



EUROPEAN ASSESSMENT DOCUMENT

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Rubber fibre mat
to be used for impact sound
insulation

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1 SCOPE OF THE EAD

1.1 Description of the construction product

The construction product is a rubber fibre mat for impact sound insulation. The mats can have a profiled surface and optional layers (e.g. foil) on one or both sides.

The rubber fibre mats can be made of a mixture of rubber fibres and /or rubber granulate. Polyurethane is used as binding agent. The rubber can consist of recycled material.

The product is not covered by a harmonised European standard (hEN).

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport, storage, maintenance, replacement and repair of the product as he considers necessary.

It is assumed that the product will be installed according to the manufacturer's instructions or (in absence of such instructions) according to the usual practice of the building professionals.

Relevant manufacturer's stipulations having influence on the performance of the product covered by this European Assessment Document shall be considered for the determination of the performance and detailed in the ETA.

1.2 Information on the intended use(s) of the construction product

1.2.1 Intended use

The rubber fibre mats are used for the improvement of impact sound insulation of floors. The rubber fibre mats are installed under floating screeds or comparable buildups 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 sufficiently flat solid floor slab. The mats are protected by a suitable foil or the joints between the mats are covered with a suitable adhesive tape before the screed will be built in. The screed above the insulation have at least the mass per unit area given in the ETA.

The mat joints are closely installed. The mats are fixed using a suitable adhesive tape to ensure that no gaps occur. Appropriate insulating edge strips are used on rising walls in order to avoid sonic bridges.

2 ESSENTIAL CHARACTERISTICS AND RELEVANT ASSESSMENT METHODS AND CRITERIA

2.1 Essential characteristics of the product

Table 1 shows how the performance of the rubber fibre mat is assessed in relation to the essential characteristics.

Table 1: Essential characteristics of the product and methods and criteria for assessing the performance of the product in relation to those essential characteristics

No	Essential characteristic	Assessment method	Type of expression of product performance <i>(level, class, description)</i>
Basic Works Requirement 2: Safety in case of fire			
1	Reaction to fire	clause 2.2.1	class (E according to EN 13501-1)
Basic Works Requirement 3: Hygiene, health and the environment			
2	Content, emission and/or release of dangerous substances	clause 2.2.10	description (see clause 2.2.10)
Basic Works Requirement 5: Protection against noise			
3	Dynamic stiffness	clause 2.2.2	level
4	Impact sound reduction	clause 2.2.3	level
5	Geometry	clause 2.2.4	level
6	Thickness and compressibility	clause 2.2.5	level
7	Mass per unit area	clause 2.2.6	level
8	Compressive creep	clause 2.2.7	level
9	Compressive stress / strength	clause 2.2.8	level
10	Deformation under specified load and temperature	clause 2.2.9	level

2.2 Methods and criteria for assessing the performance of the product in relation to essential characteristics of the product

The level to be stated and the classification respectively for each characteristic has to be representative for the range of density, dimension and thicknesses of the product.

The samples shall be chosen accordingly. If necessary, the tests shall be performed on samples with different dimensions, densities and thicknesses so that the worst case for each characteristic can be declared.

2.2.1 Reaction to fire

The rubber fibre mats shall be tested, using the test method according to EN ISO 11925-2 in order to be classified according to EN 13501-1.

The product shall be tested directly exposed to the thermal attack with surface and edge exposure.

The product shall be classified according to EN 13501-1.

2.2.2 Dynamic stiffness

The determination of dynamic stiffness s' or s'_t shall be carried out according to EN 29052-1.

The maximum dynamic stiffness s' or s'_t (if need be, for different thicknesses) shall be stated in the ETA in levels using steps of 1 MN/m³.

Note: The dynamic stiffness is not intended for calculation of impact sound reduction of a floor build-up. Only the impact sound reduction according to clause 2.2.4 shall be used for the design of protection against noise.

2.2.3 Impact sound reduction

The impact sound reduction ΔL by floating screeds on a heavyweight standard floor using the rubber fibre mat shall be determined according to EN ISO 10140-1, EN ISO 10140-3, EN ISO 10140-4 and EN ISO 10140-5 as appropriate (category II). Using this data the weighted impact sound reduction ΔL_w is calculated according to EN ISO 717-2.

The test shall be performed with the floor build-up representing the worst case for impact sound reduction (e.g. minimum mass per unit area of the floating screed and thinnest rubber fibre mat covered by the ETA). If need be, the tests shall be carried out with several build-ups.

The weighted impact sound reduction ΔL_w (if need be, for different build-ups) shall be stated in the ETA. The assessed floor build-up shall be described in detail in the ETA. It shall be stated clearly to which floor build-up the declared impact sound reduction applies. In particular the minimum mass per unit area and the way of installation of the screed shall be given in the ETA.

2.2.4 Geometry

The close installation of the mats (without open joints) is important in order to avoid sonic bridges, therefore the properties of geometry are essential characteristics.

The length and width of the rubber fibre mat shall be determined on at least three test specimens in accordance with EN 822.

The squareness shall be determined on at least three test specimens in accordance with EN 824.

The nominal length and width shall be given in the ETA. The deviation from nominal width and nominal length shall be given in the ETA using the classes according to EN 16069.

The deviation from the squareness in the direction of length and width shall not exceed 5 mm/m according to EN 16069.

2.2.5 Thickness and compressibility

The determination of thickness d_L and d_B shall be carried out according to EN 12431 with at least 3 test samples. The determination shall be performed for each nominal thickness of the product or at least for the maximum nominal thickness covered by the ETA.

The compressibility c is defined as follows: $c = d_L - d_B$

The nominal thickness d_L shall be stated in the ETA. No test result shall fall below the nominal thickness. The maximum compressibility c shall be stated in the ETA.

2.2.6 Mass per unit area

The mass per unit area is to be determined on samples on which the thickness d_L was determined. EN 1602 – Thermal insulating products for building applications - Determination of the apparent density - shall be used as a basis.

The mass per unit area can be determined with the measured density (according to EN 1602) and the measured thickness of the specimens.

The mass per unit area including the tolerances shall be given in the ETA.

2.2.7 Compressive creep

The compressive creep and the total thickness reduction shall be determined after 122 days of testing with at least the imposed load plus self-weight of the screed in accordance with EN 1606 and extrapolated 30 times, corresponding to 10 years.

The compressive creep and the total thickness reduction shall be stated in the ETA.

2.2.8 Compressive stress / strength

Compressive stress at 10 % deformation or compressive strength shall be determined according to EN 826 with at least 5 test samples of 200 mm x 200 mm.

If necessary, the compressive stress at 20 % deformation can be determined exceptionally deviating from EN 826.

The minimum level shall be stated in the ETA.

2.2.9 Deformation under specified load and temperature

Deformation in thickness under specified load and temperature shall be determined according to EN 1605 with at least 3 test samples for test condition 2 (40 kPa / 70°C / 168 h) or test condition 3 (80 kPa / 60°C / 168 h) depending on the intended use.

The maximum change of the relative deformation in % (difference between the relative deformation ε_1 after step A and ε_2 after step B) shall be stated in the ETA.

2.2.10 Content, emission and/or release of dangerous substances

The performance of the product related to the emissions and/or release and, where appropriate, the content of dangerous substances will be assessed on the basis of the information provided by the manufacturer using the methods and criteria of TR 034 based on use scenarios

I/A2: Product with no direct contact to (e.g. covered products) but possible impact on indoor air

I/A3: Product with no contact to and no impact on indoor air

3 ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE

3.1 System(s) of assessment and verification of constancy of performance to be applied

For the products covered by this EAD the applicable European legal act is: Decision 2000/273/EC.

The system is: **3**

In addition, with regard to reaction to fire for products covered by this EAD the applicable European legal act is: Decision 2001/596/EC

The rubber fibre mat will at most be a product of reaction to fire class E.

Therefore the system with regard to reaction to fire is: **3**

3.2 Tasks of the manufacturer

The cornerstones of the actions to be undertaken by the manufacturer of the rubber fibre mat in the procedure of assessment and verification of constancy of performance are laid down in Table 2.

Table 2: Control plan for the manufacturer; cornerstones

No	Subject/type of control	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control *
Factory production control (FPC) [including testing of samples taken at the factory in accordance with a prescribed test plan]					
1	Reaction to fire	EN ISO 11925-2	see 2.2.1	1	once per week
2	Dynamic stiffness	see 2.2.2	see 2.2.2	see test standard	once per week
3	Impact sound reduction	see 2.2.3	see 2.2.3	1	once per year
4	Geometry	see 2.2.4	see 2.2.4	1	once per day
5	Thickness d _L	see 2.2.5	see 2.2.5	3	once per day
6	Compressibility	see 2.2.5	see 2.2.5	3	once per week
7	Mass per unit area	see 2.2.6	see 2.2.6	3	once per day
8	Compressive stress / strength	see 2.2.8	see 2.2.8	3	once per week

No	Subject/type of control	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control *
Factory production control (FPC) [including testing of samples taken at the factory in accordance with a prescribed test plan]					
9	Deformation under specified load and temperature	see 2.2.9	see 2.2.9	3	twice per year
* In case of discontinuous production these minimum frequencies should be adapted to an equivalent frequency.					

4 REFERENCE DOCUMENTS

As far as no edition date is given in the list of standards thereafter, the standard in its current version at the time of issuing the European Technical Assessment is of relevance.

EN 822	Thermal insulating products for building applications - Determination of length and width
EN 824	Thermal insulating products for building applications - Determination of squareness
EN 826	Thermal insulating products for building applications - Determination of compression behaviour
EN 1602	Thermal insulating products for building applications - Determination of the apparent density
EN 1605	Thermal insulating products for building applications - Determination of deformation under specified compressive load and temperature conditions
EN 1606	Thermal insulating products for building applications - Determination of compressive creep
EN 12431	Thermal insulating products for building applications - Determination of thickness for floating floor insulating products
EN 13501-1	Fire classification of construction products and building elements - Part 1: Classification using test data from fire reaction to fire tests
EN 16069	Thermal insulating products for buildings – Factory made products of polyethylene foam (PEF) - Specification
EN 29052-1	Acoustics; Determination of dynamic stiffness; Part 1: Materials used under floating floors in dwellings
EN ISO 10140	Acoustics - Laboratory measurement of sound insulation of building elements
EN ISO 717-2	Acoustics - Rating of sound insulation in buildings and of building elements - Part 2: Impact sound insulation
EN ISO 11925-2	Reaction to fire tests for building products - Part 2: Ignitability when subjected to direct impingement of flame