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FIRE TESTING LABORATORY VESELÍ NAD LUŽNICÍ

Testing Laboratory No. 1026 accredited by ČIA

**REACTION TO FIRE
TEST REPORT**

č. Pr-15-1.155-En

Issued on 2015-09-22

for product

Glass Fibre Mesh Fabrics R 117 A101

Sponsor: **SAINT-GOBAIN ADFORS CZ s.r.o.**
Sokolovská 106
570 21 Litomyšl
Czech Republic

Test method:

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

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

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1 INTRODUCTION

The gross head of combustion of Glass Fibre Mesh Fabrics R 117 A101 was determined following the order of the company SAINT-GOBAIN ADFORS CZ s.r.o in the Fire Testing Laboratory of PAVUS, a.s. in Veselí nad Lužnicí.

In case of dispute, the Czech version of the text shall prevail.

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] Technical documentation of the test product (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 accreditation institute
ATL Accredited Testing Laboratory

2 TEST SUBJECT

Product name:	Glass Fibre Mesh Fabrics R 117 A101	
Product identification:	non-flammable coating reinforcement	
Manufacturer:	SAINT-GOBAIN ADFORS CZ s.r.o. Sokolovská 106 570 21 Litomyšl Czech Republic	
Product description:	mass per unit area:	145 g/m ²
	product composition:	glass fibre mesh combined with treatment on basis of organic polymers
Product application:	part of ETICS.	
Date of sample arrival:	2015-07-20	
Sampling procedure:	performed by sponsor without ATL participation	
Conditioning:	according to [2]	

3 TEST PERFORMANCE

Tests were performed according to [1] and [2].

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

The tests were performed in the laboratory on 21st September, 2015. The ambient air temperature was 25 °C with 41 % 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)
1_049/15	6.68
2_049/15	6.54
3_049/15	6.71
Average	6.64


The gross heat of combustion of the specimen is 6.64 MJ/kg, it means 0.96 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.

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ANNEX 1: TESTING AND MEASURING EQUIPMENT, MEASUREMENT UNCERTAINTY

Test apparatus:	Registration number
Adiabatic calorimeter IKA C4000, pressure equipment, cooler	0059

Measuring equipment:	Metrological registration number:
Elektronic 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

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

Component mass and temperature rise during the individual determination:

Specimen	Specimen mass (g)	Benzoic acid mass (g)	Temperature rise ΔT (K)
1_049/15	0.46035	0.15025	0.769
2_049/15	0.50303	0.23255	1.027
3_049/15	0.45548	0.16733	0.816

In all three cases a firing wire with 30 J gross heat of combustion and a cotton thread with 50 J gross heat of combustion has been used. The gross heat of combustion of the benzoic acid was 26 460 J/g.

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 9 271 by the 1 st bomb and 9 273 by the 2 nd bomb)	(J/K)
ΔT temperature rise ($T_m - T_i$)	(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.

In determination 1_049/15 and 3_049/15 was used the 1st bomb, in determination 2_049/15 was used the 2nd bomb.