*Certified translation from the German language*


**M F P A Leipzig G m b H**

Anerkannte Prüfstelle für Baustoffe, Bauteile und Bauarten

PÜZ-Stelle nach Landesbauordnung (SAC 02), Bauproduktengesetz (NB 0800)


DAkkS Deutsche Akkreditierungsstelle D-PL-11021-01-00

Testing laboratory accredited by DAkkS GmbH in accordance with DIN EN ISO/IEC 17025. The accreditation applies to the test procedures specified in the certificate which can be viewed at www.mfpa-Leipzig.de.

**Division III - Structural Fire Protection**
Head of Division: Dr.-Ing. Peter Nause

**Team 3.1– Fire Behaviour of Building Products**

Test report
**as basis for a classification report**
PB 3.1/11-121-1

from 01/07/2011 3rd copy

| | |
|---|---|
| Clients: | Liaver GmbH & Co. KG<br>Gewerbepark „Am Wald“ 17<br>98693 Ilmenau |
| Order: | Determination of the combustion heat in accordance with DIN EN ISO 1716, issue July 2002 |
| Subject matter: | Sound absorber panel Reapor® |
| Date of order: | 02/05/2011 |
| Samples received on: | 13/12/2010 (submission number DZ 3.1/10-386) |
| Sampling: | by the client |
| Marking: | none |
| Date of testing: | 26/05/2011 |
| Person in charge: | Dipl.-Phys. Günter Brinkmann |

This classification report comprises 3 pages of text.


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The terms and conditions (T&C) of MFPA Leipzig GmbH apply.



Gesellschaft für Materialforschung und Prüfungsanstalt für das Bauwesen Leipzig mbH
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Company Register: District Court Leipzig HRB 177 19
VAT ID No.: DE 813200649
Bank details: Sparkasse Leipzig
Account no. 1100 560 781
Bank code 860 555 92

## 1 Description of the material

The building product to be tested was grey panels, which according to the client's information are made of recycled, highly porous sintered waste glass as panels and moulded parts designated as "Reapor®".
According to the client's information, the material is used as a sound absorber panel for ceilings and walls indoors and outdoors as well as a support panel for ceiling and wall coatings.

Additional information on material and use was not provided to the test centre.

## 2 Manufacturing of samples

The samples for the fire tests were taken from the material provided by the client at the testing centre of MFPA Leipzig and prepared for the test in accordance with DIN EN ISO 1716 section 5.4.

## 3 Material parameters

Parameters according to the client's information:

| | |
|---|---|
| Bulk density: | 270 kg/m³, |
| Board thickness: | 25 mm and 50 mm; |

The following parameters were determined by MFPA Leipzig:

| | |
|---|---|
| Bulk density: | approx. 281 kg/m³. |

## 4 Test execution

The tests were performed in accordance with DIN EN ISO 1716 (issue July 2002).

The PCS value was determined for the above-mentioned building product.
The samples were conditioned prior to the test in accordance with DIN EN 13238.
The water equivalent of the calorimeter used was 9.268 kJ/K.

## 5 Test results

The test results are summarised in the following table.

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**Table: Determination of the PCS values in MJ/kg**

- Panel "Reapor®";

| | Reapor® | - | - | - | - |
|---|---|---|---|---|---|
| Area density [kg/m²] | - | - | - | - | - |
| Individual values of combustion heat PCS [MJ/kg] | -0.275<br>-0.249<br>-0.338 | - | - | - | - |
| Mean PCS value [MJ/kg] | 0.000 | - | - | - | - |
| $PCS_S$ value [MJ/m²] | - | - | - | - | - |

## 6 Special notes

This test report contains no classification in a building material class and does not replace any certificate of usability which may be required in accordance with the state building code.

This test report does not replace a classification report in accordance with DIN EN 13501-1.
This test report can be used as a basis for a classification report in accordance with DIN EN 13501-1.

The test results only refer to the behaviour of the samples of a building product under the special conditions of the test; they are not to be understood as the only criterion to determine the potential fire hazard of the building product in application cases.
The results of the tests refer exclusively to the test items described herein and not to other items of the same variety.

Leipzig, 01/07/2011

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NB 0800>>

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Dr.-Ing. P. Nause
*Head of Division*

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Dipl.-Phys. I. Kotthoff
*Head of the Testing Office*

**Authentication**

I have examined the German original/photocopy/facsimile, and this is a true translation of the same into English.

Barbara Wohanka, registered translator for the English language at the District Court of Landshut, Germany

Geisenhausen, 03 September 2020

Barbara Wohanka

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PÜZ-Stelle nach Landesbauordnung (SAC 02), Bauproduktengesetz (NB 0800)


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**Division III - Structural Fire Protection**

Head of Division: Dr.-Ing. Peter Nause

**Team 3.1– Fire Behaviour of Building Products**


Test report

**as basis for a classification report**

# PB 3.1/11-121-2

from 01/07/2011 3rd copy

| | |
|---|---|
| Clients: | Liaver GmbH & Co. KG<br>Gewerbepark „Am Wald“ 17<br>98693 Ilmenau |
| Order: | Non-combustibility test in accordance with DIN EN ISO 1182, issue July 2002 |
| Subject matter: | Sound absorber panel Reapor® |
| Date of order: | 02/05/2011 |
| Samples received on: | 13/12/2010 (submission number DZ 3.1/10-386) |
| Sampling: | by the client |
| Marking: | none |
| Date of testing: | 30/06/2011 |
| Person in charge: | Dipl.-Phys. Günter Brinkmann |

This classification report comprises 4 pages of text.


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Company Register: District Court Leipzig HRB 177 19
VAT ID No.: DE 813200649
Bank details: Sparkasse Leipzig
Account no. 1100 560 781
Bank code 860 555 92

## 1 Description of the material

The building product to be tested was grey panels, which according to the client's information are made of recycled, highly porous sintered waste glass as panels and moulded parts designated as "Reapor®".
According to the client's information, the material is used as a sound absorber panel for ceilings and walls indoors and outdoors as well as a support panel for ceiling and wall coatings.

Additional information on material and use was not provided to the test centre.

## 2 Manufacturing of samples

The samples for the non-combustibility test were taken in the fire test centre of MFPA Leipzig from the material provided by the client:

- 7 samples with a diameter of around 45 mm and a height of around 50 mm.

## 3 Material parameters

Parameters according to the client's information:

| | |
|---|---|
| Bulk density: | 270 kg/m³, |
| Board thickness: | 25 mm and 50 mm; |

The following parameters were determined by MFPA Leipzig:

| | |
|---|---|
| Bulk density: | approx. 281 kg/m³. |

## 4 Test execution

The tests were performed in accordance with DIN EN ISO 1182 (issue July 2002).

The non-combustibility oven satisfied the requirements of DIN EN ISO 1182 Section 7.3.1 and 7.3.2 during calibration.
The samples were conditioned prior to the test in accordance with DIN EN 13238.
The test of the above-mentioned building product was carried out in the non-combustibility oven with five tests.

## 5 Test results

The test results are summarised in the following table.

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**Table: Testing of the non-combustibility oven in accordance with DIN EN ISO 1182**

- Panel "Reapor®";

| Specifications in accordance with DIN EN ISO 1182 | | Test results Sample no. | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | - | - |
| Initial weight | g | 22.59 | 22.60 | 22.97 | 22.38 | 22.33 | - | - |
| End weight | g | 22.54 | 22.53 | 22.87 | 22.31 | 22.27 | - | - |
| Loss in mass | % | 0,2 | 0,3 | 0,4 | 0,3 | 0,3 | - | - |
| Initial temperature $T_{avg}$ | °C | 753 | 751 | 753 | 755 | 749 | - | - |
| Maximum temperature $T_m$ | °C | 780 | 778 | 783 | 775 | 783 | - | - |
| End temperature $T_f$ | °C | 778 | 776 | 782 | 774 | 782 | - | - |
| Rise in temperature $\Delta T=T_m-T_f$ | °C | 2 | 2 | 1 | 1 | 1 | - | - |
| Ignition | s | 0 | 0 | 0 | 0 | 0 | - | - |
| Duration of test | min | 30 | 30 | 30 | 30 | 30 | - | - |
| Remarks: | | Smoke development not visually detectable; | | | | | | |
| Special observations: | | Cylinder indented in the middle with cracks, the samples become slightly darker; | | | | | | |

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## 6 Special notes

This test report contains no classification in a building material class and does not replace any certificate of usability which may be required in accordance with the state building code.

This test report does not replace a classification report in accordance with DIN EN 13501-1.
This test report can be used as a basis for a classification report in accordance with DIN EN 13501-1.

The test results only refer to the behaviour of the samples of a building product under the special conditions of the test; they are not to be understood as the only criterion to determine the potential fire hazard of the building product in application cases.
The results of the tests refer exclusively to the test items described herein and not to other items of the same variety.

Leipzig, 01/07/2011

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*Head of Division*

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Dipl.-Phys. I. Kotthoff
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Geisenhausen, 03 September 2020

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MFPA

**Division III - Structural Fire Protection**
Head of Division: Dr.-Ing. Peter Nause

**Team 3.1– Fire Behaviour of Building Products**

# Classification report

**Fire behaviour classification report**

KB 3.1/11-121-3

from 01/07/2011 1st copy

| | |
|---|---|
| Clients: | Liaver GmbH & Co. KG<br>Gewerbepark „Am Wald" 17<br>98693 Ilmenau |
| Order: | Fire behaviour classification in accordance with DIN EN 13501-1:2010 |
| Subject matter: | Sound absorber panel Reapor® |
| Date of order: | 24/06/2011 |
| Person in charge: | Dipl.-Phys. Günter Brinkmann |

This classification report comprises 4 pages of text.

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Bank code 860 555 92

## 1 Details of the classified building product

### 1.1 General

The building product to be classified was grey panels, which according to the client's information are made of recycled, highly porous sintered waste glass as panels and moulded parts designated as "Reapor®".
According to the client's information, the material is used as a sound absorber panel for ceilings and walls indoors and outdoors as well as a support panel for ceiling and wall coatings.

### 1.2 Description of the building product

The "Reapor®" panels have the following properties according to the client's information:

Thickness: 25 mm, 50 mm,
Density: 270 kg/m³ ± 10 %,
Colour: grey.

## 2 Test reports and test results on which the classification is based

### 2.1 Test reports

| Name of laboratory | Client | Number of the test report | Test method |
|---|---|---|---|
| MFPA Leipzig | Liaver GmbH & Co. KG, 98693 Ilmenau | PB 3.1/11-121-1 from 01/07/2011 | DIN EN ISO 1716 |
| MFPA Leipzig | Liaver GmbH & Co. KG, 98693 Ilmenau | PB 3.1/11-121-2 from 01/07/2011 | DIN EN ISO 1182 |

### 2.2 Test results in accordance with DIN EN ISO 1182

| Test method | Parameter | Number of tries | Test results | |
|---|---|---|---|---|
| | | | continuous parameters (mean value) | Requirement met (Y/N) |
| EN ISO 1182 | Panel "Reapor®": | | | |
| | $\Delta T$ [°C]: | 5 | 1 | (-) |
| | $\Delta m$ [%]: | 5 | 0.3 | (-) |
| | $t_f$ [s] | 5 | 0 | (-) |

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### 2.3 Test results in accordance with DIN EN ISO 1716

| Test method | Parameter | Number of tries | Test results | |
|---|---|---|---|---|
| | | | continuous parameters (mean value) | Requirement met (Y/N) |
| EN ISO 1716 | Panel "Reapor®" PCS [MJ/kg]: | 3 | 0.0 | (-) |

## 3 Classification and field of application

### 3.1 Basis of the classification

This classification was carried out in accordance with sections 11 and 14.1 of the standard DIN EN 13501-1:2010.

### 3.2 Classification

The "Reapor®" sound absorber panel is classified
in terms of its fire behaviour: A1

The additional classification in relation to smoke production is: --

The additional classification in relation to flaming droplets/particles is: --

The format of the fire behaviour classification of the building products is:

| Reaction to fire | | Smoke production | | | Flaming droplets/particles | |
|---|---|---|---|---|---|---|
| A1 | - | -- | -- | | -- | -- |

i. e. A1

### 3.3 Area of application

The classification in section 3.2 only applies to the building products described in section 1 and is valid for the following end application conditions:

- Reapor® sound absorber panel with a bulk density of 270 kg/m³ ± 10 %.

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## 4 Limitations

## 4 Limitations

4.1 A combination with other building materials, especially insulating materials or surfaces or other gross density ranges than specified in section 3.3, can have an adverse effect on the fire behaviour so that the classification in section 3.2 is no longer valid.
The reaction to fire in combination with other building materials or surfaces or other gross density ranges must be tested separately.

If the building product receives flammable coatings, the reaction to fire of this composite material must be tested separately.

4.2 This classification report is not a type approval or product certification and does not replace any general inspectorate verification according to German building law (*Landesbauordnung* [state building code]), which may be required.

4.3 This classification report is valid as long as the product composition or the product design, the raw materials or the production process and the construction regulations do not change.

Leipzig, 01/07/2011

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*Head of Division*

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