

Determination of the ignitability of the Clay-wood shaving thermal insulation according to EN ISO 11925-2

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Order ref.	e-mail / 26.11.2021 / Eero Tuominen
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Product	The customer gave the following information about the product: Product name: Clay-wood shaving thermal insulation Manufacturer: ECOSAFE 2 –project Product description: Clay-wood shaving, Wood shaving with water and clay powder. Product recipe: <ul style="list-style-type: none">• Wood shaving (EHTA Eriste paali, 20 kg) 2 parts,• Water 1 part,• Clay powder (clay content of a loam 40-60%) Tiileri,• mixed and dried. Thickness of insulation: 180 mm Nominal density of insulation: 100...150 kg/m ³ More detailed information about product: "Tuotetiedot ECOSAFE JA ECOSAFE2 hankkeissa tutkituista materiaaleista", Tampereen yliopisto 2022
Sample	The sample of the product was chosen by the customer Date of delivery: 25 November 2021 Manufacturing date: April to June 2021 Type of sample: Sample of the product, bag of Clay-wood shaving

Test specimen	<p>Test specimen were made by Eurofins Expert Services. Test specimen holder for loose fill material described in standard SFS-EN ISO 11925-2 were used.</p> <p>Four different densities were tested: 100 kg/m³, 125 kg/m³, 150 kg/m³, 175 kg/m³</p> <p>The specimens were conditioned prior to the tests to a constant mass at a temperature of (23 ± 2) °C and a relative humidity of (50 ± 5) %.</p>
Date of tests	10 and 15 December 2021
Test method	<p>EN ISO 11925-2:2020 <i>Reaction to fire tests Ignitability of products subjected to impingement of flame - Part 2: Single-flame source test (ISO 11925-2:2020)</i>.</p> <p>The description of the test method is presented in Appendix 1.</p> <p>The sample were conditioned prior to the tests to a constant mass at a temperature of (23 ± 2) °C and a relative humidity of (50 ± 5) %.</p>
Deviation	Ambient humidity during the test dated 10 December 2021 was 18 % RH. According to the standard EN ISO 11925-2:2020 it should be 50 ± 20 % RH. The deviation did not have an influence on the final result.
Results	The test results are shown in Appendix 2.
Note	<p>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.</p> <p>Eurofins Expert Services Oy is a notified body 0809 concerning the Construction Products Regulation (CPR).</p>

Espoo, 9 June 2023

Taru Huokuniemi
Senior Expert

Appendices	Appendix 1, Description of the test method Appendix 2, Test results
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The results are only valid for the tested sample(s).
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DESCRIPTION OF THE TEST METHOD

EN ISO 11925-2:2020 *Reaction to fire tests. Ignitability of products subjected to direct impingement of flame. Part 2: Single-flame source test (ISO 11925-2:2020)*

The test specimens

Dimensions of the test specimens 250 mm x 90 mm.

For each exposure condition three test specimens lengthwise and three crosswise.

Products of normal thickness 60 mm or less are tested using their full thickness.

Products of normal thickness greater than 60 mm are reduced to a thickness of 60 mm.

If the product is not essentially flat, the specimens can be tested in the form as in end use.

Each different surface which can be exposed in practice shall be tested (surface exposure).

A special test specimen holder is used for loose fill materials.

The test specimens are conditioned prior to the test at a temperature of $(23 \pm 2 \text{ }^\circ\text{C})$ and relative humidity of $(50 \pm 5 \text{ \%RH})$.

The ignition flame

The specimens are ignited with a 20 mm high propane gas flame. The burner is inclined at 45° .

The flame is impinged on the bottom edge of the specimen (edge exposure) or 40 mm above the bottom edge (surface exposure).

For multilayer products greater than 10 mm thick, an additional set of tests is carried out with the specimen turned at 90° round its vertical axis and the flame impinging at the bottom edge of each different layer.

For loose fill materials in the special test specimen holder only the test with surface flame attack is carried out.

The specimen is exposed to flame for 15 s or 30 s as required.

Test procedure

The conditioned specimens are fixed vertically in the frame. The occurrence of burning particles is observed with filter paper placed below the specimen. If the flame application time is 15 s, the total test duration is 20 s from the time at which the flame is first applied. If the flame application time is 30 s, the total test duration is 60 s from the time at which the flame is first applied.

For each test specimen it is recorded whether an ignition* occurs, whether the flame tip reaches 150 mm above the flame application point and the time at which this occurs and whether ignition of the filter paper occurs.

* ignition: flaming for a period greater than 3 s

8.9.2020

TEST RESULTS

Product name: Clay-wood shaving thermal insulation

Test method: EN ISO 11925-2:2020

Test date and conditions: 10 December 2021, 23 °C, 18 % RH

Thickness of specimens: 40 mm

Flame application time: 30 s

Exposure conditions: Surface exposure

Surface exposure: density 100 kg/m³

Specimen	Ignition* of specimen	The flame tip reaches 150 mm	Ignition* of the filter paper
1	Yes	No	No
2	No	No	No
3	No	No	No
4	Yes	No	No
5	Yes	No	No
6	No	No	No

Surface exposure: density 175 kg/m³

Specimen	Ignition* of specimen	The flame tip reaches 150 mm	Ignition* of the filter paper
1	No	No	No
2	No	No	No
3	Yes	No	No
4	Yes	No	No
5	No	No	No
6	Yes	No	No

* Flaming for a period greater than 3 s

TEST RESULTS

Product name: Clay-wood shaving thermal insulation

Test method: EN ISO 11925-2:2020

Test date and conditions: 15 December 2021, 23 °C, 29 % RH

Thickness of specimens: 40 mm

Flame application time: 30 s

Exposure conditions: Surface exposure

Surface exposure: density 125 kg/m²

Specimen	Ignition* of specimen	The flame tip reaches 150 mm	Ignition* of the filter paper
1	No	No	No
2	No	No	No
3	No	No	No
4	No	No	No
5	Yes	No	No
6	No	No	No

Surface exposure: density 150 kg/m³

Specimen	Ignition* of specimen	The flame tip reaches 150 mm	Ignition* of the filter paper
1	No	No	No
2	No	No	No
3	No	No	No
4	No	No	No
5	No	No	No
6	Yes	No	No

* Flaming for a period greater than 3 s



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