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March 24, 2016

Mr. Stephen Marskell
Magnesium Oxide Board Corporation Pty Ltd
3 Allen Street
Moffat Beach Qld
Australia 4551

Subject: Class '0' Summary Report of Composite Cold Ceramic MgO Board - ResCom® HMR CMA-CM40009 for Intertek Project 160204003SHF-BP

Dear Mr. Stephen Marskell:

Intertek has conducted testing for Magnesium Oxide Board Corporation Pty Ltd on a sample identified as Composite Cold Ceramic MgO Board - ResCom® HMR CMA-CM40009, to evaluate fire propagation and surface spread of flame. Testing was conducted in accordance with BS 476: Part 6: 1989+A1: 2009, Fire Tests on Building Materials and Structures, Method of Test for Fire Propagation for Products and BS 476: Part 7: 1997, Fire Tests on Building Materials and Structures, Method of Test to Determine the Classification of the Surface Spread of Flame of Products. The testing was conducted at the external approved facility.

Report No. 160204003SHF-BP-2&160204003SHF-BP-3
Test Results:
BS 476: Part 6: 1989+A1: 2009

Fire propagation index, I	=	0
Sub index, i_1	=	0
Sub index, i_2	=	0
Sub index, i_3	=	0

BS 476: Part 7: 1997
Class 1 surface spread of flame

To assess the results of tests to BS 476: Part 6:1989+A1: 2009 and BS 476:Part 7:1997, obtained on specimens of a product and to provide an opinion of compliance with the requirements for a Class 0 surface, as defined in paragraph A13(b) of Approved Document B, 'Fire Safety', to the Building Regulations 2010.

OPINION

The sample identified as Composite Cold Ceramic MgO Board - ResCom® HMR CMA-CM40009, as tested, complies with the requirements for **Class 0**, as defined in paragraph A13(b) of Approved Document B, 'Fire Safety', to the Building Regulations 2010.

Kind Regards,

Timothy Li

Timothy LI
Testing Engineer
Building Products

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Reviewed by:

Sun Sun
Assistant Manager
Building Products

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Test Report

Report Number: 160204003SHF-BP-4

Applicant Name:	**Magnesium Oxide Board Corporation Pty Ltd**	**Report Date: March 18, 2016**
Applicant Address:	**3 Allen Street Moffat Beach Qld Australia 4551**	
Attn: Mr Stephen Marskell		

Sample Description:

Product :	Composite Cold Ceramic MgO Board
Model :	10mm ResCom® CHSB CMA-CM40009
Sample Quantity :	15 pieces
Sample ID :	S160204003SHF-013~027
Date Received :	3/8/2016
Date Test Conducetd :	3/14/2106

Tests Conducted:

BS 476-4: 1970 "fire Test on Building Materials and Structures - Non-combustibility Test for Materials"

Conclusion:

For details refer to attached page(s).
The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

Test Items, Method and Results:

1.1 Procedure

Specimens were conditioned in a ventilated oven at 60±5°C for 24h, and cooled to ambient temperature in a desicator containing anhydrous calcium chloride prior to testing.

Specimens were exposed to the specified heating conditions (750 ± 10°C) in a furnace conforming to Clause 6 and illustrated in Figure 1, 2 and 3 of the Standard. The furnace was heated and its temperature stabilized at 750 ± 10°C for more than 10 minutes. One specimen was then inserted in the furnace, the whole operation was performed in less than 5 seconds. The temperature of the specimens and the furnace were measured by two separate Chromel/Alumel themocouples continuously for 20 minutes on the chart of a recorder. The flaming time of the specimen was determined by a stop watch. The procedure was repeated twice for two other specimens, one at each time.

1.2 Results:

The test results for the individual samples are given in table below:

Description	Specimen 1	Specimen 2	Specimen 3	Requirements
Time of continuous flaming (s)	0	0	0	<10
Temperature rise of furnace (°C)	2	3	1	<50
Temperature rise of sample (°C)	0	0	0	<50
Classification	Non-combustible	Non-combustible	Non-combustible	-

Note: This test was conducted at the external facility, located at Singapore.

1.3 Conclusion:

A non-combustibility test for materials in accordance with British Standard 476 Part 4: 1970 has been performed on the material as descrtibed in this report and the classification of the sample is non-combustible

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Test Report

Report Number: 160204003SHF-BP-4

Approved by:

Name: Sun Sun	Name: Harrison Li	Name: Timothy Li
Title: Approver	Title: Reviewer	Title: Project Engineer

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The End of Report

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Test Report

Report Number: 160204003SHF-BP-1

Applicant Name:	**Magnesium Oxide Board Corporation Pty Ltd**	**Report Date: March 18, 2016**
Applicant Address:	**3 Allen Street Moffat Beach Qld Australia 4551**	
Attn: Mr Stephen Marskell		

Sample Description:

Product :	Composite Cold Ceramic MgO Board
Model :	12mm ResCom® CHSB CMA-CM40009
Sample Quantity :	3 pieces
Sample ID :	S160204003SHF-001~003
Date Received :	2/11/2016
Date Test Conducetd :	2/18/2016

Tests Conducted:

BS 476-5: 1979 "Method of test for ignitability"

Conclusion:

For details refer to attached page(s).
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Test Items, Method and Results:

1.1 Procedure:

Prior to test, the specimens were conditioned in accordance with paragraph 5.3 of the standard.

Three specimens, complying with the requirements of 5.2 and 5.3 shall be held in a vertical position by the clamps, with its bottom edge located at a height of 75mm from the base of the apparatus. The gas burner shall be adjusted to its correct position (see 6.3) by the use of the adjustable stop, and shall be moved away from its testing position and the gas turned on and ignited. The gas burner shall then be moved quickly to its testing position, the timing device started simultaneously. After 10s, the burner shall be moved away.

1.2 Results:

Description	Specimens			Requirement
	1	2	3	
1. Time of flaming after removal of test flame	0	0	0	Not more than 10 sec.
2. Burning of test specimen extending to the edges	No	No	No	Do not extent to any edge during flame application or within 10 sec period after removal of test flame.

1.3 Conclusion:

In accordance with the specification in the British Standard 476: Part 5: 1979, the test results show that the performance of the sample is designated as P.

Remarks: The test was conducted with the smooth (light Blue colour) face exposed to the flame source.

Note: This test was conducted at the external approved facility, located at Singapore.

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Test Report **Report Number: 160204003SHF-BP-1**

Approved by:

Name: Sun Sun	Name: Harrison Li	Name: Timothy Li
Title: Approver	Title: Reviewer	Title: Project Engineer

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Test Report

Report Number: 160204003SHF-BP-2

Applicant Name:	**Magnesium Oxide Board Corporation Pty Ltd**	**Report Date: March 18, 2016**
Applicant Address:	**3 Allen Street Moffat Beach Qld Australia 4551**	
Attn: Mr Stephen Marskell		

Sample Description:

Product :	Composite Cold Ceramic MgO Board
Model :	10mm ResCom® HMR CMA-CM40009
Sample Quantity :	3 pieces
Sample ID :	S160204003SHF-004~006
Date Received :	2/11/2016
Date Test Conducetd :	2/25/2016

Tests Conducted:

BS 476-6: 1989+A1: 2009 "Method of test for fire propagation for products"

Conclusion:

For details refer to attached page(s).
The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

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Test Items, Method and Results:

1.1 Procedure

Prior to test, the specimens were conditioned in accordance with paragraph 4.4 of the standard.

Three specimens, backed with calcium silicate board, were tested with the smooth (light Green colour) face exposed to the specified heating conditions, in an apparatus conforming to paragraph 5 and illustrated in Figures 1 to 3 of the Standard.

The calibration and test procedures were as defined in paragraphs 8 and 9, respectively, of the specification. The apparatus was calibrated prior to test and the actual calibration curve obtained is shown in Appendix A of this report.

The mean temperature rise above ambient obtained from three specimens is also shown in Appendix A. The mean temperaure readings for the material and the calibration curve were obtained at the following intervals from the start of the test: at 1/2 minute intervals up to 3 minutes, at 1 minute intervals from 4 to 10 minutes, and at 2 minutes intervals from 12 to 20 minutes.

From these readings, the index of performance for the material was determined as follows:

$$s_1 = \sum_{t=0.5}^{t=3} \frac{\Theta_s - \Theta_c}{10t} \qquad s_2 = \sum_{t=4}^{t=10} \frac{\Theta_s - \Theta_c}{10t} \qquad s_3 = \sum_{t=12}^{t=20} \frac{\Theta_s - \Theta_c}{10t}$$

$S=s_1+s_2+s_3$

where S = Index of performance for each of the specimens tested and s_1, s_2 and s_3 are sub-indices

t = Time in minutes from the origin at which readings are taken.

Θ_s = Temperature rise in deg. C for the specimen at time, t

Θ_c = Temperature rise in deg. C for the calibration sheet at time, t

In computations only the positive value of $\frac{\Theta_s - \Theta_c}{10t}$ was used.

1.2 Results:

The test results for the individual samples, together with observations made during the test and comments on any difficulties encountered during the test are given in table below:

Specimen	Sub-Indices			Index of Performance
	s_1	s_2	s_3	S
A	0.0	0.0	0.0	0.0
B	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0

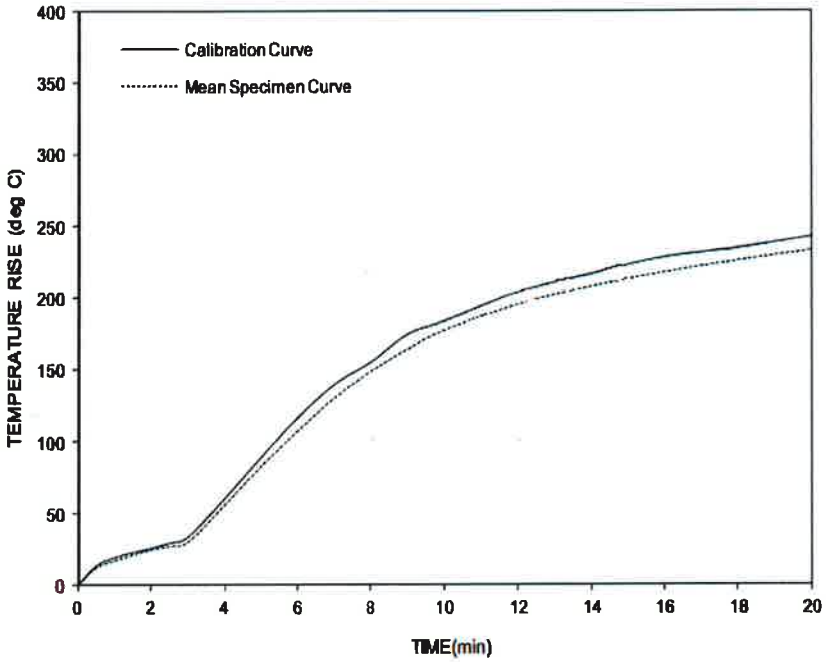
The test results obtained, as an average of the 3 samples tested are as follows:

Index of overall performance, I (Fire propagation index)	=	0.0
Sub-index, i_1	=	0.0
Sub-index, i_2	=	0.0
Sub-index, i_3	=	0.0

Remarks: The test results relate only to the behaviour of the test .specimens of the product under the particular conditions of test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

Note: This test was conducted at the external approved facility, located at Singapore.

Appendix A: Calibration Curves with Mean Specimen Curve



Comparison of Mean Specimen and Calibration Curves

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Test Report **Report Number: 160204003SHF-BP-2**

Approved by:

Name: Sun Sun	Name: Harrison Li	Name: Timothy Li
Title: Approver	Title: Reviewer	Title: Project Engineer

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Test Report

Report Number: 160204003SHF-BP-3

Applicant Name:	**Magnesium Oxide Board Corporation Pty Ltd**	**Report Date: March 18, 2016**
Applicant Address:	**3 Allen Street Moffat Beach Qld Australia 4551**	
Attn: Mr Stephen Marskell		

Sample Description:

Product :	Composite Cold Ceramic MgO Board
Model :	12mm ResCom® HMR CMA-CM40009
Sample Quantity :	6 pieces
Sample ID :	S160204003SHF-007~012
Date Received :	2/11/2016
Date Test Conducetd :	2/17/2106

Tests Conducted:

BS 476-7: 1997 "Method of test to determine the classification of the surface spread of flame of products"

Conclusion:

For details refer to attached page(s).
The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

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Test Items, Method and Results:

1.1 Procedure

Prior to test, the specimens were prepared and conditioned in accordance with paragraphs 5.3 to 5.6 of the standard and secured to a specimen holder as described in paragraph 6.3.

Six specimens, backed with calcium silicate board, were tested with the smooth (light Green colour) face exposed to the specified thermal radiation. The intensity of the radiated heat incident on the specimen varies with distance from the hotter end, and the irradiance of the radiometer is as given in the table below. The test was terminated when the flame front reached the 825 mm reference line, or after 10 minutes has elapsed, whichever is shorter.

Irradiance along Horizontal Reference Line on the Calibration Board

Distance along reference line from inside edge of specimen holder mm	Irradiance kW/m^2		
	specified	min.	max.
75	32.5	32.0	33.0
225	21.0	20.5	21.5
375	14.5	14.0	15.0
525	10.0	9.5	10.5
675	7.0	6.5	7.5
825	5.0	4.5	5.5

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1.2 Results:

The test results for the individual samples are given in table below:

Specimen No.	1	2	3	4	5	6
Spread of flame at first 1.5 minutes (mm)	0	0	0	0	0	0
Distance (mm)	Time of spread of flame to indicated distance (minutes·seconds)					
Start of flaming	0	0	0	0	0	0
75 165 190 215 240 265 290 375 455 500 525 600 675 710 750 785 825 865	-	-	-	-	-	-
Time of maximum spread of flame (minutes·seconds)	-	-	-	-	-	-
Distance of maximum spread of flame (mm)	0	0	0	0	0	0
Comments	None					

1.3 CLASSIFICATION:

Classification of Surface Spreead of Flame

Classification	Spread of flame at 1.5 min		Final spread of flame	
	Limit(mm)	Limit for one specimen in sample (mm)	Limit(mm)	Limit for one specimen in sample (mm)
Class 1	165	165+25	165	165+25
Class 2	215	215+25	455	455+45
Class 3	265	265+25	710	710+75
Class 4	Exceeding the limits for class 3			

1.4 CONCLUSION:

In accordance with the class definitions specified in the Standard, the test results show that the sample tested has a **Class One** Surface Spread of Flame.

Remarks: The test results relate only to the behaviour of the test specimens of the product under the particular conditions of test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

Note: This test was conducted at the external approved facility, located at Singapore.

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Test Report **Report Number: 160204003SHF-BP-3**

Approved by:

Name: Sun Sun	Name: Harrison Li	Name: Timothy Li
Title: Approver	Title: Reviewer	Title: Project Engineer

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Test Report

Report Number: 160204003SHF-BP-5

Applicant Name:	**Magnesium Oxide Board Corporation Pty Ltd**	**Report Date: March 18, 2016**
Applicant Address:	**3 Allen Street Moffat Beach Qld Australia 4551**	
Attn: Mr Stephen Marskell		

Sample Description:

Product :	Composite Cold Ceramic MgO Board
Model :	10mm ResCom® CHSB CMA-CM40009
Sample Quantity :	25 pieces
Sample ID :	S160204003SHF-028~052
Date Received :	3/8/2016
Date Test Conducetd :	3/18/2016~3/19/2016

Tests Conducted:

BS 476-11: 1982 "Fire Test on Building Materials and Structures - Method for Assessing the Heat Emission from Building Materials"

Conclusion:

For details refer to attached page(s).
The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

Test Items, Method and Results:

1.1 Procedure

Prior to testing, the specimens were prepared and conditioned in accordace with paragraph 2.3 of the Standard.

Specimens were exposed to the specified heating conditions (750±5°C) in a furnace conforming to clause 3 and illustrated in Figure 1, 3 and 5 of the Standard. The furnace was heated and its temperature stabilized for at least 10 minutes at 750±5°C. One specimen was then inserted in the furnace; the whole operation was performed in less than 5 seconds. The temperature of the specimen and the furnace were measured by two seperate Chromel/Alumel thermocouples continuously on the chart of a recorder until final temperature equilibrium of the furnace and specimen were established. The flaming time of the specimen was determined by a stop watch. The procedure was repeated for four other specimens, one at each time.

1.2 Results:

The test results for the individual samples are given in table below:

Description	Specimen					Mean
	1	2	3	4	5	
Density (kg/m^3)	987.2	993.4	987.2	987.2	993.4	989.7
Duration of sustained flaming (s)	0	0	0	0	0	0
Maximum furnace temperature (°C)	792.9	800.8	792.4	796.3	793.9	-
Final furnace temperature (°C)	791.7	800.2	788.7	793.7	790.9	-
Furnace temperature rise, T_F (°C)	1.2	0.6	3.7	2.6	3.0	2.2
Maximum specimen temperature (°C)	921.9	894.9	933.4	802.4	781.1	-
Final specimen temperature (°C)	730.1	725.1	736.5	692.8	695.7	-
Specimen temperature rise, T_C (°C)	191.8	169.8	196.9	109.6	85.4	150.7
Mass loss (%)	56.1	57.0	56.1	56.1	57.0	56.5

Note: This test was conducted at the external approved facility, located at Singapore.

Remarks: The results relate only to the behaviour of the specimens of the material under the particular conditions of the test. The results obtained on an individual mateial used in a combination should not be construed as reflecting the performance of the material combination as a whole, which may be influenced by the mechanism of combining the individual materials together, such as with adhesives. The results are not intednded to be the sole criterion for assessing the potential fire hazard of the material in use.

Approved by:

Name: Sun Sun	Name: Harrison Li	Name: Timothy Li
Title: Approver	Title: Reviewer	Title: Project Engineer

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The End of Report