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European Technical Assessment

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General Part

Technical Assessment Body issuing the European Technical Assessment: Itecons - Instituto de Investigação e Desenvolvimento Tecnológico para a Construção, Energia, Ambiente e Sustentabilidade	
Trade name of the construction product	DAMTEC color wave 3D
Product family to which the construction product belongs	Polyurethane foam mat to be used for impact sound insulation Product area code: 4
Manufacturer	KRAIBURG Relastec GmbH & Co. KG Fuchsberger Straße 4 29410 Salzwedel DEUTSCHLAND www.kraiburg-relastec.com
Manufacturing plant(s)	KRAIBURG Relastec GmbH & Co. KG Fuchsberger Straße 4 29410 Salzwedel DEUTSCHLAND
This European Technical Assessment contains	8 pages
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	EAD 040049-01-0502 - "*Polyurethane (PU) foam mat to be used for impact sound insulation*"

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Specific parts

1. Technical description of the product

This European Technical Assessment applies to polyurethane (PU) foam mats to be installed under floating screeds on solid slabs without contact to soil, ground and surface water. The assessed product, DAMTEC color wave 3D (8/4 mm, 15/7 mm and 17/8 mm), with a density of 320 kg/m^3 to 420 kg/m^3, is a mixture of granulated PU foam with PU elastomer bonding. The mats have one profiled surface and one flat surface.

2. Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)

2.1 Intended use

The polyurethane foam mats DAMTEC color wave 3D are used for the improvement of impact sound insulation of floors and are installed under floating screeds on solid slabs.

The assessment of the product only applies when the product is used only inside buildings in structures where it is protected from wetting and weathering.

The mats are loose-laid on the flat solid floor slab with the profiled surface faced down. A peripheral insulation strip shall be applied over all structural components. The mats shall cover the entire surface to be covered without gaps and with joints sealed with high tack adhesive tape.

As to the application of the PU-foam-mat, the respective national regulations shall be observed in addition.

2.2 Working life/Durability

The provisions made in this European Technical Assessment (ETA) are based on an assumed intended working life of at least 25 years when installed in the works, provided that the mat is subject to appropriate installation. These provisions are based upon the current state of the art and the available knowledge and experience. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer or the Technical Assessment Body, but should only be regarded only as a means for choosing the appropriate products in relation to the expected economically reasonable working life of the product.

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

The assessment for the intended use of DAMTEC color wave 3D to be used for impact sound insulation was performed according with the EAD 040049-01-0502 “Polyurethane (PU) foam mat to be used for impact sound insulation”.

3.1. Mechanical resistance and stability (BWR 1)

Not relevant.

3.2 Safety in case of fire (BWR 2)

3.2.1 Reaction to fire

The reaction to fire was tested according to ISO 11925-2:2020 and classified according to EN 13501-1:2018. The classification is presented in Table 1.

Table 1: Reaction to fire

Product		Classification EN 13501-1:2018
DAMTEC color wave 3D	8/4 mm	Class E
	15/7 mm	
	17/8 mm	

3.3 Hygiene, health and environment (BWR 3)

3.3.1 Content, emission and/or release of dangerous substances

No performance assessed.

3.4 Safety and accessibility in use (BWR 4)

Not relevant.

3.5 Protection against noise (BWR 5)

3.5.1 Dynamic stiffness

The dynamic stiffness was tested according to ISO 9052-1:1989 and ISO 7626-5:2019. The mean value of the apparent dynamic stiffness S'_t for each different thickness of the DAMTEC color wave 3D is listed in Table 2.

Table 2: Dynamic stiffness

Product		Apparent dynamic stiffness, S'_t [MN/m^3]
DAMTEC color wave 3D	8/4 mm	17
	15/7 mm	8
	17/8 mm	8

3.5.2 Impact sound reduction

The impact sound reduction ΔL by floor coverings was tested according to ISO 10140-1:2016, ISO 10140-3:2010, ISO 10140-3:2010/Amd.1:2015, ISO 10140-4:2010 and ISO 717-2:2013. The assessed build up and results are listed in Table 3.

Table 3: Impact sound reduction

Product		Assessed build up	Assessed ΔL_w[1]
DAMTEC color wave 3D	8/4 mm	Screed: concrete floating paving flag with 70 mm thickness and about 182 kg/m^2 of mass per unit area Resilient layer: DAMTEC color wave 3D – 8/4 mm Base: reinforced concrete slab of thickness 140 mm	$\Delta L_w \geq 27$ dB
	15/7 mm	Screed: concrete floating paving flag with 70 mm thickness and about 182 kg/m^2 of mass per unit area Resilient layer: DAMTEC color wave 3D – 15/7 mm Base: reinforced concrete slab of thickness 140 mm	$\Delta L_w \geq 31$ dB

Product		Assessed build up	Assessed ΔL_w[1]
DAMTEC color wave 3D	17/8 mm	Screed: concrete floating paving flag with 70 mm thickness and about 182 kg/m² of mass per unit area Resilient layer: DAMTEC color wave 3D – 17/8 mm Base: reinforced concrete slab of thickness 140 mm	$\Delta L_w \geq 31$ dB

[1] – The assessed ΔL_w includes a reduction of 2dB to take into account the influence of ageing.

3.5.3 Airborne sound insulation

The airborne sound insulation R_W was tested according to ISO 10140-1:2016, ISO 10140-2:2010, ISO 10140-4:2010 and ISO 717-1:2013. The assessed build up and results are listed in Table 4.

Table 4: Impact sound reduction

Product		Assessed build up	Assessed R_w[1]
DAMTEC color wave 3D	8/4 mm	Screed: concrete floating paving flag with 70 mm thickness and about 182 kg/m² of mass per unit area Resilient layer: DAMTEC color wave 3D – 8/4 mm Base: reinforced concrete slab of thickness 140 mm	62 dB
	15/7 mm	Screed: concrete floating paving flag with 70 mm thickness and about 182 kg/m² of mass per unit area Resilient layer: DAMTEC color wave 3D – 15/7 mm Base: reinforced concrete slab of thickness 140 mm	64 dB
	17/8 mm	Screed: concrete floating paving flag with 70 mm thickness and about 182 kg/m² of mass per unit area Resilient layer: DAMTEC color wave 3D – 17/8 mm Base: reinforced concrete slab of thickness 140 mm	65 dB

3.5.4 Geometry

3.5.4.1 Length and width of thermal insulating products

The length and width of the polyurethane foam mat were tested according to EN 822:2013. The nominal length and the nominal with of DAMTEC color wave 3D are listed in Table 5.

Table 5: Length and width

Product		Geometry	
		Length (mm)	Width (mm)
DAMTEC color wave 3D	8/4 mm	8 000	1 250
	15/7 mm	8 000	1 250
	17/8 mm	8 000	1 250
Dimensional deviation *(acc. to EN 16069:2012+A1:2015)*:		L1	W3

3.5.4.2 Squareness

The test results presented in Table 6 were determined using the test procedure according to the standard EN 824:2013.

Table 6: Squareness

Product		Geometry Squareness, S_b (mm/m)
DAMTEC color wave 3D	8/4 mm	≤ 5
	15/7 mm	
	17/8 mm	

3.5.5 Thickness and compressibility

The tests were performed according to the standard EN 12431:2013 and the test results are listed in Table 7.

Table 7: Thickness and compressibility

Product		Thickness, d_L (mm)	Compressibility, c (mm)
DAMTEC color wave 3D	8/4 mm	≥ 7	≤ 0.7
	15/7 mm	≥ 14	≤ 1.2
	17/8 mm	≥ 17	≤ 1.4

3.5.6 Mass per unit area or density

The mass per unit area of DAMTEC color wave 3D was determined according to EN 1602:2013.

Table 8: Density

Product		Mass per unit area (g/m^2)
DAMTEC color wave 3D	8/4 mm	1600 – 3000
	15/7 mm	3200 – 5100
	17/8 mm	3600 - 5700

3.5.7 Compressive creep

No performance assessed.

3.5.8 Compressive strength

The compressive strength was determined according to EN 826:2013. The test results are listed in Table 9.

Table 9: Compressive strength

Product		Compressive stress at 10 % deformation, $\sigma_{10\%}$ (kPa)
DAMTEC color wave 3D	8/4 mm	≥ 5.0
	15/7 mm	≥ 4.5
	17/8 mm	≥ 4.0

3.5.9 Deformation under specified load and temperature

The deformation under specified load and temperature was determined according to EN 1605:2013 with the following test conditions:

- Compressive load: 20 kPa;
- Temperature and duration:
  - step A: (23 ± 5) °C / (48 ± 1) h
  - step B: (35 ± 1) °C / (48 ± 1) h

The test results are listed in Table 10.

Table 10: Maximum change of the relative deformation

Product		Maximum change of the relative deformation, $\Delta\varepsilon^1$ (%)
DAMTEC color wave 3D	8/4 mm	< 5
	15/7 mm	
	17/8 mm	

[1] Δε corresponds to the difference between the relative deformation ε1 after step A and ε2 after step B.

3.5.10 Tensile strength perpendicular to faces

No performance assessed.

3.6 Energy economy and heat retention (BWR 6)

3.6.1 Thermal conductivity and thermal resistance

No performance assessed.

3.7 Sustainable use of natural resources (BWR 7)

Not relevant.

4. Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

According to the Decision of the Commission 2000/273/EC, as amended, and the Commission Delegated Regulation (EU) No. 2016/364, the systems of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table applies:

Product	Intended use(s)	Level(s) or classe(es)	System(s)
Thermal insulating products	any	---	3
	for uses subject to regulations on reaction to fire	E*	3

* Products of Class D or higher are out of the scope of EAD 040049-01-0502.

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

The ETA is issued on the basis of agreed data/information, deposited at Itecons, which identifies the product that has been assessed and judged. It is the manufacturer's responsibility to make sure that all those who use the product are appropriately informed of specific conditions laid down in this ETA.

Changes to the assessed product or its production process should be notified to the Itecons before the changes are introduced. Itecons will decide whether or not such changes affect the ETA and if so whether further assessment or alterations to the ETA shall be necessary.

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By

Technical Assessment Unit of

Itecons – Instituto de Investigação e Desenvolvimento Tecnológico para a Construção, Energia, Ambiente e Sustentabilidade

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Validated document

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