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Evaluation Report of ETA 16/0546 of 08/12/2018

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 Evaluation Report contains:	9 pages including 1 Annex which form an integral part of this Report

Foreword

This Report describes assessment methods and gives tests references for glass fibre meshes for reinforcement of cement based renderings as produced by **Technical Textiles – d.o.o.e.l.** in accordance with the essential characteristics as specified in European Assessment Document EAD 040016-00-0404.

The tests and the assessment have been performed in accordance with *EAD 040016-00-0404 Glass fibre mesh for reinforcement of cement based renderings (February 2016)*. The reference documents are shown in this Evaluation Report and its Annex.

1. Scope of ETA

1.1. Technical description of the product

See the relevant ETA, Clause 1.1.

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

Declaration of the manufacturer Technical Textiles, s.r.o. (INo.: 44163134) that requires to modify ETA related to the change of the manufacturer, new manufacturer Technical Textiles – d.o.o.e.l. (6958753), signed by Technical Textiles, s.r.o. and Technical Textiles – d.o.o.e.l. on 15.11.2018. The manufacturing plants are identical, the meshes are identical.

1.2. Specification of the intended use

See the relevant ETA, Clause 2.

2. Assessment of the product for the intended use

2.1. Safety in case of fire (BWR 2)

2.1.1. Reaction to fire

Reaction to fire class according to Commission Delegated Regulation (EU) 2016/364 for all the meshes stated in Cl. 1.1 of the relevant ETA: no performance assessed

2.1.2. 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 are stated in the relevant ETA, Clause 3.1.2 and were taken from the following test report:

- Test report No. 060-043675 issued on 31.08.2016 by Technical and Test Institute for Construction Prague, Branch Brno, Czech Republic
- Test report No. 060-045111 issued on 02.06.2017 by Technical and Test Institute for Construction Prague, Branch Brno, Czech Republic

2.1.3. Heat combustion

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

The results are stated in the relevant ETA, Clause 3.1.3 and was taken from the following test reports:

- Test report No. Pr-16-1.212-EN (117S, plant Slovakia) issued on 14.09.2016 by PAVUS, a.s., Veselí nad Lužnicí, Czech Republic
- Test report No. Pr-16-1.213-EN (122L, plant Slovakia) issued on 14.09.2016 by PAVUS, a.s., Veselí nad Lužnicí, Czech Republic
- Test report No. Pr-16-1.214-EN (122, plant Slovakia) issued on 14.09.2016 by PAVUS, a.s., Veselí nad Lužnicí, Czech Republic
- Test report No. Pr-16-1.215-EN (117S, plant Macedonia) issued on 14.09.2016 by PAVUS, a.s., Veselí nad Lužnicí, Czech Republic
- Test report No. Pr-17-1.116-EN (122L, plant Macedonia) issued on 09.06.2017 by PAVUS, a.s., Veselí nad Lužnicí, Czech Republic
- Test report No. Pr-16-1.216-EN (122, plant Macedonia) issued on 14.09.2016 by PAVUS, a.s., Veselí nad Lužnicí, Czech Republic

2.2. 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 are stated in the relevant ETA, Clause 3.2 and were taken from the following test report:

- Test report No. 060-043675 issued on 31.08.2016 by Technical and Test Institute for Construction Prague, Branch Brno, Czech Republic
- Test report No. 16/0788 (thickness) issued on 08.08.2016 by Textile Testing Institute, Brno, Czech Republic
- Test report No. 060-045111 issued on 02.06.2017 by Technical and Test Institute for Construction Prague, Branch Brno, Czech Republic
- Test report No. 17/0663 (thickness) issued on 08.06.2017 by Textile Testing Institute, Brno, Czech Republic

The detailed results on tensile strength and elongation are also in Annex No. 1 of this Evaluation Report.

ANNEX No. 1

Table No. A1: Tensile strength and elongation in as-delivered state according to ETAG 004, Cl. 5.6.7.1.1, 117S (plant Slovakia)

Trade name of the mesh	Tensile strength warp direction			Tensile strength weft direction		
	Width of the sample 50 mm			Width of the sample 50 mm		
	Maximum force β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]	Tensile strength β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]
117S (Slovakia)	1806,79	3,88	36,14	2476,15	3,93	49,52
	1749,58	3,76	34,99	2590,77	4,08	51,82
	1662,98	3,69	33,26	2505,86	4,01	50,12
	1617,62	3,46	32,35	2436,91	3,81	48,74
	1814,29	3,89	36,29	2462,15	3,92	49,24
	1783,31	3,86	35,67	2509,97	3,96	50,20
	1767,28	3,76	35,35	2500,07	3,89	50,00
	1748,80	3,69	34,98	2611,86	4,08	52,24
	1732,62	3,69	34,65	2612,28	4,11	52,25
	1622,24	3,48	32,44	2540,37	3,96	50,81
Average	**1730,55**	**3,72**	**34,61**	**2524,64**	**3,98**	**50,49**

Note: The number of fibres in: warp direction: 10 weft direction: 11

Table No. A2: Tensile strength and elongation after ageing according to ETAG 004, Cl. 5.6.7.1.2, 117S (plant Slovakia)

Trade name of the mesh	Tensile strength warp direction			Tensile strength weft direction		
	Width of the sample 50 mm			Width of the sample 50 mm		
	Maximum force β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]	Tensile strength β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]
117S (Slovakia)	1036,93	2,28	20,74	1435,44	2,33	28,71
	1024,00	2,23	20,48	1510,2	2,43	30,20
	1025,71	2,24	20,51	1464,91	2,38	29,30
	1029,05	2,26	20,58	1457,57	2,39	29,15
	959,81	2,11	19,20	1475,76	2,39	29,52
	937,56	1,96	18,75	1499,02	2,41	29,98
	1037,95	2,19	20,76	1466,91	2,34	29,34
	903,91	2,08	18,08	1497,03	2,38	29,94
	932,36	1,98	18,65	1431,25	2,48	28,63
	1031,33	2,19	20,63	1409,4	2,26	28,19
Average	**991,86**	**2,152**	**19,84**	**1464,75**	**2,38**	**29,29**

Note: The number of fibres in: warp direction: 10 weft direction: 11

Table No. A3: Tensile strength and elongation in as-delivered state according to ETAG 004, Cl. 5.6.7.1.1, 122L (plant Slovakia)

Trade name of the mesh	Tensile strength warp direction			Tensile strength weft direction		
	Width of the sample 50 mm			Width of the sample 50 mm		
	Maximum force β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]	Tensile strength β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]
122L (Slovakia)	2428,50	3,89	48,57	2086,99	3,66	41,74
	2391,56	3,86	47,83	2189,00	3,79	43,78
	2492,31	3,96	49,85	2091,80	3,61	41,84
	2376,96	3,83	47,54	2244,95	3,96	44,90
	2385,20	3,81	47,70	2142,09	3,76	42,84
	2483,80	3,97	49,68	2183,80	3,81	43,68
	2343,17	3,82	46,86	2031,38	3,54	40,63
	2449,74	3,94	48,99	2214,01	3,91	44,28
	2428,56	3,86	48,57	2102,41	3,64	42,05
	2511,27	3,99	50,23	2085,62	3,69	41,71
Average	**2429,11**	**3,89**	**48,58**	**2137,21**	**3,74**	**42,74**

Note: The number of fibres in: warp direction: 12 weft direction: 9

Table No. A4: Tensile strength and elongation after ageing according to ETAG 004, Cl. 5.6.7.1.2, 122L (plant Slovakia)

Trade name of the mesh	Tensile strength warp direction			Tensile strength weft direction		
	Width of the sample 50 mm			Width of the sample 50 mm		
	Maximum force β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]	Tensile strength β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]
122L (Slovakia)	1280,64	2,11	25,61	1176,59	2,24	23,53
	1329,37	2,19	26,59	1211,41	2,21	24,23
	1396,9	2,29	27,94	1204,73	2,23	24,09
	1377,7	2,36	27,55	1227,85	2,19	24,56
	1378,79	2,32	27,58	1220,54	2,26	24,41
	1301,77	2,18	26,04	1241,7	2,28	24,83
	1347,45	2,23	26,95	1183,64	2,16	23,67
	1275,56	2,14	25,51	1219,47	2,14	24,39
	1331,06	2,22	26,62	1179,13	2,11	23,58
	1333,99	2,21	26,68	1198,17	2,09	23,96
Average	**1335,32**	**2,23**	**26,71**	**1206,32**	**2,19**	**24,13**

Note: The number of fibres in: warp direction: 12 weft direction: 9

Table No. A5: Tensile strength and elongation in as-delivered state according to ETAG 004, Cl. 5.6.7.1.1, 122 (plant Slovakia)

Trade name of the mesh	Tensile strength warp direction			Tensile strength weft direction		
	Width of the sample 50 mm			Width of the sample 50 mm		
	Maximum force β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]	Tensile strength β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]
122 (Slovakia)	2241,03	3,98	44,82	2331,98	3,54	46,64
	2159,82	3,81	43,20	2241,57	3,43	44,83
	2197,43	3,89	43,95	2230,44	3,38	44,61
	2263,01	3,93	45,26	2344,59	3,56	46,89
	2183,31	3,96	43,67	2335,39	3,53	46,71
	2170,24	3,88	43,40	2225,23	3,41	44,50
	2219,34	3,94	44,39	2356,44	3,66	47,13
	2239,73	3,94	44,79	2310,55	3,47	46,21
	2242,52	4,03	44,85	2246,61	3,36	44,93
	2197,43	3,84	43,95	2296,14	3,49	45,92
Average	**2211,39**	**3,92**	**44,23**	**2291,89**	**3,48**	**45,84**

Note: The number of fibres in: warp direction: 12 weft direction: 11

Table No. A6: Tensile strength and elongation after ageing according to ETAG 004, Cl. 5.6.7.1.2, 122 (plant Slovakia)

Trade name of the mesh	Tensile strength warp direction			Tensile strength weft direction		
	Width of the sample 50 mm			Width of the sample 50 mm		
	Maximum force β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]	Tensile strength β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]
122 (Slovakia)	1194,18	2,09	23,88	1485,23	2,16	29,70
	1081,35	2,03	21,63	1438,71	2,11	28,77
	1072,96	1,96	21,46	1356,92	2,04	27,14
	1162,54	2,11	23,25	1441,84	2,14	28,84
	1161,08	2,09	23,22	1445,63	2,16	28,91
	1078,23	1,96	21,56	1335,48	2,01	26,71
	1146,05	2,08	22,92	1421,78	2,14	28,44
	1149,64	2,08	22,99	1466,63	2,23	29,33
	1143,90	2,09	22,88	1440,28	2,19	28,81
	1160,53	2,11	23,21	1448,19	2,23	28,96
Average	**1135,05**	**2,06**	**22,70**	**1428,07**	**2,14**	**28,56**

Note: The number of fibres in: warp direction: 12 weft direction: 11

Table No. A7: Tensile strength and elongation in as-delivered state according to ETAG 004, Cl. 5.6.7.1.1, 117S (plant Macedonia)

Trade name of the mesh	Tensile strength warp direction			Tensile strength weft direction		
	Width of the sample 50 mm			Width of the sample 50 mm		
	Maximum force β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]	Tensile strength β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]
117S (Macedonia)	1955,32	3,76	39,11	2468,76	3,84	49,38
	1866,19	3,61	37,32	2479,47	3,83	49,59
	1962,65	3,79	39,25	2293,22	3,29	45,86
	1959,79	3,81	39,20	2419,03	3,45	48,38
	1917,76	3,73	38,36	2584,59	3,71	51,69
	1856,37	3,61	37,13	2290,34	3,56	45,81
	1959,28	3,81	39,19	2331,57	3,58	46,63
	1903,23	3,69	38,06	2226,77	3,21	44,54
	1965,19	3,79	39,30	2485,36	3,56	49,71
	1872,91	3,63	37,46	2387,56	3,69	47,75
Average	**1921,87**	**3,72**	**38,44**	**2396,67**	**3,57**	**47,93**

Note: The number of fibres in: warp direction: 11 weft direction: 12

Table No. A8: Tensile strength and elongation after ageing according to ETAG 004, Cl. 5.6.7.1.2, 117S (plant Macedonia)

Trade name of the mesh	Tensile strength warp direction			Tensile strength weft direction		
	Width of the sample 50 mm			Width of the sample 50 mm		
	Maximum force β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]	Tensile strength β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]
117S (Macedonia)	1181,26	2,28	23,63	1731,81	2,53	34,64
	1196,23	2,31	23,92	1745,33	2,53	34,91
	1120,33	2,21	22,41	1806,80	2,64	36,14
	1054,03	2,03	21,08	1811,05	2,68	36,22
	1077,20	2,08	21,54	1840,18	2,69	36,80
	1151,63	2,21	23,03	1723,08	2,57	34,46
	1009,05	1,94	20,18	1747,43	2,57	34,95
	1073,99	2,09	21,48	1647,06	2,49	32,94
	1024,73	1,96	20,49	1756,01	2,62	35,12
	1186,99	2,31	23,74	1766,77	2,64	35,34
Average	**1107,54**	**2,14**	**22,15**	**1757,55**	**2,60**	**35,15**

Note: The number of fibres in: warp direction: 11 weft direction: 12

Table No. A9: Tensile strength and elongation in as-delivered state according to ETAG 004, Cl. 5.6.7.1.1, 122L (plant Macedonia)

Trade name of the mesh	Tensile strength warp direction			Tensile strength weft direction		
	Width of the sample 50 mm			Width of the sample 50 mm		
	Maximum force β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]	Tensile strength β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]
122L (Macedonia)	2513,81	4,16	50,28	2406,66	3,92	48,13
	2536,52	4,16	50,73	2358,15	4,22	47,16
	2483,02	4,11	49,66	2617,91	4,34	52,36
	2544,13	4,21	50,88	2490,24	4,56	49,80
	2254,63	3,79	45,09	2421,09	3,94	48,42
	2453,19	4,09	49,06	2404,86	3,94	48,10
	2521,60	4,21	50,43	2409,74	4,39	48,19
	2506,74	4,22	50,13	2368,90	4,35	47,38
	2596,71	4,32	51,93	2589,98	4,31	51,80
	2577,21	4,26	51,54	2569,31	4,32	51,39
Average	2498,76	4,15	49,98	2463,68	4,23	49,27

Note: The number of fibres in: warp direction: 12 weft direction: 10

Table No. A10: Tensile strength and elongation after ageing according to ETAG 004, Cl. 5.6.7.1.2, 122L (plant Macedonia)

Trade name of the mesh	Tensile strength warp direction			Tensile strength weft direction		
	Width of the sample 50 mm			Width of the sample 50 mm		
	Maximum force β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]	Tensile strength β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]
122L (Macedonia)	1442,85	2,39	28,86	1627,57	2,61	32,55
	1254,44	2,07	25,09	1569,04	2,51	31,38
	1346,58	2,22	26,93	1602,63	2,59	32,05
	1291,59	2,17	25,83	1567,68	2,47	31,35
	1448,55	2,41	28,97	1477,34	2,31	29,55
	1232,05	2,02	24,64	1560,98	2,49	31,22
	1384,86	2,27	27,70	1608,26	2,57	32,17
	1336,35	2,19	26,73	1614,39	2,57	32,29
	1499,96	2,49	30,00	1557,15	2,46	31,14
	1425,69	2,36	28,51	1553,15	2,47	31,06
Average	1366,29	2,26	27,33	1573,82	2,51	31,48

Note: The number of fibres in: warp direction: 12 weft direction: 10

Table No. A11: Tensile strength and elongation in as-delivered state according to ETAG 004, Cl. 5.6.7.1.1, 122 (plant Macedonia)

Trade name of the mesh	Tensile strength warp direction			Tensile strength weft direction		
	Width of the sample 50 mm			Width of the sample 50 mm		
	Maximum force β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]	Tensile strength β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]
122 (Macedonia)	2426,37	3,99	48,53	2514,16	3,53	50,28
	2332,90	3,89	46,66	2463,02	3,39	49,26
	2323,68	3,79	46,47	2524,38	3,49	50,49
	2340,71	3,83	46,81	2414,25	3,34	48,29
	2412,73	3,96	48,25	2406,16	3,31	48,12
	2371,32	3,94	47,43	2486,79	3,41	49,74
	2350,14	3,86	47,00	2292,63	3,18	45,85
	2399,71	3,94	47,99	2441,23	3,41	48,82
	2393,39	3,91	47,87	2395,95	3,33	47,92
	2373,89	3,93	47,48	2441,57	3,33	48,83
Average	**2372,48**	**3,90**	**47,45**	**2438,01**	**3,37**	**48,76**

Note: The number of fibres in: warp direction: 13 weft direction: 12

Table No. A12: Tensile strength and elongation after ageing according to ETAG 004, Cl. 5.6.7.1.2, 122 (plant Macedonia)

Trade name of the mesh	Tensile strength warp direction			Tensile strength weft direction		
	Width of the sample 50 mm			Width of the sample 50 mm		
	Maximum force β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]	Tensile strength β_F [N]	Elongation ε_F [%]	Tensile strength [N/mm]
122 (Macedonia)	1390,76	2,29	27,82	1857,35	2,56	37,15
	1272,59	2,21	25,45	1853,56	2,54	37,07
	1379,68	2,33	27,59	1824,05	2,46	36,48
	1220,37	2,03	24,41	1846,47	2,53	36,93
	1398,01	2,34	27,96	1715,15	2,31	34,30
	1406,62	2,36	28,13	1775,84	2,43	35,52
	1278,27	2,13	25,57	1849,53	2,53	36,99
	1353,23	2,28	27,06	1691,30	2,38	33,83
	1400,11	2,46	28,00	1742,68	2,43	34,85
	1384,77	2,34	27,70	1654,31	2,36	33,09
Average	**1348,44**	**2,28**	**26,97**	**1781,02**	**2,45**	**35,62**

Note: The number of fibres in: warp direction: 13 weft direction: 12