EUROPEAN ASSESSMENT DOCUMENT

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GEOCOMPOSITE FOR DRAINAGE SYSTEM

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1 SCOPE OF THE EAD

1.1 Description of the construction product

The construction product is a geocomposite for drainage, filtration and separation and consists of

- a geospacer solely made of post industrial material (PIM) or post consumer material (PCM)according to EN 13252, namely recycled high impact polystyrene (HIPS) or recycled amorphous polyethylene terephthalate (A-PET)
- a geotextile used as a filter layer made of polypropylene, polyethylene, polyester and/or glass fiber
- a geotextile or film used as a protection layer made of polypropylene, polyethylene, polyester and/or glass fiber

The geocomposite shows different dimensions with different performances according to EN 13252.

The geocomposite is delivered in rolls or panels of various lengths and widths.

The performance of the product cannot be fully assessed by the harmonised standard EN 13252 because the harmonised standard EN 13252 does not provide (either not at all, or not for the materials covered by this EAD) for the assessment methods for the following essential characteristics:

- reaction to fire
- waterflow capacity in the plane for different gradients
- short-term compression behaviour
- durability (resistance to heat aging or to internal hydrolysis, resp.)

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 geocomposite is used as a drainage system for drainage, filtration and separation, depending on its properties according to EN 13252.

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 geocomposite for the intended use of 25, 50 and 100 years when installed in the works (provided that the geocomposite is subject to appropriate installation (see 1.1). These provisions are based upon the current state of the art and the available knowledge and experience.

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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[1].

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.

1 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.

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2 ESSENTIAL CHARACTERISTICS AND RELEVANT ASSESSMENT METHODS AND CRITERIA

2.1 Essential characteristics of the product

Table 1 shows how the performance of the geocomposite 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
Basic Works Requirement 1: Mechanical resistance and stability			
1	Reaction to fire	2.2.1	Class
Basic Works Requirement 4: Safety and accessibility in use			
2	Water permeability normal to the plane	EN 13252, clause 4.1, table 1 (12)	Level
3	Waterflow capacity in the plane	2.2.2	Level
4	Tensile strength and elongation	EN 13252, clause 4.1, table 1 (2, 3)	Level
5	Static puncture (CBR test)	EN 13252, clause 4.1, table 1 (6)	Level/class
6	Dynamic perforation resistance	EN 13252, clause 4.1, table 1 (7)	Level/class
7	Short-term compression behaviour	2.2.3	Level
8	Characteristic opening size	EN 13252, clause 4.1, table 1 (11)	Level
9	Resistance to weathering	EN 13252, Annex B.2 and clause 4.1, table 1 (15)	Pass
10	Durability	2.2.4	Level

To facilitate the expression of different performances of the product with regard to combinations of essential characteristics referred to in Table 1 distinction is made according to EN 13252.

2.2 Assessment methods and criteria for the performance of the product in relation to essential characteristics of the product

2.2.1 Reaction to fire

The product shall be tested, using the test method(s) according to EN 13501-1 and relevant for the corresponding reaction to fire class. The product shall be classified according to Commission Delegated Regulation (EU) No 2016/364 in connection with EN 13501-1.

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2.2.2 Waterflow capacity in the plane

The waterflow capacity in the plane shall be determined according to EN ISO 12958 for different slopes defined by the manufacturer.

The waterflow capacity in the plane shall be stated in the ETA for different slopes.

2.2.3 Short-term compression behavior

The short-term compression behavior shall be determined according to EN ISO 25619-2.

The short-term compression behavior and the load at 10 % deformation shall be stated in the ETA.

2.2.4 Durability

For HIPS the durability shall be determined by assessing the resistance to heat ageing according to EN ISO 13438, Method B1 with the following conditions:

- For an assumed working life of 25 years: 70 °C and 56 days
- For an assumed working life of 50 years: 70 °C and 112 days or 80 °C and 56 days
- For an assumed working life of 100 years: 80 °C and 112 days

For A-PET the durability shall be determined by assessing the resistance to internal hydrolysis according to EN 12447 with the following conditions:

- For an assumed working life of 25 years: 60 °C and 56 days
- For an assumed working life of 50 years: 60 °C and 112 days
- For an assumed working life of 100 years: 60 °C and 224 days

The minimum percentage retained short-term compression behaviour shall be 50 %. The assumed working life and the ageing conditions shall be stated in the ETA.

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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 Delegated Decision (EU) 2015/1958.

The system is: 2+ for any use except for uses subject to regulations on reaction to fire.

For uses subject to regulations on reaction to fire the applicable AVCP systems are 1, or 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 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)					
Product: Geocomposite					
1	Reaction to fire	EN 13501-1	See control plan	please see control plan	Once in 5 years
2	Dimensions		See control plan	please see control plan	Each batch
3	Short-term compression behaviour	EN 25619-2	See control plan	please see control plan	Each batch
4	Waterflow capacity in the plane	EN ISO 12958	See control plan	please see control plan	Once a year
5	Origin of recycling material	Appropriate receiving inspection and documentation	See control plan	please see control plan	Each batch
6	Durability	2.2.3	See control plan	please see control plan	Once in 5 years

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No	Subject/type of control	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control
Factory production control (FPC)					
Component: Geotextile (filter layer and protection layer)					
7	Tensile strength and elongation	EN ISO 10319	See control plan	please see control plan	Each delivery
8	Static puncture (CBR test)	EN ISO 12236	See control plan	please see control plan	Each batch or once a week
9	Dynamic perforation resistance	EN ISO 13433	See control plan	please see control plan	Once in 6 month
10	Characteristic opening size	EN ISO 12956	See control plan	please see control plan	Once a year
11	Water permeability normal to the plane	EN ISO 11058	See control plan	please see control plan	Once a year

3.3 Tasks of the notified body

The cornerstones of the actions to be undertaken by the notified body of the product in the procedure of assessment and verification of constancy of performance are laid down in Table 3.

The intervention of the notified body related to reaction to fire is only necessary 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).

Table 3 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					
1	See EN 13252, Annex A, Chapter A2				Each manufacturing plant
Continuous surveillance, assessment and evaluation of factory production control					
2	See EN 13252, Annex A, Chapter A2				Once a year, each manufacturing plant

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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 ISO 10318	Geosynthetics – Terms and definitions
EN 13252	Geotextiles and geotextile-related products - Required characteristics for use in drainage systems
EN 13501-1	Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests
EOTA TR 034	"General checklist for EADs/EATGs – Content and/or release of dangerous substances in products", Version March 2012
EN ISO 11058	Geotextiles and geotextile-related products - Determination of water permeability characteristics normal to the plane, without load
EN ISO 1295810	Geotextiles and geotextile-related products - Determination of water flow capacity in their plane
EN ISO 10319	Geosynthetics - Wide-width tensile test
EN ISO 12236	Geosynthetics - Static puncture test (CBR test)
EN 13433	Geosynthetics - Dynamic perforation test (cone drop test)
EN ISO 25619-1:	Geosynthetics - Determination of compression behaviour - Part 1: Compressive creep properties
EN ISO 25619-2	Geosynthetics - Determination of compression behaviour - Part 2: Determination of short-term compression behaviour
EN 13428	Geosynthetics - Determination of the protection efficiency of a geosynthetic against impact damage
EN ISO 10722	Geosynthetics - Index test procedure for the evaluation of mechanical damage under repeated loading - Damage caused by granular material
EN ISO 12956	Geotextiles and geotextile-related products - Determination of the characteristic opening size
EN ISO 12224	Geotextiles and geotextile-related products - Determination of the resistance to weathering
EN ISO 13438	Geotextiles and geotextile-related products - Screening test method for determining the resistance to oxidation
ISO 9073-3	Textiles; test method for nonwovens; part 3: determination of tensile strength and elongation
ISO 3342	Textile glass - Mats - Determination of tensile breaking force

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