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European Technical Assessment

**ETA 16/0546
of 08/12/2018**

I General Part

Technical Assessment Body issuing the ETA:

Technical and Test Institute for Construction Prague

Trade name of the construction products:

117S (plant Slovakia and Macedonia),
122L (plant Slovakia and Macedonia),
122 (plant Slovakia and Macedonia)
- glass fibre meshes for reinforcement
of cement based renderings

**Product family to which the construction
product belongs:**

Product area code: 4 Thermal insulation
products. Composite insulating kits/systems

Manufacturer:

Technical Textiles – d.o.o.e.l.
Techn-Industrial zone 12, MK
2000 SHTIP, Macedonia

Manufacturing plant(s):

Technical Textiles, s.r.o.
Školská 54
922 41 Drahovce, Slovak Republic

Technical Textiles – d.o.o.e.l.
Techn-Industrial zone 12, MK
2000 SHTIP, Macedonia

**This European Technical Assessment
contains:**

12 pages

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

European Assessment Document
EAD 040016-00-0404 Glass fibre mesh for
reinforcement of cement based renderings

**This European Technical Assessment
replaces:**

ETA 16/0546 issued on 27/07/2017

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II Specific part

1. Technical description of the product

1.1 General

117S, 122L and **122** - glass fibre meshes for reinforcement of cement based renderings are leno woven fabrics made of glass fibre strands. According manufacturer technical specification the type of the glass of fibre mesh is E-glass. To provide resistance to alkali conditions, they are coated by an organic layer. The distance of strands is at least 3 mm so that the reinforced rendering or mortar sufficiently penetrates the meshes.

List of the meshes and manufacturing plants:

Technical Textiles, s.r.o., Školská 54,922 41 Drahovce, Slovak Republic

- **117S,**
- **122L,**
- **122**

Technical Textiles – d.o.o.e.l., Techn-Industrial zone 12, MK, 2000 SHTIP, Macedonia

- **117S,**
- **122L**
- **122**

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.

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

The products are used as reinforcement of cement based renderings (mortars) with the thickness of 2 - 10 mm. The reinforcement shall be embedded in a fresh mortar and sufficiently covered. The reinforcement prevents the hardened mortar from cracking, caused especially by dilatation.

The glass fibre meshes are used in base coats of external thermal insulation systems with rendering (eg. ETICS).

The assessment methods included or referred to in EAD 040016-00-0404 have been written based on the manufacturer's request to take into account a working life of the glass fibre mesh for reinforcement of cement based renderings for the intended use of 25 years when installed in the works (provided that the glass fibre mesh for reinforcement of cement based renderings is subject to appropriate installation). These provisions are based upon the current state of the art and the available knowledge and experience.

The real working life may be, in normal use conditions, considerably longer without major degradation affecting the basic requirements for works¹.

The indications given as to the working life of the construction product cannot be interpreted as a guarantee but are regarded only as a means for expressing the expected economically reasonable working life of the product.

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

3.1 Safety in case of fire (BWR 2)

3.1.1 Reaction to fire

Table No.1 – reaction to fire:

Trade name of the mesh	Reaction to fire class according to Commission Delegated Regulation (EU) 2016/364
117S (plant Slovakia and Macedonia)	No performance assessed
122L (plant Slovakia and Macedonia)	
122 (plant Slovakia and Macedonia)	

3.1.2 Organic content

The determination of the ash content and organic content was based on Cl. 2.2.2 of EAD 040016-00-0404.

The results of the test are stated in Table No. 2 and Table No. 3.

Table No. 2 – ash content:

Trade name of the mesh	Ash content		
117S (plant Slovakia)	81,2 %	81,0 %	81,0 %
122L (plant Slovakia)	81,1 %	81,6 %	81,1 %
122 (plant Slovakia)	78,9 %	79,0 %	79,2 %
117S (plant Macedonia)	81,0 %	81,1%	80,9 %
122L (plant Macedonia)	84,1 %	84,3 %	84,3 %
122 (plant Macedonia)	81,4 %	81,4 %	81,8 %

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 the working life referred to above.

Table No. 3 – organic content:

Trade name of the mesh	Organic content		
117S (plant Slovakia)	18,8 %	19,0 %	19,0 %
122L (plant Slovakia)	18,9 %	18,4 %	18,9 %
122 (plant Slovakia)	21,1 %	21,0 %	20,8 %
117S (plant Macedonia)	19,0 %	18,9 %	19,1 %
122L (plant Macedonia)	15,9 %	15,7 %	15,7 %
122 (plant Macedonia)	18,6 %	18,6 %	18,2 %

3.1.3 Heat combustion

The determination of the heat combustion was based on Cl. 2.2.3 of EAD 040016-00-0404.

The results of the test are stated in Table No. 4.

Table No. 4

Trade name of the mesh	Heat combustion Q_{PCS} [MJ/kg]
117S (plant Slovakia)	7,32
122L (plant Slovakia)	7,62
122 (plant Slovakia)	8,19
117S (plant Macedonia)	7,50
122L (plant Macedonia)	6,60
122 (plant Macedonia)	7,07

3.2 Safety and accessibility in use (BWR 4)

The determination of mesh size, roll width, weaving accuracy, tensile strength and elongation, mass per unit area and thickness was based on Cl. 2.2.4 - Cl. 2.2.9 of EAD 040016-00-0404.

The results of the tests are stated in Table No. 5 - Table No. 10.

Table No. 5 – 117S (plant Slovakia)

117S (plant Slovakia)				
Mesh size	Average mesh size (warp direction x weft direction)		4,6 x 5,2 mm	
	Mesh opening (warp direction x weft direction)		3,5 x 4,9 mm	
Roll width	999 mm			
Weaving accuracy	An untrimmed edge in any length		No	
	Deflected (uneven) fronts of rolls over ± 5 mm (measured from the edge of the inner tube)			
	A gap over treble distance of wefts or warps in any length			
	Weft skewing or weft waving over 4 % of width of the fabric (measured by a rectangular rule)			
	A cracked yarn			
Tensile strength and elongation (warp and weft direction)	In the as-delivered state	warp direction	weft direction	
		- tensile strength	35 N/mm	50 N/mm
		- elongation ϵ	3,7 %	4,0 %
	After alkalis conditioning	warp direction	weft direction	
		- tensile strength	20 N/mm	29 N/mm
	- elongation ϵ	2,2 %	2,4 %	
The average value of the tensile strength after alkalis conditioning shall be at least 20 N/mm and at least 50 % of the strength in the as-delivered state (residual strength): passed: ≥ 20 N/mm after alkalis conditioning and residual strength ≥ 50 % of the strength in the as-delivered				
Mass per unit area	149 g/m²			
Thickness	0,51 mm			

Table No. 6 – 122L (plant Slovakia)

122L (plant Slovakia)			
Mesh size	Average mesh size (warp direction x weft direction)		5,5 x 4,2 mm
	Mesh opening (warp direction x weft direction)		4,4 x 3,9 mm
Roll width	998 mm		
Weaving accuracy	An untrimmed edge in any length		No
	Deflected (uneven) fronts of rolls over ± 5 mm (measured from the edge of the inner tube)		
	A gap over treble distance of wefts or warps in any length		
	Weft skewing or weft waving over 4 % of width of the fabric (measured by a rectangular rule)		
	A cracked yarn		
Tensile strength and elongation (warp and weft direction)	In the as-delivered state	warp direction	weft direction
	- tensile strength	49 N/mm	43 N/mm
	- elongation ϵ	3,9 %	3,7 %
	After alkalis conditioning	warp direction	weft direction
	- tensile strength	27 N/mm	24 N/mm
- elongation ϵ	2,2 %	2,2 %	
The average value of the tensile strength after alkalis conditioning shall be at least 20 N/mm and at least 50 % of the strength in the as-delivered state (residual strength): passed: ≥ 20 N/mm after alkalis conditioning and residual strength ≥ 50 % of the strength in the as- delivered			
Mass per unit area	148 g/m²		
Thickness	0,45 mm		

Table No. 7 – 122 (plant Slovakia)

122 (plant Slovakia)			
Mesh size	Average mesh size (warp direction x weft direction)		4,6 x 4,2 mm
	Mesh opening (warp direction x weft direction)		3,5 x 3,9 mm
Roll width	997 mm		
Weaving accuracy	An untrimmed edge in any length		No
	Deflected (uneven) fronts of rolls over ± 5 mm (measured from the edge of the inner tube)		
	A gap over treble distance of wefts or warps in any length		
	Weft skewing or weft waving over 4 % of width of the fabric (measured by a rectangular rule)		
	A cracked yarn		
Tensile strength and elongation (warp and weft direction)	In the as-delivered state	warp direction	weft direction
	- tensile strength	44 N/mm	46 N/mm
	- elongation ϵ	3,9 %	3,5 %
	After alkalis conditioning	warp direction	weft direction
	- tensile strength	23 N/mm	29 N/mm
- elongation ϵ	2,1 %	2,1 %	
The average value of the tensile strength after alkalis conditioning shall be at least 20 N/mm and at least 50 % of the strength in the as-delivered state (residual strength): passed: ≥ 20 N/mm after alkalis conditioning and residual strength ≥ 50 % of the strength in the as- delivered			
Mass per unit area	165 g/m²		
Thickness	0,47 mm		

Table No. 8 – 117S (plant Macedonia)

117S (plant Macedonia)			
Mesh size	Average mesh size (warp direction x weft direction)		4,6 x 5,1 mm
	Mesh opening (warp direction x weft direction)		3,5 x 4,8 mm
Roll width	999 mm		
Weaving accuracy	An untrimmed edge in any length		No
	Deflected (uneven) fronts of rolls over ± 5 mm (measured from the edge of the inner tube)		
	A gap over treble distance of wefts or warps in any length		
	Weft skewing or weft waving over 4 % of width of the fabric (measured by a rectangular rule)		
	A cracked yarn		
Tensile strength and elongation (warp and weft direction)	In the as-delivered state	warp direction	weft direction
	- tensile strength	38 N/mm	48 N/mm
	- elongation ϵ	3,7 %	3,6 %
	After alkalis conditioning	warp direction	weft direction
	- tensile strength	22 N/mm	35 N/mm
- elongation ϵ	2,1 %	2,6 %	
The average value of the tensile strength after alkalis conditioning shall be at least 20 N/mm and at least 50 % of the strength in the as-delivered state (residual strength): passed: ≥ 20 N/mm after alkalis conditioning and residual strength ≥ 50 % of the strength in the as- delivered			
Mass per unit area	149 g/m²		
Thickness	0,50 mm		

Table No. 9 – 122L (plant Macedonia)

122L (plant Macedonia)			
Mesh size	Average mesh size (warp direction x weft direction)		5,3 x 4,2 mm
	Mesh opening (warp direction x weft direction)		4,1 x 3,8 mm
Roll width	1000 mm		
Weaving accuracy	An untrimmed edge in any length		No
	Deflected (uneven) fronts of rolls over ± 5 mm (measured from the edge of the inner tube)		
	A gap over treble distance of wefts or warps in any length		
	Weft skewing or weft waving over 4 % of width of the fabric (measured by a rectangular rule)		
	A cracked yarn		
Tensile strength and elongation (warp and weft direction)	In the as-delivered state	warp direction	weft direction
	- tensile strength	50 N/mm	49 N/mm
	- elongation ϵ	4,2 %	4,2 %
	After alkalis conditioning	ve směru osnovy	ve směru útku
	- tensile strength	27 N/mm	31 N/mm
- elongation ϵ	2,3 %	2,5 %	
The average value of the tensile strength after alkalis conditioning shall be at least 20 N/mm and at least 50 % of the strength in the as-delivered state (residual strength): passed: ≥ 20 N/mm after alkalis conditioning and residual strength ≥ 50 % of the strength in the as-delivered			
Mass per unit area	149 g/m²		
Thickness	0,47 mm		

Table No. 10 – 122 (plant Macedonia)

122 (plant Macedonia)			
Mesh size	Average mesh size (warp direction x weft direction)		4,6 x 4,2 mm
	Mesh opening (warp direction x weft direction)		3,5 x 3,9 mm
Roll width	998 mm		
Weaving accuracy	An untrimmed edge in any length		No
	Deflected (uneven) fronts of rolls over ± 5 mm (measured from the edge of the inner tube)		
	A gap over treble distance of wefts or warps in any length		
	Weft skewing or weft waving over 4 % of width of the fabric (measured by a rectangular rule)		
	A cracked yarn		
Tensile strength and elongation (warp and weft direction)	In the as-delivered state	warp direction	weft direction
	- tensile strength	47 N/mm	49 N/mm
	- elongation ϵ	3,9 %	3,4 %
	After alkalis conditioning	warp direction	weft direction
	- tensile strength	27 N/mm	36 N/mm
- elongation ϵ	2,3 %	2,5 %	
The average value of the tensile strength after alkalis conditioning shall be at least 20 N/mm and at least 50 % of the strength in the as-delivered state (residual strength): passed: ≥ 20 N/mm after alkalis conditioning and residual strength ≥ 50 % of the strength in the as- delivered			
Mass per unit area	160 g/m²		
Thickness	0,45 mm		

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

According to the European Commission decision 97/556/EC, the **AVCP system 2+** (further described in Annex V to Regulation (EU) No 305/2011 as amended) applies.

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

The manufacturer shall perform a permanent internal factory production control based on the control plan. The Control Plan specifies the type, test method, criteria and frequency of tests conducted on the final product.

The control plan for the manufacturer/corner stones (factory production control) is specified in Cl. 3.2 of EAD 040016-00-0404 *Glass fibre mesh for reinforcement of cement based renderings*. Manufacturer and Technical and Test Institute for Construction Prague have agreed a control plan which is deposited with the Technical and Test Institute for Construction Prague in documentation which accompanies the ETA.

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By

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