



TEST REPORT
PRODUCT TYPE DETERMINATION



PTD-19.22 / 20.05.2019

The tests are carried out in compliance with REGULATION (EU) No 305/2011 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 9 March 2011 (CPR) for construction products.

- Product:** EXTRUDED POLYSTYRENE BOARDS (XPS),
Commercial name EURO FISI.
- Producer:** EURO FISI sh.p.k
Radivojčë, 61000 Viti, Kosovo
- Applicant:** SIGMAMET
Pernik, Bl.8 Krakra Pernishki Sq., Bulgaria.
- Document for assignment:** Contract No 22/2019
- AVCP System:** System "3" according to Annex ZA of
EN 13164:2012+A1:2015
- Test samples:** 2 boards XPS with dimensions: (1,25 x 0,6 x 0,03) m,
supplied by the Applicant for testing at
the Construction Materials Testing Laboratory.
- Test period:** From 09.05.2019 to 17.05.2019
- Assessment of performance:** The submitted XPS boards EURO FISI meet the requirements
of EN 13164:2012+A1:2015 for XPS with designation code:
XPS-EN 13164:2012+A1:2015-T1-W8-L8-S5-P6-TR600-
CS (10)250-WL (T)0,7-DS(70,)5-MU according to the
determined characteristics.

Head of Test Laboratory
Res. Ass. Eng. Tsvetana Gyurova

General Manager of NISI
Eng. Stanko. Yonchev



Testing data:

| No | Essential characteristic | Unit of measurement | Test method | Test result | Requirement according to EN 13164:2012+A1:2015 |
|----|---|---------------------|---------------|------------------------------|--|
| 1. | Thickness | mm | EN 823:2013 | 29,5 | (20÷100) ± 1 for level T1 |
| 2 | Apparent density, average | kg/m ³ | EN 1602:2013 | 34,6 | - |
| 3. | Thermal conductivity coefficient, λ_D | W/m.K | EN 12667:2004 | 0,032 | Value declared by the Manufacturer |
| 4. | Thermal resistance, R_D at XPS board thickness: 20 mm 30 mm 50 mm 100 mm | m ² .K/W | EN 12667:2004 | 0,62 0,94 1,56 3,13 | Value declared by the Manufacturer |
| 5. | Long term water absorption | % | EN 12087:2013 | 0,67 | ≤ 0,7 for level WL(T)0,7 |
| 6. | Compressive stress- 10 % deformation | kPa | EN 826:2013 | 295 | ≥ 250 for level CS(10)250 |

Note: The test has been carried out at the Construction Materials Testing Laboratory – 1, Iliya Beshkov Str., Sofia

Technical documentation:

EN 13164:2012+A1:2015 Thermal insulation products for buildings - Factory made extruded polystyrene foam (XPS) products – Specification

EN 823:2013 Thermal insulating products for building applications - Determination of thickness

EN 1602:2013 Thermal insulating products for building applications - Determination of the apparent density

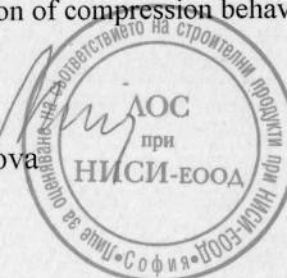
EN 12667:2004 Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods

EN 12087:2013 Thermal insulating products for building applications - Determination of long term water absorption by immersion

EN 826:2013 Thermal insulating products for building applications - Determination of compression behaviour

Tests are carried out by
 Eng. Vasil Raichev

Head of Test Laboratory
 Res. Ass. Eng. Tsvetana Gyurova





*ACCREDITED Laboratory from BAS according to BDS EN/IEC 17025:2006
Certificate reg. 47 ЛИ /25.01.2019. Valid until 29.06.2022*

Page 1 of 3

TEST REPORT

№ 408 / 20.05.2019

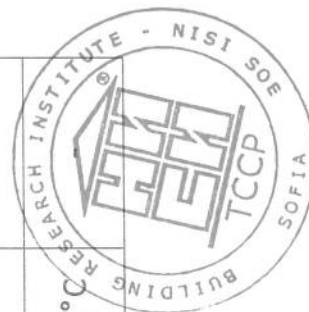
1. THERMAL INSULATING PRODUCTS FOR BUILDINGS.
EXTRUDED POLYSTYRENE BOARDS (XPS).
Commercial name: **EURO FISİ.**
Thickness 20 - 100 mm.
Manufacturer – EURO FISİ sh.p.k, Kosovo.
(name of the product)
2. SIGMAMET, Pernik, Bulgaria.
Agreement № 22, Application № ILSM – 03 - 308/17.05.2019.
The sample is delivered by the Applicant.
(name of the Applicant, Number and date of the protocol for sample taking)
3. Testing method: BDS EN 823:2013, BDS EN 1602:2013, BDS EN 12667:2004, BDS EN 12087:2013, BDS EN 826:2013, BDS EN 824:2013, BDS EN 825:2013, BDS EN 12089:2013, BDS EN 12086:2013, BDS EN 1607:2013, BDS EN 1604:2013, BDS EN 822:2013.
(standards number or approved interlaboratory methods)
4. Date of sample receiving / samples for testing at the laboratory:
08.05.2019.
5. Sample quantity for testing: 2 boards with dimensions - 1,25 x 0,6 x 0,03 m.
(quantity and weight of the samples)
6. Date of the test execution: 09.05 - 17.05.2019.

HEAD OF ACCREDITED LABORATORY:
(Eng. T. Zahariiev)



7. TEST RESULTS

| № | Name of the index | Unit | Standard, approved methods | № of the sample in the register book | Test results (value, indefiniteness) | Value and tolerances of the method index | Test conditions | Note |
|----|-------------------------------------|---------------------|----------------------------|--------------------------------------|--------------------------------------|--|-----------------|------|
| 1 | 2 | 3 | 4 | 5 | 5 | 6 | 7 | 8 |
| | | | | | | BDS EN 13164:2012 +A1:2015 | | |
| 1. | Thickness | mm | BDS EN 823:2000 | 408 | 29,5 | (20±100) ± 1 | (22±0,23) °C | - |
| 2 | Apparent density, average | kg/m ³ | BDS EN 1602:2013 | 408 | 34,6 | - | (22±0,23) °C | - |
| 3. | Thermal conductivity coefficient | W/m.K | BDS EN 12667:2004 | 408 | 0,032 | Value declared by the Manufacturer | t = 10 °C | - |
| 4. | Thermal resistance | m ² .K/W | BDS EN 12667:2004 | 408 | 0,62 ÷ 3,13 | Value declared by the Manufacturer | t = 10 °C | - |
| 5. | Long term water absorption | % | EN 12087:2013 | 408 | 0,67 | ≤ 0,7 | (22±0,23) °C | - |
| 6. | Compressive stress-10 % deformation | kPa | BDS EN 826:2003 | 408 | 295 | ≥ 250 | (22±0,23) °C | |
| 7. | Squareness | mm/m | BDS EN 824:2013 | 408 | 4 | ± 5 | (22±0,23) °C | - |
| 8. | Flatness | mm | BDS EN 825:2013 | 408 | 2 | ± 6 | (22±0,23) °C | - |
| 9. | Flexural strength | kPa | BDS EN 12089:2013 | 408 | 460 | ≥ 400 | (22±0,23) °C | |



| 1 | 2 | 3 | 4 | 5 | 5 | 6 | 7 | 8 |
|-----|--|-----|-------------------|-----|----------------------|----------------------------------|------------------------------|---|
| 10. | Water vapour diffusion resistance factor- μ | - | BDS EN 12086:2013 | 408 | 88 | ≥ 80 | (22 \pm 0,23) $^{\circ}$ C | - |
| 11. | Tensile strength perpendicular to faces | kPa | BDS EN 1607:2013 | 408 | 645 | ≥ 600 | (22 \pm 0,23) $^{\circ}$ C | - |
| 12. | Dimensional stability under specified temperature and humidity conditions -width -length -thickness | % | BDS EN 1604:2013 | 408 | 0,25 0,22 0,37 | ≤ 5 ≤ 5 ≤ 5 | 70 $^{\circ}$ C | - |
| 13. | Dimensions -width -length | mm | BDS EN 822:2013 | 408 | 585 1225 | ± 8 ± 8 | (22 \pm 0,23) $^{\circ}$ C | - |

Note I: If it is necessary, the test report could include opinions and interpretations for certain tests (conclusions are not allowed), only in compliance with the requirements of item 5.10.5 from BDS EN ISO/IEC 17025.

Note II: The results of the testing are valid only for the tested samples.

THE TEST WAS EXECUTED BY:
(RA Eng. V.Raichev)



HEAD OF ACCREDITED LABORATORY
(Eng. V. Zahariev)