



CENTRUM STAVEBNÍHO INŽENÝRSTVÍ a.s.

Zkušebna fyzikálních vlastností materiálů, konstrukcí a budov - Praha
Zkušební laboratoř č. 1007.4 akreditovaná ČIA dle ČSN EN ISO/IEC 17025
Pražská 16, 102 00 Praha 10 Hostivař

TEST REPORT

Nr. 15/403/P153



Job Nr.: Z-15/281/P031

Nr. of pages: 4 + 2 app.

Nr. of copies: 2

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Name of test: Determination of flammability class of construction products

Material/product/construction: Polyurethane Foam

Sponsor: ERA LABORATUVARLARI A.Ş.
TOSB TAYSAD Organize San. Böl. 1. CD.
15. Yol No: 1 Şekerpinar - Çayırova Kocaeli-TURKEY

Manufacturer: SOMA KİMYA SANAYİ VE TİCARET A.Ş.
HADIMKÖY MAH. ALPARSLAN SOK. NO:10 ARNAVUTKÖY
İSTAMBUL
TURKEY

Test specimens delivery date: 5th December 2014
Workplace: Fire technical laboratory
Location: Pražská 16, Praha 10 – Hostivař
Date of test: 15th January and 6th February 2015
Date of issue: 12th December 2015

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1. Test assignment

The test has been done on the base of order issued on 5th November 2014.

2. Test methods

- | | |
|------------------|--|
| DIN 4102-1:1998 | Fire behaviour of building materials and building components - Part 1: Building materials; concepts, requirements and tests. |
| DIN 4102-16:1998 | Fire behaviour of building materials and building components - Part 16: "Brandschacht" tests. |
| DIN 4102-15:1990 | Fire behaviour of building materials and elements "Brandschacht". |

3. Test specimens

The test specimens were delivered by manufacturer. Marking of the test specimens in laboratory: 15/P153/1-3.

Composition: Polyurethane, flame retardant

Appearance: Pink foam filled in gap in calcium silicate board. Dimension of filled gap: width 40 mm, depth 20 mm. Density of foam cca 30 kg/m³.

Fixing method: Fixed on the metal holder according to DIN 4102-15, table 1, detail 2.

4. Test equipment

- 1) Test device according to DIN 4102 teil 15 „Brandschacht“ (Reg. Nr. 744)
- 2) Yardstick (Reg. Nr. 148)
- 3) Digital stop watch (Reg. Nr. 4)
- 4) Flow meter (Reg. Nr. 300)
- 5) Flow meter (Reg. Nr. 301)
- 6) Thermometer / relative humidity meter (Reg. Nr. 74)
- 7) Digital anemometer (Reg. Nr. 67)
- 8) AD converter (Reg. Nr. 45)
- 9) Weighing scale OWA Labor (Reg. Nr. 6)
- 10) Non-coated thermocouple 0,5 mm (Reg. Nr. 119)
- 11) Non-coated thermocouple 0,5 mm (Reg. Nr. 120)
- 12) Non-coated thermocouple 0,5 mm (Reg. Nr. 121)
- 13) Non-coated thermocouple 1,5 mm (Reg. Nr. 122)
- 14) Non-coated thermocouple 1,5 mm (Reg. Nr. 123)
- 15) Non-coated thermocouple 1,5 mm (Reg. Nr. 134)
- 16) Non-coated thermocouple 1,5 mm (Reg. Nr. 135)

5. Test results and conclusion

Conditioning: 14 days at temperature $T = (23 \pm 2) ^\circ\text{C}$
Testing conditions: $T = (21 - 23) ^\circ\text{C}$

relative humidity $RH = (50 \pm 3) \%$
relative humidity $RH = (28 - 32) \%$

Measuring and observations	Test specimen No.		
	1	2	3
Residual length of the every test specimen [cm]	66; 69; 70; 69	65; 67; 69; 66	70; 68; 69; 68
Residual length average value of the test specimen [cm]	68,5	66,8	68,8
The highest smoke temperature [°C]	108,6	121,8	115,5
Time to accomplish of the highest temperature of the smoke [min:s]	6:07	7:19	8:02
The highest flame level above the bottom edge of the test specimen [cm]	30	40	30
Smoke production [%.min]	15,5	13,6	16,2
Maximum light attenuation [%]	2,7	2,9	3,3
Time to accomplish the maximum smoke density [min:s]	4:51	4:15	4:48
Time of sustained burning after end of test [s]	0	0	0
Time of gloving after end of test [s]	0	0	0
Flaming droplets / particles [yes/no]	no	no	no

Testing according to DIN 4102-1:1998, clause 6.2.5 (Baustoffklasse B2):

The product *Polyurethane Foam* does comply with requirements given in DIN 4102 – 1:1998 for B2 classification. Measured values and test results are showed in the Test report No. 15/402/P152 issued on 15th January 2015 by CSI a.s, Fire technical laboratory.

Conclusion:

The tested sample of *Polyurethane Foam* **does comply** with requirements given in the standard DIN 4102 – 1 for classification:

DIN 4102-B1.

6. Measurement uncertainty

Expanded measurement uncertainty of length is $\pm 4,0$ cm.

Expanded measurement uncertainty of smoke density is $\pm 9,8$ s.

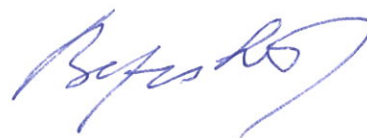
Expanded measurement uncertainty of temperature $\pm 5,8$ °C.

Mentioned expanded uncertainties are obtained by multiplying the standard uncertainties by a coverage factor $k=2$, which corresponded to a level of confidence of 95 %. Standard uncertainties have been determined in accordance with document „EA 4/02“.

7. Declaration

The test results relate to the behaviour of the test specimen 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 of use. The results of tests are concerned only with the subject of testing. The test report shall be reproduced in full only.

Measured by: Ing. Jiří Beznoska



Test report prepared by: Vít Slaboch



Distribution of test reports:

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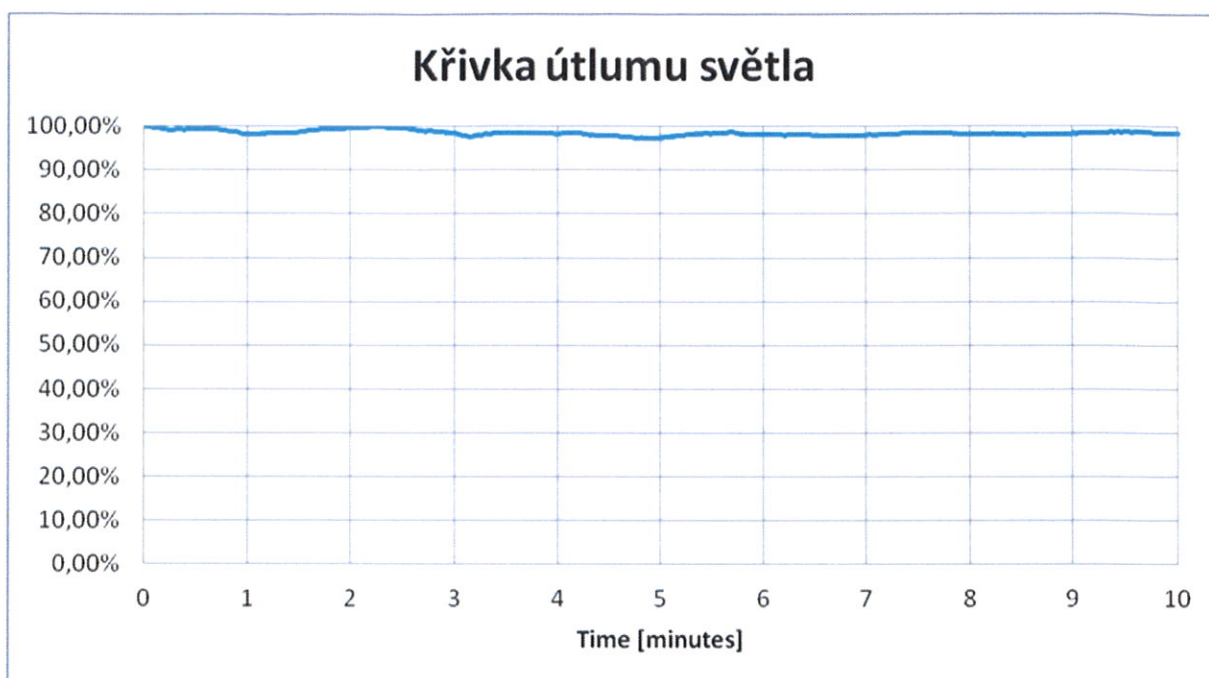
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List of appendixes:

Appendix Nr. 1: Light attenuation curve and smoke temperature curve (test specimen Nr. 1)

END OF TEST REPORT

Light attenuation curve - test specimen Nr. 1:



Smoke temperature curve - test specimen Nr. 1:

