TEST REPORT
REACTION TO FIRE TEST

TEST SPONSOR:

Kuwait Insulating Material Manufacturing Co. (KIMMCO)
Mina Abdullah, Shuaiba Industrial Area,
Plot No. -42 Block -3 Area 1 P.O. Box – 10042,
Shuaiba 65451 Kuwait
T: +965 2326 2020
Website: www.kimmco.com

Test Material/Assembly:

25mm thick KIMMCO Glass Mineral Wool Blanket Insulation with Aluminium Foil Facing

Test Standard:

ASTM E84-17: Standard Test Method for Surface Burning Characteristics of Building Materials



THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS

Test Date: 18-Apr-18
Issue Date: 7-Jun-18
Test Reference No: SB148-1 (Rev.01)

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Accreditation

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

GCC Accreditation Center (GAC) – Testing Laboratory: **ATL-0017**
www.GCC-accreditation.org

Memberships

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

www.egolf.org.uk

Member of International Trade Council

www.thetradecouncil.com

Member of Association for Specialist Fire Protection

www.asfp.org.uk

Member of Centre for Window and Cladding Technology

www.cwct.co.uk

The work which is the subject of this report falls wholly or partly under the accreditations of **ISO 17025 UKAS and ISO 17025 GAC.**

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1. INTRODUCTION

Determination of the flame spread index and the smoke developed index of 25mm thick KIMMCO glass mineral wool blanket insulation with Aluminium foil facing as per ASTM E84; Standard Test Method for Surface Burning Characteristics of Building Materials.

2. SPONSOR

Name: Kuwait Insulating Material Manufacturing Co. (KIMMCO)
Address: Mina Abdullah, Shuaiba Industrial Area,
Plot No. -42 Block -3 Area 1 P.O. Box – 10042,
Shuaiba 65451 Kuwait
T: +965 2326 2020
Website: www.kimmco.com

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 4 821 5777
F: +971 4 333 2693
Website: www.bell-wright.com

4. DATE OF TEST

Sample received: 17-Apr-18
Test date: 18-Apr-18

The test has not been witnessed by the Sponsor.

5. SPECIMEN DESCRIPTION

The description of the specimen given below has been prepared from information provided by the Sponsor.

Product Description	25mm thick KIMMCO Glass Mineral Wool Blanket Insulation with Aluminium Foil		
Product Reference	"KIMMCO Glass Mineral Wool Blanket Insulation"		
Manufacturer	Kuwait Insulating Material Manufacturing Co. (KIMMCO) Mina Abdullah, Shuaiba Industrial Area, Plot No. - 42 Block- 3 Area 1, Shuaiba 65451, Kuwait		
Fire side	Aluminium Foil		
Product Details	**Facing (Fire side)**	Product Description	Aluminium foil
		Product reference	Note 1
		Manufacturer	Note 1
		Total Thickness	100microns (stated and measured)
		Area Density	104 g/m^2
	Adhesive	Product Description	Polyethylene film
	Glasswool	Product Description	Glasswool blanket insulation composed of glass processed from the molten state into fibrous form and bonded with a thermosetting binder.
		Manufacturer	Kuwait Insulating Material Manufacturing Co. (KIMMCO)
		Binder Content, % from total weight	5%
		Thickness	25mm (measured)
		Density	24 kg/m^3 ± 15% (stated)
No. of panels	6		
Dimensions per panel	1200 x 610 x 25mm (l x w x thk.) as measured		
Total Dimensions	7200 x 610 x 25mm (l x w x thk.) as measured		
Specimen placement	The KIMMCO glass mineral wool blanket insulation has been prepared and mounted as described in ASTM E2231 standard, Section 6.2 to 6.3. The 6.3 mm dia. metal steel rod was inserted through the specimen, placed 2in. (51mm) from each end at approximately 2 ft. (600mm) interval starting from the fire end and placed directly to the tunnel ledges with the exposed Aluminium foil surface towards the flame source.		

Note 1: The Test Sponsor does not want to disclose the information.

The test specimen was sampled by Ms. Maria Rosa Lanzi of TBWIC Certification Division dated April 4, 2018 and was submitted by the Sponsor for testing as part of product certification process.

6. METHOD OF TEST

6.1. Placing of test specimen

The test specimen consisted of 6 sections of 25mm thick KIMMCO glass mineral wool blanket insulation with Aluminium foil facing. It has been prepared and mounted as described in ASTM E2231 standard, Section 6.2 to 6.3. The dimension per panel was 1200 x 610 x 25mm (l x w x thk) and were butt jointed end to end. The total dimensions of the specimen were 7200 x 610 x 25mm (l x w x thk).

Several sections of cement board butt jointed end-to-end with overall dimensions of 7350 x 600mm (l x w), were placed at the back of the sample to protect the furnace lid assembly.

6.2. Test Method

The specimen was installed horizontally in the Steiner Tunnel and supported by the ledges. The Aluminium foil surface of the specimen was exposed to a flaming exposure during the 10 minute test duration.

Flame spread and density of the smoke are measured and recorded while the results are computed against the standard calibration materials (cement board and red oak flooring).

6.3. Conditioning

After delivery on 17-Apr-18, the specimen was stored in room temperature for 1 day prior to the test ranging from 20.2 to 25.8°C and 45 to 55% relative humidity.

7. OBSERVATION

Test Data and Observation

Observations	
Ignition Time (min:sec)	0:48
Time to maximum flame front advance (min:sec)	None
Maximum flame spread (ft)	None
Time to end of tunnel reached (min:sec)	Not Reached
Maximum temp recorded at the exposed thermocouple located near the end of the tunnel (°F / °C)	637/336
Dripping (min:sec)	None
Flaming on the floor (min:sec)	None
After flame on the top (min:sec)	None
After flame on the floor (min:sec)	None
Delamination (min:sec)	1:09
Sagging (min:sec)	None
Shrinkage (min:sec)	None
Fallout (min:sec)	None
FS*Time Area (ft*min)	0
Smoke Area (%A*min)	1.29
Red Oak Smoke Area (%A*min)	87.8

8. SUMMARY OF RESULTS

The test specimen has been evaluated in accordance with ASTM E84; Standard Test Method for Surface Burning Characteristics of Building Materials.

The test results are:

FLAME SPREAD INDEX (FSI)	**0**
SMOKE DEVELOPED INDEX (SDI)	**0**

Results are valid for the tested configuration only.

9. CLASSIFICATIONS

The following information is designed to help put these test results into context. Flame Spread Index and Smoke Developed Index results from an ASTM E84 test are often used by regulatory agencies to approve materials for various applications. For example, the International Building Code 2015, Section 803.1.1 requires that:

Interior wall and ceiling finish materials shall be classified in accordance with ASTM E84 or UL 723-10th Ed. 2008. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed indexes.

Class A: Flame spread index 0 - 25; smoke-developed index 0 - 450.
Class B: Flame spread index 26 - 75; smoke-developed index 0 - 450.
Class C: Flame spread index 76 - 200; smoke-developed index 0 - 450.

Note that the above example is the IBC requirement for interior wall and ceiling finishes only; your application may be different.

10. LIMITATIONS

Testing of materials that melt, drip, or delaminate to such a degree that the continuity of the flame front is destroyed, results in low flame spread indices that do not relate directly to indices obtained by the testing materials that remain in place

Thomas Bell-Wright International Consultants recommend that the relevance of test reports should be considered after a period of five years.

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

Prepared/Tested By:

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Reviewed By:

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Approved By:

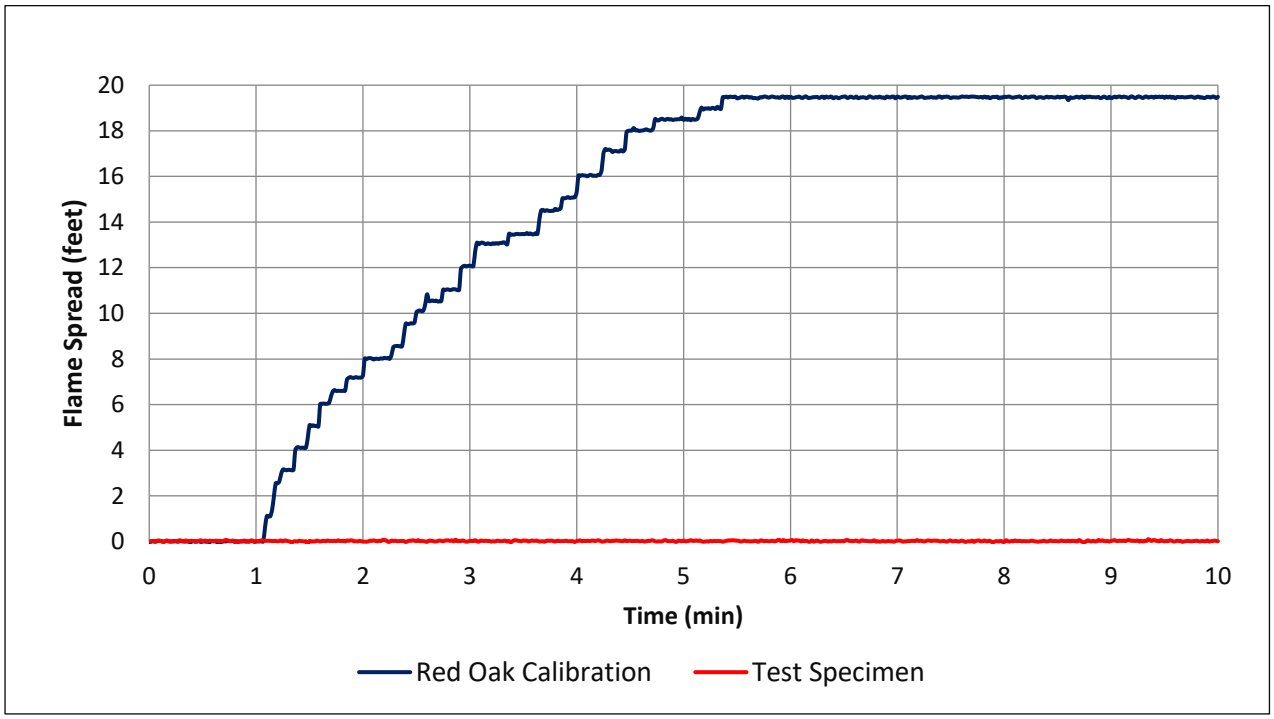
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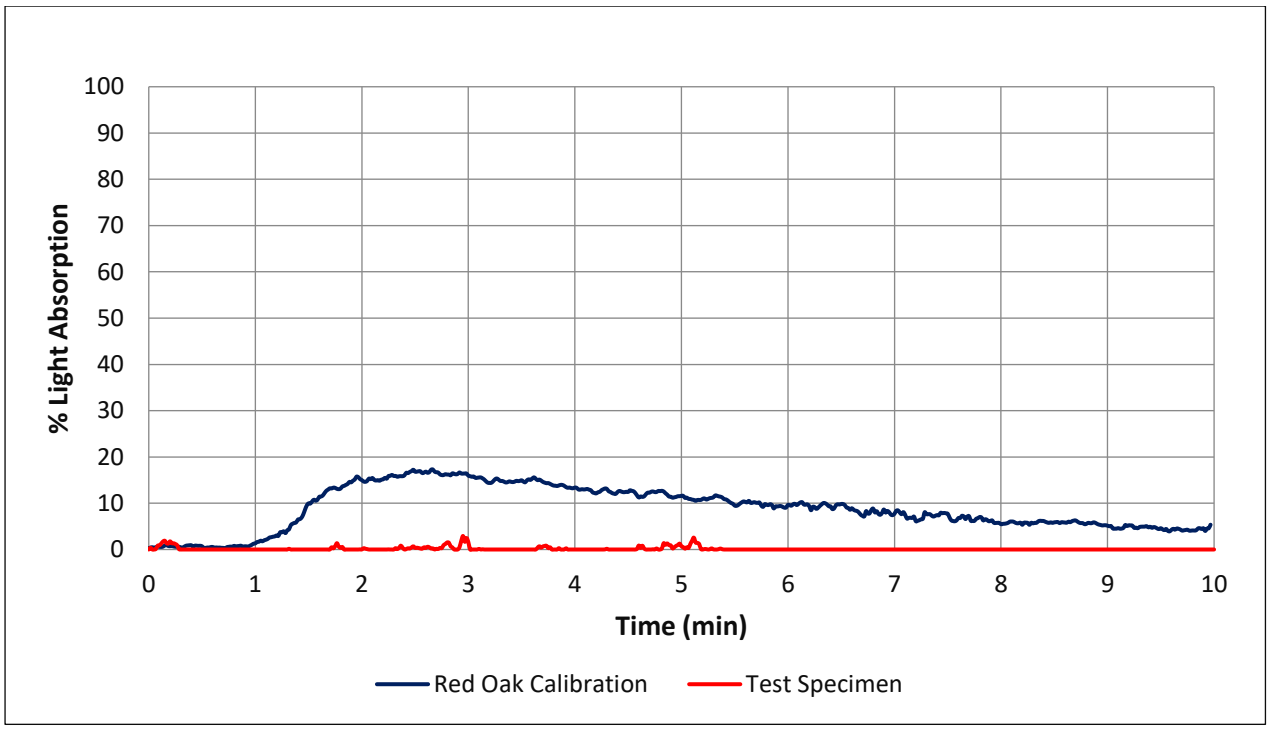
Revision 01: The following change was made in the Product Details table in Section 5 from the initial report:

- The product reference was changed from KIMMCO Glasswool Roll Insulation to KIMMCO Glass Mineral Wool Blanket Insulation.

11. APPENDIX 1- GRAPHS



Graph 1: Flame Spread Index (FSI)



Graph 2: Smoke Developed Index (SDI)

12. APPENDIX 2- PICTURES



Photo 1: Specimen before the test. (Non-Fire Side)



Photo 2: Specimen before the test. (Fire Side)



Photo 3: Specimen after the test. (As seen from the fire-end)



Photo 4: Specimen after the test. (As seen from the exhaust end)

13. SAMPLING MARK/SIGNATURE



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