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European Assessment Document for

Underlays made of granulated polyurethane-foam with or without granulated cork

This European Assessment Document (EAD) has been developed taking into account up-to-date technical and scientific knowledge at the time of issue and is published in accordance with the relevant provisions of Regulation No (EU) 305/2011 as a basis for the preparation and issuing of European Technical Assessments (ETA).

Contents

1 SCOPE OF THE EAD

1.1 Description of the construction product

The construction products are underlays made of granulated polyurethane (PU-)foam with or without granulated cork (in the following referred to as underlays). Polyurethane is used as a binding agent. The granulated polyurethane foam and the granulated cork can consist of pre-consumer recycled material and are not treated with preservatives. An inorganic flame retardant may be added.

The underlay can have different surface layers, for example foils, fleece, etc. as well as different surface structures, for example burls, perforations, etc.

The thickness and area weight of the specific product(s) are to be stated in the ETA.

The product is not covered by a harmonised European standard (hEN).[1]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(s)

The underlays are intended to be installed as layer under various floorings. Installed underlays compensate minor floor unevennesses. This ensures that the flooring can be laid to form a smooth and even surface. At the same time, the underlay offers high compressive strength and prevents the flooring from being damaged by high compressive loads. The underlays are intended to be used only inside buildings and in structures where they are protected from wetting and weathering.

The underlays can either be installed loose-laid or fixed with a suitable adhesive on a sufficiently flat solid underground. The underlays are installed butt and jointless. The adhesive itself is not part of this EAD.

1.2.2 Working life/Durability

The assessment methods included or referred to in this EAD have been written based on the manufacturer's request to take into account a working life of the underlays for the intended use of 25 years when installed in the works. These provisions are based upon the current state of the art and the available knowledge and experience.

When assessing the product, the intended use as foreseen by the manufacturer shall be taken into account. The real working life may be, in normal use conditions, considerably longer without major degradation affecting the basic requirements for works[2]. The indications given as to the working life of the construction product cannot be interpreted as a guarantee neither given by the product manufacturer or his representative nor by EOTA when drafting this EAD nor by the Technical Assessment Body issuing an ETA based on this EAD, but are regarded only as a means for expressing the expected economically reasonable working life of the product.

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[1] The only standard which could be perceived as being of relevance would be hEN 13165. However, EN 13165 contains a comprehensive list of essential characteristics due to the extensive intended use "thermal insulation materials for buildings". The products according to the EAD are only intended to be used as underlays (with very low thickness). Therefore, only BWR 2 and BWR 3 are relevant for the underlays – BWR 5 and BWR 6 are not relevant.

[2] The real working life of a product incorporated in a specific works depends on the environmental conditions to which that works is subject, as well as on the particular conditions of the design, execution, use and maintenance of that works. Therefore, it cannot be excluded that in certain cases the real working life of the product may also be shorter than referred to above.

2 ESSENTIAL CHARACTERISTICS AND RELEVANT ASSESSMENT METHODS AND CRITERIA

2.1 Essential characteristics of the product

Table 2.1.1 shows how the performance of the underlay is assessed in relation to the essential characteristics.

Table 2.1.1 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
Basic Works Requirement 2: Safety in case of fire			
1	Reaction to fire	See clause 2.2.1	Class
Basic Works Requirement 3: Hygiene, health and the environment			
2	Content, emission and/or release of dangerous substances	See clause 2.2.2.	Level/Description

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

This chapter is intended to provide instructions for TABs. Therefore, the use of wordings such as “shall be stated in the ETA” or “it has to be given in the ETA” shall be understood only as such instructions for TABs on how results of assessments shall be presented in the ETA. Such wordings do not impose any obligations for the manufacturer and the TAB shall not carry out the assessment of the performance in relation to a given essential characteristic when the manufacturer does not wish to declare this performance in the Declaration of Performance.

2.2.1 Reaction to fire

The underlay shall be tested using the test method EN ISO 11925-2 as referred to in EN 13501-1 in order to be classified according to Commission Delegated Regulation (EU) 2016/364 in connection with EN 13501-1.

The underlays shall be tested using those test methods being relevant for determination of classes for floor coverings as given in table 3 of EN 13501-1.

For tests according to EN ISO 1182 and EN ISO 1716 those product parameters as defined below shall be considered except thickness and weight per unit area. These two parameters are only relevant in case of non-homogenous products (as defined in EN 13501-1) when calculating the total QPCS value of the entire product. For that, highest and lowest thickness and weight per unit area of each layer of non-homogenous (multi-layer) products shall be considered.

Although under normal circumstances reaction to fire assessment of floor coverings require tests of the entire assembly consisting of the substrate, fixing means (where relevant, e.g., adhesives), underlay and floor covering on the top, the prescribed tests according to EN ISO 9239-1 and EN ISO 11925-2 of the underlays shall be done without a floor covering on the exposed surface of the specimens, because it is impossible to define standard floor coverings being representative for a certain group of floor coverings in

the end-use application as basis for extended application of test results regarding these installation conditions of underlays.

The choice of the substrate for the test specimens of both test methods (see paragraph directly above) shall be made with regard to the end use substrate. For this purpose, a substrate shall be selected in accordance with EN 13238.

Underlays fixed with adhesives in end use conditions shall be tested with this specific adhesive. The test results are valid for the combination of underlay and that specific adhesive. Underlays used loose-laid in end-use conditions shall be tested loose-laid on the chosen substrate according to EN 13238. The test results are valid for loose-laid application of the underlay only.

The following product parameters shall be taken into account when testing the underlays:

- Each underlay with a different composition shall be tested separately.
- The highest and lowest thickness of the underlays have to be considered.
- The highest and the lowest density respectively weight per unit area have to be considered.
- Each underlay with a different surface layer, for example foils, fleece, etc. shall be tested separately.
- Each underlay with a different surface structure, for example burls, perforations, etc. shall be tested separately.
- Each different type of flame retardants shall be considered with its lowest amount when preparing the test specimens.

Deviating from the provisions given in EN 13501-1, tests according to EN ISO 11925-2 shall be conducted to surface exposure and edge exposure. That type of flame exposure which gives the worst result shall be determined by performing at least two tests for each possible flame exposure type (surface exposure and edge exposure; cf. EN ISO 11925-2, clauses 7.3.3.1 and 7.3.3.2). The results shall be compared and a complete test of six specimens shall be conducted using that flame exposure type which gives the worst result.

Test results of specimens considering the aforementioned product parameters and installation parameters as well are valid for products:

- with the same composition as tested,
- with the same or higher amount of the same type of flame retardants as tested,
- with the same type of surface layer as tested,
- with the same type of surface structure as tested,
- with any thickness of the range between those thickness values tested or with the same thickness, if only one thickness was tested,
- with any density and weight per unit area respectively between those density / weight per unit area values tested or with the same density / weight per unit area, if only one density / weight per unit area was tested,
- applied in horizontal arrangement to those end-use substrates being represented by the standard substrate according to EN 13238 used for testing and
  - fixed to the end-use substrates with the same adhesive and the same or lower applied quantity per unit area as used in the tests or
  - loose-laid on the substrate in the end-use application, if loose-laid tested and without any floor covering on the top of the underlay in the end-use application.

Deviating from the afore-stated rules test results according to EN ISO 1182 and EN ISO 1716 for determination of class A1fl of a homogenous product (as defined in EN 13501-1) are valid for any thickness and weight per unit area of that product. The product performance shall be expressed as reaction to fire class according to Commission Decision 2016/364/EC in connection with EN 13501-1 and stated in the ETA together with those conditions (cf. list of relevant parameters above) for which the classification is valid.

In addition, the ETA shall state that the reaction to fire performance of the underlay may change when used in combination with a specific floor covering above. Thus, re-assessment of such combination of underlay and a specific floor covering might lead to another classification.

2.2.2 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[3] after identifying the release scenarios taking into account the intended use of the product and the Member States where the manufacturer intends his product to be made available on the market.

The identified intended release scenario for this product and intended use with respect to dangerous substances is:

IA2: Product with indirect contact to indoor air (e.g., covered products) but possible impact on indoor air.

2.2.2.1 SVOC and VOC

For the intended uses covered by the release scenario IA2 semi-volatile organic compounds (SVOC) and volatile organic compounds (VOC) shall be determined in accordance with EN 16516. The loading factor to be used for emission testing shall be 0,4 m^2/m^3.

Sampling, transport and storage of the sample proceeds as described in EN ISO 16000-11. Samples shall be taken and packed immediately after the product has reached merchantability[4]. The sample shall be stored in low-emission packaging and under normal climatic room conditions. After the sample has reached merchantability the test shall start within 8 weeks.

The following product parameters shall be taken into account when testing the underlays:

- Each underlay with a different composition shall be tested separately.
- The highest thickness or area weight of the underlays shall be considered, respectively.
- Each underlay with a different surface layer, for example foils, fleece, etc. shall be tested separately.

The testing of the specimen shall be performed with open edges.

Once the test specimen has been produced, as described above, it shall immediately be placed in the emission test chamber. This time is considered the starting time of the emission test.

The test results in accordance with EN 16516 shall be reported for the relevant parameters (e. g. chamber size, temperature and relative humidity, air exchange rate, loading factor, size of test specimen, conditioning, production date, arrival date, test period, test results) after 3 and/or 28 days testing.

The product performance shall be expressed in [µg/m^3 or mg/m^3] and stated in the ETA together with the loading factor used.

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3 The manufacturer may be asked to provide to the TAB the REACH related information which he must accompany the DoP with (cf. Article 6(5) of Regulation (EU) No 305/2011).
The manufacturer is **not be** obliged:
- to provide the chemical constitution and composition of the product (or of constituents of the product) to the TAB, or
- to provide a written declaration to the TAB stating whether the product (or constituents of the product) contain(s) substances which are classified as dangerous according to Directive 67/548/EEC and Regulation (EC) No 1272/2008 and listed in the "Indicative list on dangerous substances" of the SGDS.

Any information provided by the manufacturer regarding the chemical composition of the products may not be distributed to EOTA or to TABs.

4 Merchantability means the state of being fit for the placing on the market.

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 Commission Decision 2000/273/EC, as amended by Commission Decision 2001/596/EC.

The system is **3** for any use except for uses subject to regulations on reaction to fire performance.

For uses subject to regulations on reaction to fire the applicable AVCP systems are 1, 3 or 4 depending on the conditions defined in the said Decision.

3.2 Tasks of the manufacturer

The cornerstones of the actions to be undertaken by the manufacturer of the product in the procedure of assessment and verification of constancy of performance are laid down in Table 3.2.1.

Table 3.2.1 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	2.2.1	Control plan	at least 1 depending on the test method applied and the class to be con-trolled	With production start and - every three month (for tests according to EN ISO 11925-2) - once per year (for tests according to EN ISO 9239-1, EN ISO 1716 and EN ISO 1182)
2	Thickness	Control plan	Control plan	3	per batch
3	Mass per unit area	Control plan	Control plan	3	per batch
4	Content, emission and/or release of dangerous substances	2.2.2.1	Control plan	1	With production start and every 5 years

3.3 Tasks of the notified body

The intervention of the notified body under AVCP system 1 is only necessary for reaction to fire for products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g., an addition of fire retardants or a limiting of organic material). The cornerstones of the actions to be undertaken by the notified body in the procedure of assessment and verification of constancy of performance for the product are laid down in Table 3.3.1.

Table 3.3.1 Control plan for the notified body; cornerstones

No	Subject/type of control	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control
Initial inspection of the manufacturing plant and of factory production control *(for systems 1+, 1 and 2+ only)*					
1	Reaction to fire*: The notified body shall verify the ability of the manufacturer for manufacturing the product in accordance with the control plan. In particular the following items shall be appropriately considered: - Presence of suitable test equipment - Presence of trained personnel - Presence of an appropriate quality assurance system and necessary stipulations taking especially in account those clearly identifiable stages in the production process - e.g., a limiting of organic materials and/or the addition of flame retardants - which improve the performance with regard to reaction to fire.	Verification of the complete FPC as described in the control plan agreed between the TAB and the manufacturer	As defined in the control plan agreed between the TAB and the manufacturer	As defined in the control plan agreed between the TAB and the manufacturer	When starting the production, after its modification and when starting a new production line
Continuous surveillance, assessment and evaluation of factory production control *(for systems 1+, 1 and 2+ only)*					
2	Reaction to fire**: It shall be verified that the system of factory production control and the specified manufacturing process are maintained in accordance with the control plan. In particular the following should be dealt with: - Inspection of factory, of the production of the product and of the facilities for factory production control - Evaluation of the documents concerning the factory production control - Issuing a report of surveillance taking especially into account those clearly identifiable stages in the production process - e.g., a limiting of organic materials and/or the addition of flame retardants - which improve the performance with regard to reaction to fire	Verification of the controls carried out by the manufacturer as described in the control plan agreed between the TAB and the manufacturer with reference to the raw materials, to the process and to the product as indicated in Table 3.2.1.	As defined in the control plan agreed between the TAB and the manufacturer	As defined in the control plan agreed between the TAB and the manufacturer	Annually

* Only relevant for products of class C and higher

4 REFERENCE DOCUMENTS

EN 13501-1:2018	Fire classification of construction products and building elements - Part 1: Classification using test data from fire reaction to fire tests
EN ISO 11925-2: 2020	Reaction to fire tests for building products - Part 2: Ignitability when subjected to direct impingement of flame
EN ISO 9239-1:2010	Reaction to fire tests for floorings - Part 1: Determination of the burning behaviour using a radiant heat source (ISO 9239-1:2010)
EN 13238: 2010	Reaction to fire tests for building products – Conditioning procedures and general rules for selection of substrates
EN 16516:2017+A1:2020	Construction products - Assessment of release of dangerous substances - Determination of emissions into indoor air
EN ISO 16000-11: 2006	Indoor air - Part 11: Determination of the emission of volatile organic compounds from building products and furnishing - Sampling, storage of samples and preparation of test specimens (ISO 16000-11:2006)
EN ISO 1716:2018	Reaction to fire tests for building products - Determination of the gross heat of combustion (calorific value) (ISO 1716:2018)
EN ISO 1182:2020	Reaction to fire tests for building products - Non-combustibility test (ISO 1182:2020)