INSTITUTE FOR TESTING AND CERTIFICATION
třída Tomáše Bati 299, Louky, 763 02 Zlín, Czech Republic

TEST REPORT

Reference No. 75 35 01265A/ 2016

Applicant: :	**Zavod TECHNOPLEX Ltd** **Vostochny promuzel, 21** **Ryazan** **390047 Russia**
Product	**Extruded polystyrene boards TECHNONICOL CARBON PROF 300** **Extruded polystyrene boards TECHNONICOL CARBON PROF 400**
Manufacturer :	Zavod TECHNOPLEX Ltd Vostochny promuzel, 21 Ryazan 390047 Russia
Elaborated by :	Milan Kovář
Issued on :	28th June 2016

INSTITUTE FOR TESTING AND CERTIFICATION 1023 NOTIFIED BODY

RNDr. Radomír Čevelík
Representative of Notified Body No. 1023

1. Introduction

This report was elaborated on the basis of the application *No. 753501265 of 27/01/2016* and tests results carried out by the notified testing laboratory in accordance with the procedure mentioned in the article 1.4 of the Annex V to the Regulation (EU) No. 305/2011 of the European Parliament and of the Council of 9 March 2011, as amended, laying down harmonised conditions for the marketing of construction products („CPR").

2. Assessment and verification of constancy of performance according to Regulation (EU) No 305/2011 of the European Parliament and of the Council, as amended

Thermal insulation extruded polystyrene foams (XPS) as construction products are assessed on the basis of relevant clauses of the Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9th March 2011 laying down harmonised conditions for marketing of construction products and repealing Council Directive 89/106/EEC as amended (called „CPR")

2.1 System of assessment and verification of constancy of performance (AVCP)

The submitted product is assessed pursuant to system of AVCP 3 (3 + 3) of the CPR (Annex V).

The type testing (testing) was carried out according to Annex ZA of the standard ČSN EN 13164+A1 (EN 13164:2012+A1:2015)

Remark: European standards after their becoming available are subsequently adopted as national standards. All the Czech standards ČSN EN..., cited in this report were issued with the same number as the European standards designated with equal requirements.

2.2 Indicators specifying essential requirements

The type testing was conducted by the notified body (the notified test laboratory) in the the following range of relevant properties of Table ZA.3.2 (of the ČSN EN 13164+A1) required by the manufacturer:

- Reaction to fire (the manufacturer has required E class) according to Art. 4.2.4 and 5 of ČSN EN 13164+A1
  - ignitability – surface and edge exposure according to ČSN EN ISO 11925-2
  - classification according to ČSN EN 13501-1+A1
- Thermal resistance and thermal conductivity according to Art. 4.2.1, 5 and Annex C of ČSN EN 13164+A1, ČSN EN 12667 (mean temperature: 10° C)

- Thickness according to Art. 4.2.3 and 5 of ČSN EN 13164+A1, ČSN EN 823 /load: (250±5) Pa/
- Compressive strength or compressive stress at 10% deformation according to Art. 4.3.4 and 5 of ČSN EN 13164+A1, to ČSN EN 826
- Long term water absorption by immersion (W_{lt}) according to Art. 4.3.7.1 and 5 of ČSN EN 13164+A1, ČSN EN 12087 (method 2A)

Release of dangerous substances have not been determined because of absence of corresponding test standards and requirements.

2.3 Product specification

The thermal insulation boards of extruded polystyrene foam (XPS) for buildings.
Used blowing agent: CO_2 (and a little of ethanol)
The manufacturer does not declare the use of a fire retardant.
Declared reaction to fire class: E
Standard product dimensions:

- 1180 mm x 580 mm x (50 mm to 100 mm) – CARBON PROF 300 /previous thickness range: (50 mm to 80 mm)/
- 1180 mm x 580 mm x 100 mm – CARBON PROF 400

2.4 Sampling place and number of samples taken

The sampling of the test samples has been carried out by the manufacturer on the basis of clause C.2.2 of ČSN EN 13172:2012 and clause 5.1 of ČSN EN 13164+A1 and Notified Body representative´s requirements.
The sampling is documented:

- Sampling record, elaborated by the manufacturer on 10th February 2016

The number of the samples sent was as follows:

- Extruded polystyrene boards TECHNONICOL CARBON PROF 300, 6 pcs of (1180 x 580 x 100) mm
- Extruded polystyrene boards TECHNONICOL CARBON PROF 400, 6 pcs of (1180 x 580 x 100) mm (A) (manufacturing date)
- Extruded polystyrene boards TECHNONICOL CARBON PROF 400, 6 pcs of (1180 x 580 x 100) mm (B) (manufacturing date)
- Extruded polystyrene boards TECHNONICOL CARBON PROF 400, 6 pcs of (1180 x 580 x 100) mm (C) (manufacturing date)

- Extruded polystyrene boards TECHNONICOL CARBON PROF 400, 6 pcs of (1180 x 580 x 100) mm (D) (manufacturing date)

The samples were received and registered under the registration numbers: 75 35 01265/1.1, 75 35 01265/3.1, 75 35 01265/3.2, 75 35 01265/3.3, 75 35 01265/3.4 on 24th February 2016.

2.5 Place and date of testing

- Institut pro testování a certifikaci (ITC),a.s., Accredited laboratory No. 1004, NB (Notified Body) No. 1023 Zlín (February – April 2014, March – April 2016)
- Centrum stavebního inženýrství (CSI), a.s. Prague, Accredited laboratory No.1007.4, NB 1390 (March - July 2014, April – June 2016)

2.6 Test results

The test results are shown in Tables 1, 2 and Annex 1.

Remark: Table 1 includes test results (board thicknesses: 50, 60, 80 mm) taken over from document:

- Test Report No. 753500962/2014, elaborated ITC – NB 1023 Zlín on 20th June 2014

Table 1 – Test results – TECHNONICOL CARBON PROF 300

Characteristic (Property)	Measuring unit	Determined value			
		1[a)]	2[a)]	3[a)]	4[a)]
Reaction to fire -Ignitability	-	E class			
Thermal conductivity after aging („aged value")	$W.m^{-1}.K^{-1}$	0.0334 (d_N: 50 mm)	0.0331 (d_N: 60 mm)	0.0334 (d_N: 80 mm)	0.0337 (d_N: 100 mm)
Thermal resistance after aging („aged value") (calculated value for nominal thickness d_N)	$m^2.K.W^{-1}$	1.50 (d_N: 50 mm)	1.81 (d_N: 60 mm)	2.40 (d_N: 80 mm)	2.96 (d_N: 100 mm)
Thickness (d) - Nominal thickness d_D= 50 mm - Nominal thickness d_D= 60 mm Nominal thickness d_D= 80 mm Nominal thickness d_D= 100 mm	mm	49.0 60.0 81.0 100.0	49.0 60.0 80.0 101.0	49.0 60.0 80.5 101.0	49.0 60.0 80.5 100.0
Compressive stress at 10% deformation	kPa	411 414 (d_N: 50 mm)	344 358 (d_N: 60 mm)	445 453 (d_N: 80 mm)	470 466 (d_N: 100 mm)
Long term water absorption by immersion (W_{lt})	%	0.3 (d_N: 50 mm)	0.4 (d_N: 60 mm)	0.3 (d_N: 80 mm)	0.17 (d_N: 100 mm)

[a)] – 1, 2, 3, 4 – different dates of the manufacture

Table 2 – Test results – TECHNONICOL CARBON PROF 400

Characteristic (Property)	Measuring unit	Determined value			
		1[a)]	2[a)]	3[a)]	4[a)]
Reaction to fire -Ignitability	-	E – d2 class			
Thermal conductivity after aging („aged value")	$W.m^{-1}.K^{-1}$	0.0343 (d_N: 100 mm)	0.0346 (d_N: 100 mm)	0.0345 (d_N: 100 mm)	0.0349 (d_N: 100 mm)
Thermal resistance after aging („aged value") (calculated value for nominal thickness d_N)	$m^2.K.W^{-1}$	2.91 (d_N: 100 mm)	2.89 (d_N: 100 mm)	2.89 (d_N: 100 mm)	2.86 (d_N: 100 mm)
Thickness (d) - Nominal thickness d_D= 100 mm (A) - Nominal thickness d_D= 100 mm (B) - Nominal thickness d_D= 100 mm (C) - Nominal thickness d_D= 100 mm (D)	mm	 99.5 99.5 100.0 100.5	 100.0 100.0 99.5 100.5	 99.5 100.0 99.5 100.5	 100.0 100.0 100.0 100.5
Compressive stress at 10% deformation	kPa	440 442 (d_N: 100 mm)	438 439 (d_N: 100 mm)	439 443 (d_N: 100 mm)	468 469 (d_N: 100 mm)
Long term water absorption by immersion (W_{lt})	%	0.21 (d_N: 100 mm)	0.22 (d_N: 100 mm)	0.24 (d_N: 100 mm)	0.21 (d_N: 100 mm)

[a)] – 1, 2, 3, 4 – different dates of the manufacture (A, B, C, D)

3. NB 1023 Conclusions

Notified Body NB 1023 has carried out the testing in accordance with the paragraph 1.4 of Annex V to the Regulation (EU) No 305/2011, as amended for the product specified in the Art. 2.3 of this Report **and concluded that**
all requirements of this paragraph of the above Regulation and the relevant harmonized standard have been met and this report may be issued as a basis for affixing CE marking to these products.

This Report is applicable only to products identically marked and named, such as those which were the subject to testing, provided that the products characteristics have not been changed or no significant changes in their production (materials, technology, manufacturing equipment, etc.) have been done.

4. A list of documents used to elaborate the Test Report

- Application No. 753501265 for assessment of CE-marked construction products
- ČSN EN 13164+A1: Tepelně izolační výrobky pro stavebnictví – Průmyslově vyráběné výrobky z extrudovaného polystyrénu (XPS) – Specifikace (Thermal insulation products for buildings – Factory made products of extruded polystyrene foam (XPS) – Specification)
- ČSN EN 13172 (72 7211):2012: Tepelně izolační výrobky – Hodnocení shody (Thermal insulation products – Evaluation of conformity)
- Test report of Accredited laboratory, reference No. 753501265/01, elaborated by ITC, a.s., Accredited laboratory No. 1004 Zlín, on 22/04/2016
- Test report of Accredited laboratory, reference No. 753501265/02, elaborated by ITC, a.s., Accredited laboratory No. 1004 Zlín, on 29/03/2016
- Test report, reference No.16/030/T030, elaborated by Centrum stavebního inženýrství (CSI), a.s. Prague, Accredited laboratory No.1007.4, on 09/06/2016
- Classification Report using Results of Reaction to Fire No. 753501265K/2016, from 29/03/2016
- Test Report No. 753500962/2014, elaborated ITC – NB 1023 Zlín on 20th June 2014
- Sampling record, elaborated by the manufacturer on 10th February 2016
- Technical description of the products

Annex 1 - Ignitability tests results

Test samples thickness of 100 mm was reduced to thickness of 60 mm.

Table 3 – Ignitability results of TECHNONICOL CARBON PROF 400– the test samples with board thickness of 100 mm (surface exposure), test specimens from different manufacturing dates

Characteristic	**Surface exposure test – lengthwise direction (characteristic for individual test specimens)**	**Surface exposure test – crosswise direction (characteristic for individual test specimens)**
Ignition of the test specimen Yes/No	No, No, Yes, Yes, Yes	No, No, No, Yes, Yes
Flame reaching of a mark in distance of 150 mm Yes/No	No, No, No, No, No	No, No, No, No, No
Burning time to reach 150 mm (s)	-, -, -, -, -	-, -, -, -, -
Ignition of the filter paper	No, No, No, No, No	No, No, No, No, No

Table 4 – Ignitability results of TECHNONICOL CARBON PROF 400– the test samples with board thickness of 100 mm (edge exposure), test specimens from different manufacturing dates

Characteristic	**Surface exposure test – lengthwise direction (characteristic for individual test specimens)**	**Surface exposure test – crosswise direction (characteristic for individual test specimens)**
Ignition of the test specimen Yes/No	Yes, No, Yes, Yes, No	Yes, Yes, Yes, No, No
Flame reaching of a mark in distance of 150 mm Yes/No	No, No, Yes, No, No	Yes, Yes, Yes, No, No
Burning time to reach 150 mm (s)	-, -, 30, -, -	46, 41, 49, -, -
Ignition of the filter paper	No, No, Yes, No, No	Yes, Yes, Yes, No, No