compression of 10% and the resulting change of dynamic stiffness in MN/m³ are given above.

The resistance to ozone of the mat is determined in accordance with EN 1844.

The resistance to weathering of the mat is determined in accordance with EN 12224 with UV fluorescent lamp type 1 with wave lengths of 340 nm.

Freeze/thaw

Test item no.	Mass m_0 [g]	Mass m_1 [g]
1	315,6	337,0
2	317,8	334,9
3	308,1	325,7
4	315,3	329,3

The resistance to freeze/thaw of the mat is determined in accordance with EN 12091 where the sample preparation is made with storage in water.

Dimensional stability

The dimensional stability of the product according to EN 1604, storage in a climate chamber for 48 hours at 70 (± 2) °C and 90% rel. humidity is $DS_{(70,90)}$ max. +0,4%.

Characteristic	Assessment of characteristic
Impact sound reduction	<p>The impact sound reduction of the product is tested in accordance with EN ISO 10140-1, EN ISO 10140-3, EN ISO 10140-4 and EN ISO 10140-5, and expressed according to EN ISO 717-2</p> <ul style="list-style-type: none"> • $\Delta L_{w,p}$ 30 dB (DIN EN ISO 10140) for wooden terraces; • $\Delta L_{w,p}$ 35 dB (DIN EN ISO 10140) for paving slabs on grit packed bed; • $\Delta L_{w,(Cl,\Delta)}$ 37 dB (DIN EN ISO 10140) for paving slabs on pedestals; • $\Delta L_{w,(Cl,\Delta)}$ 28 dB (DIN EN ISO 10140) for wooden terraces on pedestals; • $\Delta L_{w,(Cl,\Delta)}$ 35 dB (DIN EN ISO 10140) for ceramic tiles on pedestals;
Thermal resistance	<p>$\lambda_{10} = 0,0786 \text{ W/mK}$</p> <p>The thermal resistance and/or thermal conductivity of the mat is determined in accordance with EN 12667.</p>
Identification	See Annex A

*) See additional information in section 3.9 – 3.10.

3.9 Methods of verification

The characteristic values of the rubber fibre mats are based on the EAD 16-04-0708-04.02

3.10 General aspects related to the fitness for use of the product

The European Technical Assessment is issued for the product based on agreed data/information, deposited with ETA-Danmark, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to ETA-Danmark before the changes are introduced. ETA-Danmark will decide if such changes affect the ETA and consequently the validity of the CE marking based on the ETA and if so whether further assessment or alterations to the ETA, shall be necessary.

Regupol® sound and drain 22 are manufactured in accordance with the provisions of this European Technical Assessment using the manufacturing processes as identified in the inspection of the plant by the notified inspection body and laid down in the technical documentation.

4 Attestation and verification of constancy of performance (AVCP)

4.1 AVCP system

According to the decision 97/808/EC of the European Commission, as amended, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) is 4.

5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD

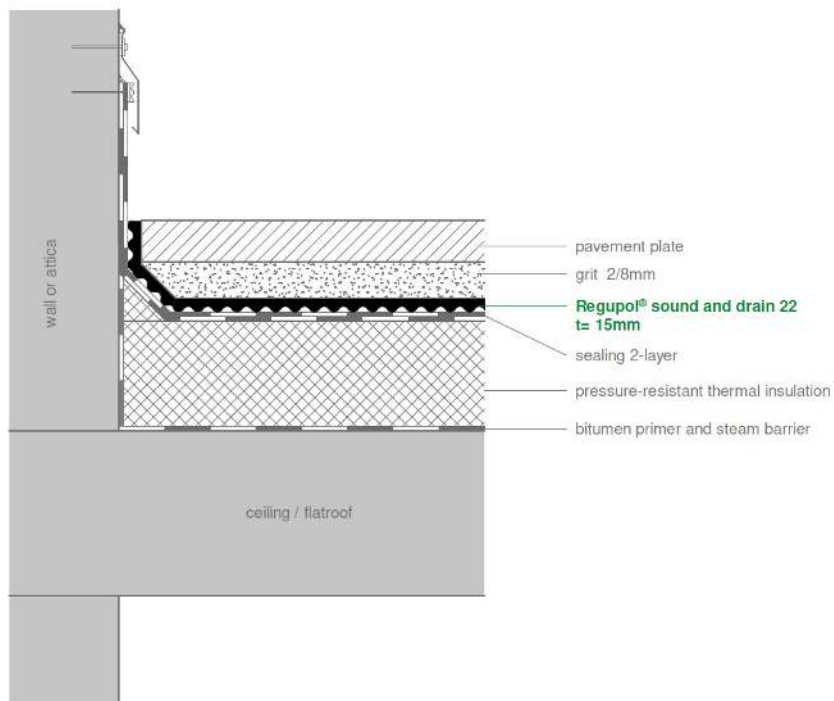
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking.

Issued in Copenhagen on 2018-05-07 by

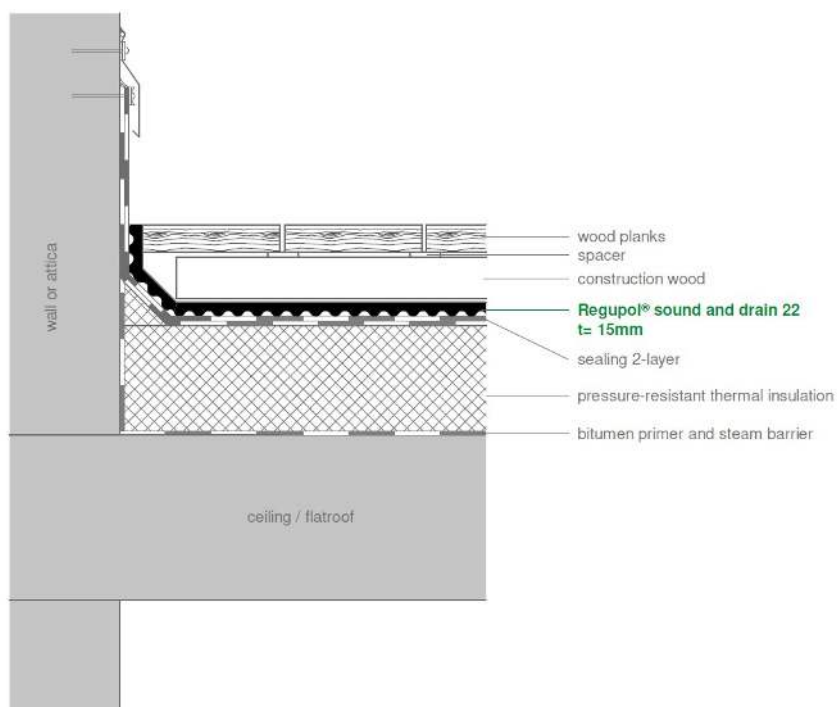
Thomas Bruun
Managing Director, ETA-Danmark

Annex A Typical installation

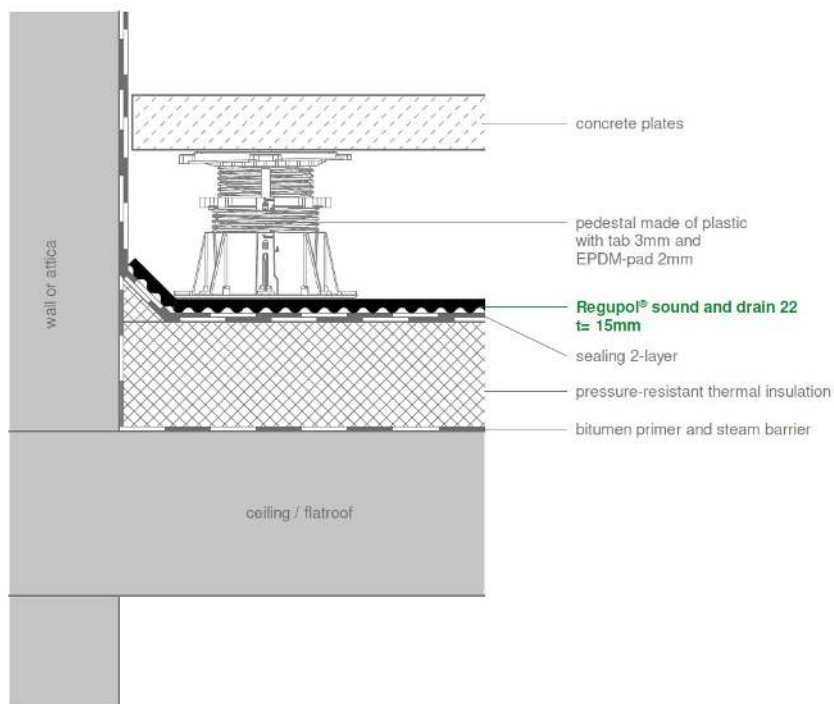
REGUPOL® sound and drain 22 under pavement



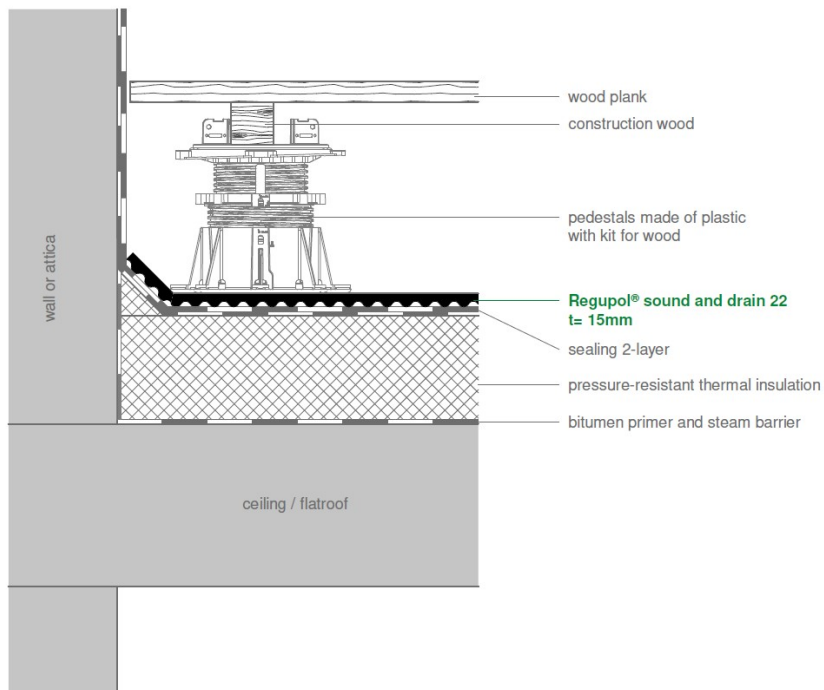
REGUPOL® sound and drain 22 under wood planks



REGUPOL® sound and drain 22 concrete plates on pedestals



REGUPOL® sound and drain 22 wood plank on pedestals



REGUPOL® sound and drain 22 tiles on pedestals

