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FIRE TESTING LABORATORY VESELÍ NAD LUŽNICÍ
Testing Laboratory No. 1026 accredited by ČIA

**REACTION TO FIRE
TEST REPORT**

No. Pr-16-1.215-En

Issued on 2016-09-14

For product

Glass fibre mesh fabrics

117S

Sponsor: **Technický a zkušební ústav stavební Praha, s.p.**
Branch Brno
Hněvkovského 77
617 00 Brno
Czech Republic

For company: **Technical Textiles, s.r.o.**
Beethovenova 16
921 01 Piešťany
Slovak Republic

Test method:

ČSN EN ISO 1716
» Reaction to fire tests for products
– Determination of the gross heat of combustion
(calorific value) «

Report contains: 5 pages
(3 text pages + 2 annexes)

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1 INTRODUCTION

The gross heat of combustion of product was determined following the order of the company Technický a zkušební ústav stavební Praha, s.p., branch Brno in Fire Testing Laboratory of PAVUS, a.s. in Veselí nad Lužnicí.

The tests were prepared, performed and evaluated on the basis of following documents:

- [1] ČSN EN ISO 1716:2010 Zkoušení reakce výrobků na oheň – Stanovení spalného tepla (kalorické hodnoty)
(*Reaction to fire tests for products – Determination of the gross heat of combustion (calorific value)*)
- [2] ČSN EN 13238:2010 Zkoušení reakce stavebních výrobků na oheň – Postupy kondicionování a obecná pravidla pro výběr podkladů
(*Reaction to fire tests for building products – Conditioning procedures and general rules for selection of substrates*)
- [3] Cover form of the test specimen and Technical Data Sheet (delivered by the sponsor)

For the purposes of this report the definitions stated in [1] and [2] are valid together with following abbreviations:

ČIA Czech Institute for Accreditation, Public Service Company
AZL Accredited Testing Laboratory

2 TEST SUBJECT

Product name:	117S
Product identification:	EAD 040016-00-0404 Glass fibre mesh for reinforcement of cement based renderings
Producer:	Technical Textiles, s.r.o., Beethovenova 16, 921 01 Piešťany, Slovak Republic
Manufacturing plant:	Technical Textiles - d.o.o.e.l., Techn-Industrial zone 12, MK, 2000 SHTIP, Macedonia
Mesh opening:	(4 × 5) mm
Weave:	half leno
Mass per unit area of raw material:	122 g/m ²
Mass per unit area of finished material:	145 g/m ²
Loss by ignition:	18 % ± 2 %
Treatment type:	alkali resistant, slip resistant
Date of samples arrival:	2016-08-03
Measured mass per unit area:	148 g/m ²
Sampling procedure:	producer without participation of the Testing Laboratory
Conditioning:	according to [2]

Test subjects were three specimens obtained by weighing of product, supplied by the sponsor.

3 TESTS PERFORMANCE

Tests were performed according to [1].

The testing and measuring equipment used is given in Annex 1.

The tests were performed in the laboratory on 9th September 2016. The ambient air temperature was 23 °C with 57 % relative ambient air humidity.

The gross heat of combustion has been with all specimens determined by crucible method in adiabatic calorimeter.

4 TEST RESULTS

The gross heat of combustion of the specimen has been calculated from the measured values given in Annex 2.

Specimen	Gross heat of combustion Q_{PCS} (MJ/kg)	Gross heat of combustion Q_{PCS} (MJ/m ²)
1_089/16	7.50	1.11
2_089/16	7.47	1.10
3_089/16	7.53	1.11
Average	7.50	1.11

The gross heat of combustion of the specimen is 7.50 MJ/kg, it means 1.11 MJ/m².

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.



Elaborated by:


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Approved by:


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ATL Manager

ANNEX 1: TESTING AND MEASURING EQUIPMENT, MEASUREMENT UNCERTAINTY

Test apparatus:	Registration number
Adiabatic calorimeter IKA C4000, pressure equipment, cooler	0059
Conditioning air chamber PO1	0057

Measuring equipment:	Metrological registration number:
Electronic thermometer of calorimeter	3 10 57
Thermo-hygro-baro-graph D 4130	3 13 08, 3 09 11
Digital balance KERN EW 6000	3 04 09
Analytical balance WAX 60/220	3 04 14
Tape measure – 5 m	3 01 05

The metrological relationships of the device are defined in the metrological registration card of the device; this card is expressly identified by the metrological registration number of the device.

Measured quantity			Expanded measurement uncertainty
Name	Symbol	Unit	
Ambient air temperature	T	°C	< 0.7
Calorimeter temperature	Q	°C	< 0.001
Ambient air relative humidity	φ	%	< 2.6
Water mass, specimen mass	m	g	< 0.12
Specimen mass	m	g	< 0.0001
Specimen size	d	mm	< 0.1

The reported expanded uncertainties of measurement are stated as the standard uncertainties of measurement multiplied by the coverage factor $k = 2$, which for a normal distribution corresponds to a coverage probability of approximately 95 %.

The standard uncertainty of measurement has been determined in accordance with EA-16/02 and GUM.

ANNEX 2: MEASUREMENT

Determination of surface density:

Area (mm ²)	Mass (g)
2,010,000	296.7

Component mass and temperature rise during the individual determination:

Specimen	Specimen mass (g)	Combustion aid mass (g)	Temperature rise ΔT (K)
1_089/16	2.03801	0.00000	1.658
2_089/16	2.01995	0.00000	1.637
3_089/16	2.01605	0.00000	1.645

In all three cases a firing wire with 30 J caloric content and a cotton thread with 50 J caloric content has been used.

Calculation of the gross heat of combustion:

$$Q_{PCS} = \frac{E(T_m - T_i + c) - b}{m}$$

where:

- Q_{PCS} gross heat of combustion (MJ/kg)
- E water equivalent of calorimeter with accessories (in this case 9,272) (J/K)
- ΔT temperature rise (K)
- b correction to combustion supporting means (MJ)
- c temperature correction required for the exchange of heat with the outside (zero in this case) (K)
- m mass of the test specimen (kg)

From the above expression the final values given in chapter 4 have been calculated.