

TEST REPORT

REACTION TO FIRE TEST

Test Sponsor:

Thermo Stone FZE
Hamriyah Free Zone
Sharjah, United Arab Emirates
P.O.Box 41838
T: +971 6 526 0646
Website: www.thermostones.com

Test Material:

12mm thick 'Thermo Board' Magnesia Cement Board

Test Standard

BS EN ISO 1182:2020 Reaction to Fire Tests for Products - Non-Combustibility Test



**THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS**

Test Date: 26-Jul-21
Issue Date: 15-Aug-21
Test Reference No: VG014-1

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Accreditation

Testing

ISO/IEC 17025: General requirements for the competence of testing and calibration laboratories with:

United Kingdom Accreditation Service (UKAS) - Testing Laboratory: **4439**

www.ukas.com



Memberships

Members of European Group of Organization for Fire Testing, Inspection and Certification

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www.cwct.co.uk



The work which is the subject of this report falls under the accreditation of **ISO 17025 UKAS**.



Table of Contents

| | |
|-------------------------------|---|
| 1. INTRODUCTION | 4 |
| 2. SPONSOR..... | 4 |
| 3. TESTING LABORATORY | 4 |
| 4. DATE OF TEST | 4 |
| 5. SPECIMEN DESCRIPTION | 4 |
| 6. SPECIMEN VERIFICATION..... | 5 |
| 7. METHOD OF TEST..... | 5 |
| 7.1. Test Procedure | 5 |
| 7.2. Conditioning..... | 5 |
| 8. CALIBRATION RESULTS..... | 6 |
| 9. OBSERVATION | 7 |
| 10. SUMMARY OF RESULTS..... | 9 |
| 11. LIMITATION | 9 |



1. INTRODUCTION

Determination of Non-Combustibility performance of Magnesia Cement Board as per BS EN ISO 1182:2020 – Reaction to Fire Tests for Products - Non-Combustibility Test.

2. SPONSOR

Name: Thermo Stone FZE
Address: Hamriyah Free Zone
Sharjah, United Arab Emirates
P.O.Box 41838
T: +971 6 526 0646 | F: +971 4 552 0289
Website: www.thermostones.com

3. TESTING LABORATORY

Name: Thomas Bell-Wright International Consultants (TBWIC)
Address: Corner of 46th and 47th streets, Jebel Ali Industrial Area 1
P.O. Box 26385, Dubai, U.A.E.
T: +971 (0) 4 821 5777
www.bell-wright.com

4. DATE OF TEST

Sample received: 12-Jul-21
Test date: 26-Jul-21

The test was not witnessed by the sponsor.

5. SPECIMEN DESCRIPTION

Note: The testing laboratory does not hold any responsibility for the information that has been provided by the test sponsor which could not be verified by the testing laboratory, as this could affect the validity of the test result. All information that could not be verified will be indicated by an asterisk () mark.*

| | |
|----------------------------------|--|
| Product Description | 12mm thick Magnesia Cement board* |
| Product Reference | Thermo Board* (stated) |
| Manufacturer | Thermo Stone FZE* (stated) |
| Overall Product Thickness | 12.2mm (Measured by TBWIC) |
| Product Area Weight | 12-13 kg/m ² * (stated) |
| Density | 898 kg/m ³ (measured by TBWIC) |
| Color Tested | White (observed) |
| Reinforcement | 0.5mm Fiber Mesh on both sides (65 GSM)* (stated) |
| Specimen placement | The cylindrical specimen with a diameter of 45mm and a height of 50mm was inserted into the specimen holder. The specimen holder with the sample was then placed in the stabilized furnace in less than 5 seconds. |



6. SPECIMEN VERIFICATION

The choice and design and the definition of the specimen have been made by Thermo Stone FZE, and TBWIC Testing Laboratory has not been involved in the selection or design of the specimen. The results apply to the samples as received.

Note: There are contexts where information has been provided by the sponsor and verification of information has been done through either technical datasheet or other document submission, or as indicated directly by the sponsor. For this reason, materials have been tested in an as-received condition and TBWIC bears no liability for the legitimacy of the submitted information.

7. METHOD OF TEST

7.1. Test Procedure

The test was carried out in accordance with BS EN ISO 1182:2020, *Reaction to fire tests for products – Non-combustibility test*.

Five specimens were tested following the vertical tube furnace stabilization temperature of 750 ± 5 °C and examination of the whole equipment. Test specimens were inserted into the specimen holder and then placed into the furnace. Tests were carried out for a period of 30 minutes or more for each specimen.

After cooling to ambient temperature in a desiccator, the specimens were weighed including any char, ash or debris recovered.

7.2. Conditioning

After delivery on 12-Jul-21, the specimen was conditioned at 21 to 25 °C and 45 to 55% relative humidity as per EN 13238, *Reaction to fire tests for building products – Conditioning procedures and general rules for the selection of substrates*.

After conditioning, the test specimens were dried in a ventilated oven maintained at 55 to 65 °C, for between 20 and 24 hours and cooled to ambient temperature in a desiccator prior to testing.

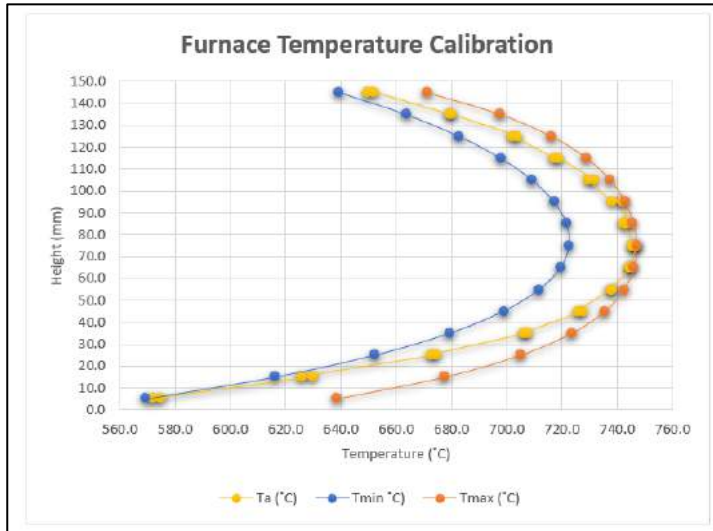
Note: There were deviations observed in the temperature and relative humidity in 4 separate probes of thermo-hygrometer in our conditioning room, however the average values were within the limit.



8. CALIBRATION RESULTS

Generally, calibration of the furnace temperature shall be carried out for a new furnace and whenever the furnace tube, winding, insulation or power supply is replaced.

Furnace Temperature Profile Values



| Height, mm | Tmin, °C | Tmax, °C | Tave, °C |
|------------|----------|----------|----------|
| 145 | - | 652.0 | 649.9 |
| 135 | - | 679.5 | 680.1 |
| 125 | - | 702.3 | 703.8 |
| 115 | - | 717.3 | 718.9 |
| 105 | - | 729.8 | 731.7 |
| 95 | - | 738.3 | 741.7 |
| 85 | - | 742.0 | 743.5 |
| 75 | 746.7 | 745.3 | 747.1 |
| 65 | 744.9 | 744.5 | - |
| 55 | 738.2 | 737.9 | - |
| 45 | 727.9 | 725.7 | - |
| 35 | 707.7 | 706.2 | - |
| 25 | 674.8 | 672.6 | - |
| 15 | 630.0 | 625.7 | - |
| 5 | 575.1 | 571.8 | - |

Furnace Wall Temperature Calibration

| Vertical Axis | a (30mm) | b (0mm) | c (-30mm) |
|---------------|----------|---------|-----------|
| 1(0°) | 760.7 | 760.1 | 759.8 |
| 2(+120°) | 761.4 | 763 | 763.4 |
| 3(+240°) | 750.9 | 749.6 | 759.1 |

| | Tavg. | Tdev. |
|-----------------|--------|-------|
| Axis 1 | 760.20 | 0.20 |
| Axis 2 | 762.60 | 0.52 |
| Axis 3 | 753.20 | 0.72 |
| Tavg. dev. axis | | 0.48% |

The average deviation of temperature on the three vertical axes from the average furnace wall temperature, Tavg. dev. axis shall be less than 0.5%.

| | Tavg. | Tdev. |
|------------------|--------|-------|
| Level a | 757.67 | 0.13 |
| Level b | 757.57 | 0.14 |
| Level c | 760.77 | 0.28 |
| Tavg. Dev. level | | 0.18% |

The average deviation of temperature on the three levels from the average furnace wall temperature, Tavg. dev. level shall be less than 1.5%.



9. OBSERVATION

Test Data and Observation

| Observations | 1 | 2 | 3 | 4 | 5 |
|---|-------|-------|-------|-------|-------|
| Mass before the test, g | 74.4 | 72.4 | 73.0 | 72.7 | 73.0 |
| Mass after the test, g | 42.4 | 41.7 | 41.6 | 41.6 | 41.7 |
| Occurrence of any sustained flaming, (Yes/No) | No | No | No | No | No |
| Duration of sustained flaming, seconds | Nil | Nil | Nil | Nil | Nil |
| Occurrence of any steady blue-coloured luminous gas zones, (Yes/No) | No | No | No | No | No |
| Temperature measured by the furnace thermocouple, T_1 (°C) | | | | | |
| Initial temperature, $T_{1,i}$ | 750.9 | 748.1 | 747.6 | 749.9 | 751.9 |
| Maximum temperature, $T_{1,max}$ | 787.9 | 778.8 | 782.3 | 786.4 | 794.9 |
| Final temperature, $T_{1,f}$ | 785.9 | 778.2 | 781.2 | 785.1 | 793.4 |
| Temperature measured by the furnace thermocouple, T_2 (°C) | | | | | |
| Initial temperature, $T_{2,i}$ | 751.9 | 749.8 | 749.3 | 751.0 | 752.4 |
| Maximum temperature, $T_{2,max}$ | 791.2 | 781.7 | 785.2 | 788.0 | 793.5 |
| Final temperature, $T_{2,f}$ | 789.6 | 780.9 | 783.8 | 786.5 | 792.3 |

Correction Factor for Furnace Thermocouple, T_1 :

| Thermocouple Serial No. | Reference Temperature(°C) | Correction Factor (°C) |
|-------------------------|---------------------------|------------------------|
| 801507771-001 | 400.00 | +0.2 °C |
| | 600.00 | +0.7 °C |
| | 800.00 | +0.8 °C |

Correction Factor for Furnace Thermocouple, T_2 :

| Thermocouple Serial No. | Reference Temperature(°C) | Correction Factor (°C) |
|-------------------------|---------------------------|------------------------|
| 801507771-002 | 400.00 | +0.2 °C |
| | 600.00 | +1.2 °C |
| | 800.00 | +1.6 °C |



The thermocouple correction term received from the calibration certificate has been applied to the furnace temperature output as per Clause 4.4 of BS EN ISO 1182:2020 test standard:

| | 1 | 2 | 3 | 4 | 5 |
|--|--------------|--------------|--------------|--------------|--------------|
| Thermocouple T₁ | | | | | |
| Maximum Temperature <i>T_{1,max}</i> (°C) | 787.9 | 778.8 | 782.3 | 786.4 | 794.9 |
| Correction Factor as per Reference Temperature (°C) | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| Corrected Maximum Temperature <i>T_{1,max}</i> (°C) | 788.6 | 779.5 | 783.0 | 787.1 | 795.6 |
| Final Temperature, <i>T_{1,f}</i> (°C) | 785.9 | 778.2 | 781.2 | 785.1 | 793.4 |
| Correction Factor as per Reference Temperature (°C) | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| Corrected Final Temperature <i>T_{1,f}</i> (°C) | 786.6 | 778.9 | 781.9 | 785.8 | 794.1 |
| Thermocouple T₂ | | | | | |
| Maximum Temperature <i>T_{2,max}</i> (°C) | 791.2 | 781.7 | 785.2 | 788.0 | 793.5 |
| Correction Factor as per Reference Temperature (°C) | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| Corrected Maximum Temperature <i>T_{2,max}</i> (°C) | 792.4 | 782.9 | 786.4 | 789.2 | 794.7 |
| Final Temperature, <i>T_{2,f}</i> (°C) | 789.6 | 780.9 | 783.8 | 786.5 | 792.3 |
| Correction Factor as per Reference Temperature (°C) | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| Corrected Final Temperature <i>T_{2,f}</i> (°C) | 790.8 | 782.1 | 785.0 | 787.7 | 793.5 |
| Furnace thermocouple (<i>T₁</i>) rise, (°C) $\Delta T_1 = T_{1,max} - T_{1,f}$ | 2.0 | 0.6 | 1.1 | 1.3 | 1.5 |
| Furnace thermocouple (<i>T₂</i>) rise, (°C) $\Delta T_2 = T_{2,max} - T_{2,f}$ | 1.6 | 0.8 | 1.4 | 1.5 | 1.2 |
| Average temperature rise, (°C) $\Delta T = (\Delta T_1 + \Delta T_2)/2$ | 1.8 | 0.7 | 1.3 | 1.4 | 1.4 |



10. SUMMARY OF RESULTS

The test specimen has been evaluated in accordance with as per BS EN ISO 1182:2020 Non-Combustibility test.

Deviations: No deviation from the test method.

The test results are:

| SPECIMEN | 1 | 2 | 3 | 4 | 5 | Mean |
|--|----|----|----|----|----|------|
| Average temperature rise, (°C) $\Delta T = (\Delta T_1 + \Delta T_2)/2$ | 2 | 1 | 1 | 1 | 1 | 1 |
| Duration of sustained flaming, (seconds) | 0 | 0 | 0 | 0 | 0 | 0 |
| Mass Loss (%) | 43 | 42 | 43 | 43 | 43 | 43 |

11. LIMITATION

"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" – Clause 9p of BS EN ISO 1182:2020 test standard.

This report and all records of the test to which it relates may be not be retained by TBWIC further than 5 years from the date of testing.

This test report is respectfully submitted by: Thomas Bell-Wright International Consultants

Prepared by:

Sam Sancho Thomas
Fire Testing Engineer



Reviewed and Approved by:

Suketa Tyagi
Reaction to Fire Manager

---- End of Test Report ----

CLASSIFICATION OF REACTION TO FIRE PERFORMANCE IN ACCORDANCE WITH BS EN 13501-1:2018

Test Sponsor:

Thermo Stone FZE
Hamriyah Free Zone
Sharjah, United Arab Emirates
P.O.Box 41838
T: +971 6 526 0646
Website: www.thermostones.com

Test Material:

12mm thick 'Thermo Board' Magnesia Cement Board



**THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS**

Issue Date: 15-Aug-21
Report Reference No: VG014-3

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Table of Contents

| | | |
|------|---|---|
| 1. | INTRODUCTION | 4 |
| 2. | SPONSOR..... | 4 |
| 3. | TESTING LABORATORY | 4 |
| 4. | DETAILS OF CLASSIFIED PRODUCT | 4 |
| 4.1. | Product Description..... | 4 |
| 5. | SPECIMEN VERIFICATION | 5 |
| 6. | REPORT & TEST RESULTS IN SUPPORT OF THIS CLASSIFICATION | 5 |
| 6.1. | Reports..... | 5 |
| 6.2. | Results | 5 |
| 7. | CLASSIFICATION & FIELD OF APPLICATION | 6 |
| 7.1. | Reference of classification | 6 |
| 7.2. | Classification | 6 |
| 7.3. | Field of application..... | 6 |
| 8. | LIMITATIONS | 6 |
| 9. | ANNEXURE A | 7 |



1. INTRODUCTION

This classification report defines the classification assigned to 12mm thick 'Thermo Board' Magnesia Cement Board in accordance with the procedures given in BS EN 13501-1:2018: Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests.

2. SPONSOR

Name: Thermo Stone FZE
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Sharjah, United Arab Emirates
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3. TESTING LABORATORY

Name: Thomas Bell-Wright International Consultants (TBWIC)
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Jebel Ali Industrial Area 1
P.O. Box 26385, Dubai, U.A.E.
T: +971 (0) 4 821 5777
www.bell-wright.com

4. DETAILS OF CLASSIFIED PRODUCT

4.1. Product Description

Note: The testing laboratory does not hold any responsibility for the information that has been provided by the test sponsor which could not be verified by the testing laboratory, as this could affect the validity of the test result. All information that could not be verified will be indicated by an asterisk () mark.*

| | |
|----------------------------------|---|
| Product Description | 12mm thick Magnesia Cement board* |
| Product Reference | Thermo Board* (stated) |
| Manufacturer | Thermo Stone FZE* (stated) |
| Overall Product Thickness | 12.2mm (Measured by TBWIC) |
| Product Area Weight | 12-13 kg/m ² * (stated) |
| Density | 898 kg/m ³ (measured by TBWIC) |
| Color Tested | White (observed) |
| Reinforcement | 0.5mm Fiber Mesh on both sides (65 GSM)* (stated) |



5. SPECIMEN VERIFICATION

The choice and design and the definition of the specimen have been made by Thermo Stone FZE, and TBWIC Testing Laboratory has not been involved in the selection or design of the specimen. The results apply to the samples as received.

Note: There are contexts where information has been provided by the sponsor and verification of information has been done through either technical datasheet or other document submission, or as indicated directly by the sponsor. For this reason, materials have been tested in an as-received condition and TBWIC bears no liability for the legitimacy of the submitted information.

6. REPORT & TEST RESULTS IN SUPPORT OF THIS CLASSIFICATION

6.1. Reports

| Name of Laboratory | Test Sponsor | Test Report No. | Test Method/Field of Application Rules |
|--|------------------|-----------------|--|
| Thomas Bell-Wright International Consultants (TBWIC) | Thermo Stone FZE | VG014-1 | BS EN ISO 1182:2020 |
| | | VG014-2 | BS EN ISO 1716:2018 |

6.2. Results

| Test Method | Parameter | No. of tests | Results | |
|---------------------|--|--------------|-------------------------------|-----------------------|
| | | | Continuous parameter-mean (m) | Compliance parameters |
| BS EN ISO-1716:2018 | Average Value of gross calorific value (MJ/kg) \leq 2.0MJ/kg | 3 | -1.5 | Compliant |

| | | | | |
|---------------------|--|---|----|-----------|
| BS EN ISO 1182:2020 | Mass loss \leq 50% | 5 | 43 | Compliant |
| | Furnace thermocouple rise \leq 30°C | | 1 | |
| | Sustained flaming occurred, $t_f = 0$ second | | 0 | |



7. CLASSIFICATION & FIELD OF APPLICATION

7.1. Reference of classification

This classification has been carried out in accordance with clause 8 of EN 13501-1:2018.

7.2. Classification

The product, 12mm thick 'Thermo Board' Magnesia Cement Board in relation to its reaction to fire behavior are classified;

Reaction to fire classification: A1

7.3. Field of application

This classification is valid for the following end use applications:

i. Construction applications

This classification is also valid for the following product parameters:

| | |
|---------------------------|------------------------------------|
| Overall Product Thickness | Valid for thicknesses ≥ 12 mm |
| Product Density | No variation allowed |
| Product Composition | No variation allowed |
| Product Construction | No variation allowed |

8. LIMITATIONS

This document does not represent type approval or certification of the product.

This report and all records of the test to which it relates may be not be retained by TBWIC further than 5 years from the date of testing.

This test report is respectfully submitted by: Thomas Bell-Wright International Consultants

Prepared by:

Sam Sancho Thomas
Fire Testing Engineer

Reviewed and Approved by:



Suketa Tyagi
Reaction to Fire Manager



9. ANNEXURE A

Classes of reaction to fire performance for construction products excluding floorings and linear pipe thermal insulation products

| Class | Test method(s) | Classification criteria | Additional classification |
|-----------|--|--|--|
| A1 | EN ISO 1182 ^a and | $\Delta T \leq 30$ °C; and $\Delta m \leq 50$ %; and $t_f = 0$ (i.e., no sustained flaming) | - |
| | EN ISO 1716 | $PCS \leq 2,0$ MJ/kg ^a and $PCS \leq 2,0$ MJ/kg ^{b,c} and $PCS \leq 1,4$ MJ/m ² ^d and $PCS \leq 2,0$ MJ/kg ^e | - |
| A2 | EN ISO 1182 ^a or | $\Delta T \leq 50$ °C; and $\Delta m \leq 50$ %; and $t_f \leq 20$ s | - |
| | EN ISO 1716 and | $PCS \leq 3,0$ MJ/kg ^a and $PCS \leq 4,0$ MJ/m ² ^b and $PCS \leq 4,0$ MJ/m ² ^d and $PCS \leq 3,0$ MJ/kg ^e | - |
| | EN 13823 | FIGRA ≤ 120 W/s and LFS < edge of specimen and THR _{600s} $\leq 7,5$ MJ | Smoke production ^f and Flaming droplets/particles ^g |
| B | EN 13823 and | FIGRA ≤ 120 W/s and LFS < edge of specimen and THR _{600s} $\leq 7,5$ MJ | Smoke production ^f and Flaming droplets/particles ^g |
| | EN ISO 11925-2 ⁱ : Exposure = 30 s | F _s ≤ 150 mm within 60 s | |
| C | EN 13823 and | FIGRA ≤ 250 W/s and LFS < edge of specimen and THR _{600s} ≤ 15 MJ | Smoke production ^f and Flaming droplets/particles ^g |
| | EN ISO 11925-2 ⁱ : Exposure = 30 s | F _s ≤ 150 mm within 60 s | |
| D | EN 13823 and | FIGRA ≤ 750 W/s | Smoke production ^f and Flaming droplets/particles ^g |
| | EN ISO 11925-2 ⁱ : Exposure = 30 s | F _s ≤ 150 mm within 60 s | |
| E | EN ISO 11925-2 ⁱ : Exposure = 15 s | F _s ≤ 150 mm within 20 s | Flaming droplets/particles ^h |
| F | EN ISO 11925-2 ⁱ : Exposure = 15 s | F _s > 150 mm within 20 s | |

^a For homogeneous products and substantial components of non-homogeneous products.

^b For any external non-substantial component of non-homogeneous products.



^c Alternatively, any external non-substantial component having a PCS $\leq 2,0 \text{ MJ/m}^2$, provided that the product satisfies the following criteria of EN 13823: FIGRA $\leq 20 \text{ W/s}$, and LFS < edge of specimen, and THR_{600s} $\leq 4,0 \text{ MJ}$, and s1, and d0.

^d For any internal non-substantial component of non-homogeneous products.

^e For the product as a whole.

^f In the last phase of the development of the test procedure, modifications of the smoke measurement system have been introduced, the effect of which needs further investigation. This may result in a modification of the limit values and/or parameters for the evaluation of the smoke production.

s1 = SMOGRA $\leq 30 \text{ m}^2/\text{s}^2$ and TSP_{600s} $\leq 50 \text{ m}^2$;

s2 = SMOGRA $\leq 180 \text{ m}^2/\text{s}^2$ and TSP_{600s} $\leq 200 \text{ m}^2$;

s3 = not s1 or s2

^g **d0** = No flaming droplets/ particles in EN 13823 within 600 s;

d1 = no flaming droplets/ particles persisting longer than 10 s in EN 13823 within 600 s;

d2 = not d0 or d1.

Ignition of the paper in EN ISO 11925-2 results in a d2 classification.

^h Pass = no ignition of the paper (no classification);

Fail = ignition of the paper (d2 classification).

ⁱ Under conditions of surface flame attack and, if appropriate to the end-use application of the product, edge flame attack.

---- End of Classification Report ----

TEST REPORT REACTION TO FIRE TEST

Test Sponsor:

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Sharjah, United Arab Emirates
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Website: www.thermostones.com

Test Material:

12mm thick 'Thermo Board' Magnesia Cement Board

Test Standard:

BS EN ISO-1716:2018 Reaction to Fire Tests for Products - Determination of the Gross Heat of Combustion (Calorific Value)



**THOMAS BELL-WRIGHT
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Test Date: 26-Jul-21
Issue Date: 15-Aug-21
Test Reference No: VG014-2

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Table of Contents

| | |
|--|---|
| 1. INTRODUCTION | 4 |
| 2. SPONSOR..... | 4 |
| 3. TESTING LABORATORY | 4 |
| 4. DATE OF TEST | 4 |
| 5. SPECIMEN DESCRIPTION | 5 |
| 6. SPECIMEN VERIFICATION | 5 |
| 7. SPECIMEN PREPARATION PROCEDURE..... | 5 |
| 8. METHOD OF TEST..... | 5 |
| 8.1. Test Procedure..... | 5 |
| 8.2. Conditioning..... | 5 |
| 9. SUMMARY OF RESULTS..... | 6 |
| 9.1. Tabulated data | 6 |
| 9.2. Observations | 6 |
| 10. VALIDATION OF THE TEST RESULTS | 6 |
| 10.1. Validity | 7 |
| 11. LIMITATION | 7 |



1. INTRODUCTION

Determination of the calorific value of 12mm thick 'Thermo Board' Magnesia Cement Board during combustion in accordance with BS EN ISO 1716; Reaction to fire tests for products - Determination of the Gross Heat of Combustion (Calorific Value).

2. SPONSOR

Name: Thermo Stone FZE
Address: Hamriyah Free Zone
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3. TESTING LABORATORY

Name: Thomas Bell-Wright International Consultants (TBWIC)
Address: Corner of 46th and 47th Streets,
Jebel Ali Industrial Area 1
Dubai, United Arab Emirates
T: +971 (0) 4 821 5777
Website: www.bell-wright.com

4. DATE OF TEST

Sample received: 12-Jul-21
Test date: 26-Jul-21

The test was not witnessed by the sponsor.



5. SPECIMEN DESCRIPTION

Note: The testing laboratory does not hold any responsibility for the information that has been provided by the test sponsor which could not be verified by the testing laboratory, as this could affect the validity of the test result. All information that could not be verified will be indicated by an asterisk () mark.*

| | |
|----------------------------------|--|
| Product Description | 12mm thick Magnesia Cement board* |
| Product Reference | Thermo Board* (stated) |
| Manufacturer | Thermo Stone FZE* (stated) |
| Overall Product Thickness | 12.2mm (Measured by TBWIC) |
| Product Area Weight | 12-13 kg/m ² * (stated) |
| Density | 898 kg/m ³ (measured by TBWIC) |
| Color Tested | White (observed) |
| Reinforcement | 0.5mm Fiber Mesh on both sides (65 GSM)* (stated) |
| Specimen placement | Three test specimens were tested using the crucible method as per Clause 7.9 of BS EN ISO 1716:2018 test standard. |

6. SPECIMEN VERIFICATION

The choice and design and the definition of the specimen have been made by Thermo Stone FZE, and TBWIC Testing Laboratory has not been involved in the selection or design of the specimen. The results apply to the samples as received.

Note: There are contexts where information has been provided by the sponsor and verification of information has been done through either technical datasheet or other document submission, or as indicated directly by the sponsor. For this reason, materials have been tested in an as-received condition and TBWIC bears no liability for the legitimacy of the submitted information.

7. SPECIMEN PREPARATION PROCEDURE

In accordance with section 7.2 of BS EN ISO 1716:2018, a minimum mass of 50g was taken from the homogeneous product. Sample was ground and reduced to small granules and treated as powder. The sample was conditioned as per section 7.6 of ISO 1716:2018.

8. METHOD OF TEST

8.1. Test Procedure

The test was carried out in accordance with BS EN ISO 1716:2018, *Reaction to fire tests for products - Determination of the Gross Heat of Combustion (Calorific Value)*.

The specimens were tested using benzoic acid, an additional combustible substance of known and high calorific value. The specimen was tested using the crucible method in a bomb calorimeter.

The water equivalent (E) of the bombs used in the calorimeter were 0.005698 MJ/K & 0.005706 MJ/K for the most recent calibration.

8.2. Conditioning

After delivery on 12-Jul-21, the specimen was conditioned to constant mass prior to the test at 21 - 25°C and 45 - 55% relative humidity as per EN 13238, *Reaction to fire tests for building products – Conditioning procedures and general rules for selection of substrates*.



Note: There were deviations observed in the temperature and relative humidity in 4 separate probes of thermo-hygrometer in our conditioning room, however the average values were within the limit.

9. SUMMARY OF RESULTS

The test specimen has been evaluated in accordance with BS EN ISO-1716:2018 Reaction to fire tests for products -Determination of the gross heat of combustion (calorific value).

Deviations: There were no deviations from the test standard.

9.1. Tabulated data

The test results are

| | | MgO board |
|--|-------------------------------|-----------|
| | No. of Tests | 3 |
| Trial 1 | Specimen weight (g) | 0.1008 |
| | Gross calorific value (MJ/kg) | -1.4 |
| Trial 2 | Specimen weight (g) | 0.1008 |
| | Gross calorific value (MJ/kg) | -1.6 |
| Trial 3 | Specimen weight (g) | 0.1049 |
| | Gross calorific value (MJ/kg) | -1.5 |
| Average Gross Calorific Value (MJ/kg) | | -1.5 |

9.2. Observations

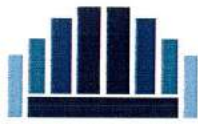
In accordance with Section 8.3.11 of BS EN ISO 1716, specimens were observed to be completely combusted.

10. VALIDATION OF THE TEST RESULTS

To be validated, the test results shall comply with the criteria specified in Clause 11 of the standard. The following criteria apply.

| Gross heat of combustion | Max-min of the 3 replicated tests | Range of validity |
|--|--|--|
| Q _{PCS} (MJ/kg) | ≤0.2 MJ/kg | From any negative value to 3.2 MJ/kg |
| | Within 5% of the average of the 3 results | From 3.2 MJ/kg to 20.0 MJ/kg |
| | Within 10% of the average of the 3 results | Greater than 20.0 MJ/kg |
| Q _{PCS} (MJ/m ²) ^a | ≤0.1 MJ/m ² | From any negative value to 4.1 MJ/m ² |
| | Within 5% of the average of the 3 results | From 4.1 MJ/m ² to 20 MJ/m ² |
| | Within 10% of the average of the 3 results | Greater than 20 MJ/m ² |

^a for non-substantial components only.



10.1. Validity

The differences between the maximum and minimum Q_{PCS} values were within the range of validity specified in Clause 11 of the test standard.

11. LIMITATION

“The test results relate only to the behaviour of the test specimens of a product under the particular conditions and they are not intended to be the sole criterion for assessing the potential hazard of the material” – Clause 10q, BS EN ISO 1716:2018.

This report and all records of the test to which it relates may not be retained by TBWIC further than 5 years from the date of testing.

This test report is respectfully submitted by: Thomas Bell-Wright International Consultants

Prepared by:

Sam Sancho Thomas
Fire Testing Engineer

Reviewed and Approved by:

Suketa Tyagi
Reaction to Fire – Manager



---- End of Test Report ----