UNIVERSITY OF IOANNINA

mss•nde LABORATORY

**Test Report** **Date: 16 September 2019** **Page 1 of 4**

## for the proof of Fire behavior according to DIN 4102-1

**Samples provided by: Newdb Hellas, Krampokoukis Ltd., Dedro, 30100 Agrinio, Greece, Tel. (+30)26410-44510, e-mail: info@newdbhellas.gr**

**Sample Description:** Multi-layered wall panels

(for details see page 2)

**Test Requested:**

To determine the flammability (building materials class B2) in accordance with DIN 4102-1 (May 1998) Fire behaviour of building materials and elements Part 1: Classification of building materials, Requirements and testing

**Test Results:** --See attached sheet--

**Classification:**

The tested material meets the flammability requirements of Class B2 of building materials under DIN 4102-1 (May 1998). Therefore, in relation to its reaction to fire behavior is classified:

**DIN 4102-1 – B2**

During the tests no flaming droplets/particles according to DIN 4102-1, subclause 6.2.6 occurred.

Ioannina, 16 September 2019

Ιωάννινα, 18.09.19
Βεβαιώνεται το γνήσιο της
υπογραφής του
Η Προϊσταμένη της Δ/νσης Σχολής
Ειρήνη Σοκράτη

Professor Theodore Matikas

Director of MSS-NDE Laboratory, University of Ioannina, Greece

## I. Test conducted

This test was conducted as DIN 4102-1: 1998 Clause 6.2-Class B2 materials. Since the tested material is multi-layered, the ignitibility test was performed as specified in subclause 6.2.5.2, except that the flame was applied to the least favourable point on the sample's front edge.

## II. Sample details

| | |
|---|---|
| ***General description*** | Multi-layered wall panels:<br>The testing samples are involving a building element for loading-bearing walls that includes seven layers with three different types of constituents (Fig1). |
| ***Usage*** | Components of sandwich structures of prefabricated wooden houses. They used as load-bearing masonry and their static design is similar to that of load-bearing masonry structures |
| ***Size of samples*** | Edge ignition test: 90 mm x 190 mm (5 samples) |
| ***Main constituents*** | 1. Oriented Structure Boards (OSB) class 3:<br>a product made from thin strands stacked on each other in oriented layers connected by a synthetic resin.<br>2. Extruded polystyrene (XPS) foam board insulation<br>3. Moisture resistant Medium Density Fiberboard (MDF) for load-bearing use in dry and wet conditions |
| ***Specimen geometry*** | • A core layer of anhydrous MDF with a thickness of 30mm<br>• Two layers of MDF with a thickness of 16mm at each side of the core<br>• Two layers of XPS foam board insulation with a thickness of 30mm at each side of the 16mm MDF<br>• Two outer layers of OSB class 3 with a thickness of 9mm<br>(The test sample is presented in Fig. 1) |

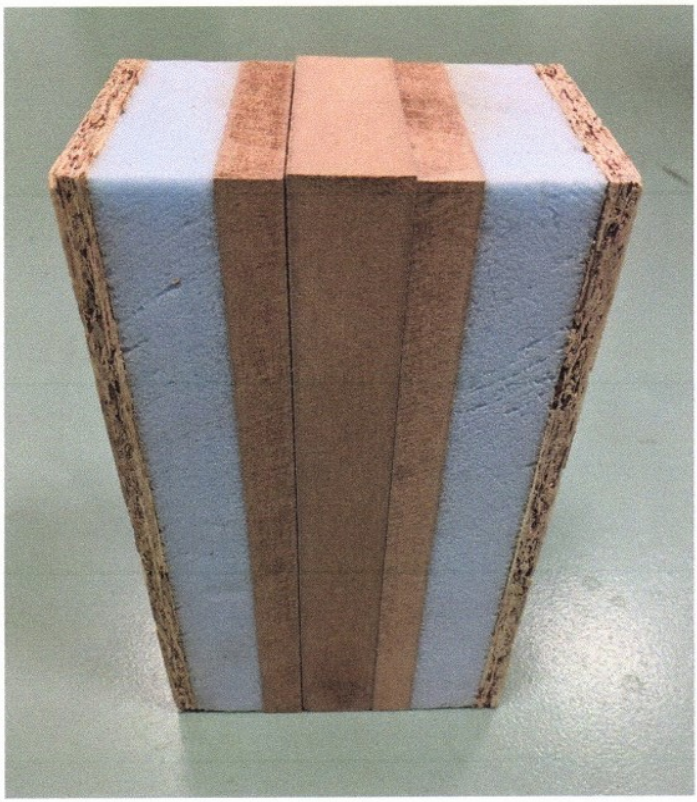

Fig1: Sample of Seven-layered wall panel

## Conditioning

Prior to testing, the samples were conditioned at least 14 days to constant mass at a temperature of 23 ± 2°C

## III. Test results

Normal Flammability Test according to DIN 4102-1 Clause 6.2

Flame application: Bottom edge ignition

Normal Flammability Test according to DIN 4102-1 Clause 6.2

Flame application time: 15 s

Observation time: 20 s

| Position of flame application: | Bottom edge ignition | | | | |
|---|---|---|---|---|---|
| Specimen No. | 1 | 2 | 3 | 4 | 5 |
| Reaching the 150 mm test mark within 20 seconds | No | No | No | No | No |
| Ignition of the sample occurs after (s) | 3 | 3 | 2 | 3 | 3 |
| Duration of flames (s) | 15 | 13 | 15 | 15 | 14 |
| Max. vertical flame spread (mm) | 58 | 50 | 55 | 55 | 45 |
| Molten dripping | No | No | No | No | No |
| Smoke production | Slight | | | | |

Requirement of class B2: max. vertical flame < 150 mm

## V. Criteria for classification for Class B2 (DIN 4102-1 Clause 6.2.2)

All materials except flooring materials may be classed as B2 materials if they pass the ignitibility test, which shall be deemed passed if, for any of the five specimens tested, flaming does not reach the gauge mark within 20 seconds after flame application, either with bottom edge ignition or surface ignition.

**----------The end of this report----------**