

# TEST REPORT

## REACTION TO FIRE TEST

### Test Sponsor:

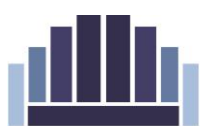
International Development Company Metal Industries LLC  
PO Box No. 2621,  
Abu Dhabi, United Arab Emirates  
Telephone: +971 2 504 6300, Fax: +971 2 582 3088  
Website: www.idcuae.com

### Test Material/Assembly:

4mm thick "Aluclad" Aluminum Composite Panel (ACP) with PVDF Coating

### Test Standard:

BS EN 13823:2010 +A1:2014 Reaction to Fire Tests for Building Products — Building Products excluding Floorings exposed to the Thermal Attack by a Single Burning Item



**THOMAS BELL-WRIGHT  
INTERNATIONAL CONSULTANTS**

Test Date: 3-Jun-20  
Issue Date: 4-Jun-20  
Test Reference No.: UC146-1

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DUBAI

ABU DHABI

DOHA



## 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](http://www.ukas.com)



## Memberships

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

[www.egolf.org.uk](http://www.egolf.org.uk)

Member of International Trade Council

[www.thetradecouncil.com](http://www.thetradecouncil.com)

Member of Association for Specialist Fire Protection

[www.asfp.org.uk](http://www.asfp.org.uk)

Member of Centre for Window and Cladding Technology

[www.cwct.co.uk](http://www.cwct.co.uk)



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



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## 1. INTRODUCTION

Determination of Reaction to fire performance of building products excluding floorings when exposed to thermal attack by a Single Burning Item (SBI) (a sand-box burner supplied with propane) in accordance with BS EN 13823:2010 +A1:2014.

## 2. SPONSOR

Name: International Development Company Metal Industries LLC  
Address: PO Box No. 2621,  
Abu Dhabi, United Arab Emirates  
Telephone: +971 2 504 6300, Fax: +971 2 582 3088  
Website: www.idcuae.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 (0) 4 821 5777  
Website: www.bell-wright.com

## 4. DATE OF TEST

Sample received: 23-Apr-20  
Test date: 3-Jun-20

The test had not been 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.*

<b>Description</b>	Aluminium Composite Panel with PVDF Coating* (Stated)		
<b>Product name</b>	"Aluclad"* (Stated)		
<b>Manufacturer</b>	International Development Company Metal Industries LLC* (Stated)		
<b>Overall Thickness</b>	4mm (Measured by TBWIC)		
<b>Area weight</b>	7 kg/m <sup>2</sup> (Measured by TBWIC)		
<b>Product Details</b>	<b>Layer 1</b>	Description	Topcoat* (Stated)
		Paint type	Polyvinylidene fluoride (PVDF) * (Stated)
		Manufacturer	Good Luck Decorative Materials Manufacturer LLC* (Stated)
		Colour	Silver* (Stated)
		Thickness	0.02mm* (Stated)
		Area Density	0.055 kg/m <sup>2</sup> * (Stated)



	<b>Layer 2</b>	Description	Primer* (Stated)
		Paint type	Polyester* (Stated)
		Manufacturer	Good Luck Decorative Materials Manufacturer LLC* (Stated)
		Colour	White* (Stated)
		Thickness	0.006mm* (Stated)
		Area Density	0.007 kg/m <sup>2</sup> * (Stated)
	<b>Layer 3</b>	Description	Top Sheet* (Stated)
		Material	Aluminum* (Stated)
		Manufacturer	Good Luck Decorative Materials Manufacturer LLC* (Stated)
		Alloy Grade	3003-H16* (Stated)
		Thickness	0.5mm* (Stated)
		Density	2710 kg/m <sup>3</sup> * (Stated)
		Area Density	1.355 kg/m <sup>2</sup> * (Stated)
	<b>Layer 4</b>	Description	Adhesive* (Stated)
		Material	Maleic Anhydride Modified Polyethylene* (Stated)
		Manufacturer	Emirates Panel Plastic Industries* (Stated)
		Colour	Ivory* (Stated)
		Thickness	0.05mm* (Stated)
		Area Density	0.932 g/cm <sup>2</sup> * (Stated)
	<b>Layer 5</b>	Description	Core* (Stated)
		Material	Non-combustible mineral-filled core* (Stated)
		Manufacturer	Jiashan Rixin New Material Co. Ltd* (Stated)
		Thickness	3mm* (Stated)
		Area Density	5 kg/m <sup>2</sup> * (Stated)
	<b>Layer 6</b>	Description	Adhesive* (Stated)
		Material	Maleic Anhydride Modified Polyethylene* (Stated)
		Manufacturer	Emirates Panel Plastic Industries* (Stated)
		Color Code	Ivory* (Stated)
Thickness		0.05mm* (Stated)	
Area Density		0.932 g/cm <sup>2</sup> * (Stated)	
<b>Layer 7</b>	Description	Bottom Sheet* (Stated)	
	Material	Aluminum* (Stated)	
	Manufacturer	Jiangsu Metcoplus* (Stated)	
	Alloy Grade	3003-H16* (Stated)	
	Thickness	0.5mm* (Stated)	
	Density	2710 kg/m <sup>3</sup> * (Stated)	
	Area Density	1.355 kg/m <sup>2</sup> * (Stated)	
<b>Layer 8</b>	Description	Service Coat* (Stated)	
	Paint type	Polyester* (Stated)	
	Manufacturer	Jiangsu Metcoplus* (Stated)	
	Colour	Grey* (Stated)	
	Thickness	0.006mm* (Stated)	
	Area Density	0.007 kg/m <sup>2</sup> * (Stated)	



<b>Substrate/Backing board</b>	Material	Calcium silicate board (Verified by TBWIC)
	Thickness	12mm (Measured by TBWIC)
	Density	885 kg/m <sup>3</sup> (Measured by TBWIC)
	Classification	A2-s1, d0 (Verified by TBWIC)
<b>Type of joint</b>	<p>1. Vertical Joints: A 10mm open joint was maintained at 200 mm from the corner line, measured when the wings were mounted.</p> <p>2. Horizontal Joints: A 10mm open joint was maintained at 495 mm from the bottom edge of the specimen.</p> <p>Refer to Drawing No.1 and 2 for more details.</p>	
<b>Specimen Dimensions</b>	<p>Small Wing: 495 x 1500 mm (w x h) (Measured by TBWIC)</p> <p>Long Wing: Panel 1: 204 x 495 mm (w x h) (Measured by TBWIC)          Panel 2: 790 x 495 mm (w x h) (Measured by TBWIC)          Panel 3: 204 x 995 mm (w x h) (Measured by TBWIC)          Panel 4: 790 x 995 mm (w x h) (Measured by TBWIC)</p> <p>Panel 1 and 3 was overlapped by the short wing for its thickness along the height, thereby reducing the visible width to 200mm till the center of the 10mm joint.</p> <p>Refer to Drawing No.2 for more information/details.</p>	
<b>Specimen Placement/ Mounting</b>	<p>The Aluclad ACP was prepared according to section 5.2.2 of BS EN 13823:2010+A1:2014. Panels were mounted mechanically using 3.5 x 25mm drywall screws and washers on 40mm 'C' section frames fixed on the calcium silicate board substrate/backing board.</p> <p>Refer to Drawing No. 1 &amp; 2 for more details.</p>	

## 6. SPECIMEN VERIFICATION

The choice and design and the definition of the specimen have been made by International Development Company Metal Industries LLC, and TBWIC testing laboratory has not been involved in the selection or design of the specimen. The results apply to the sample as received.

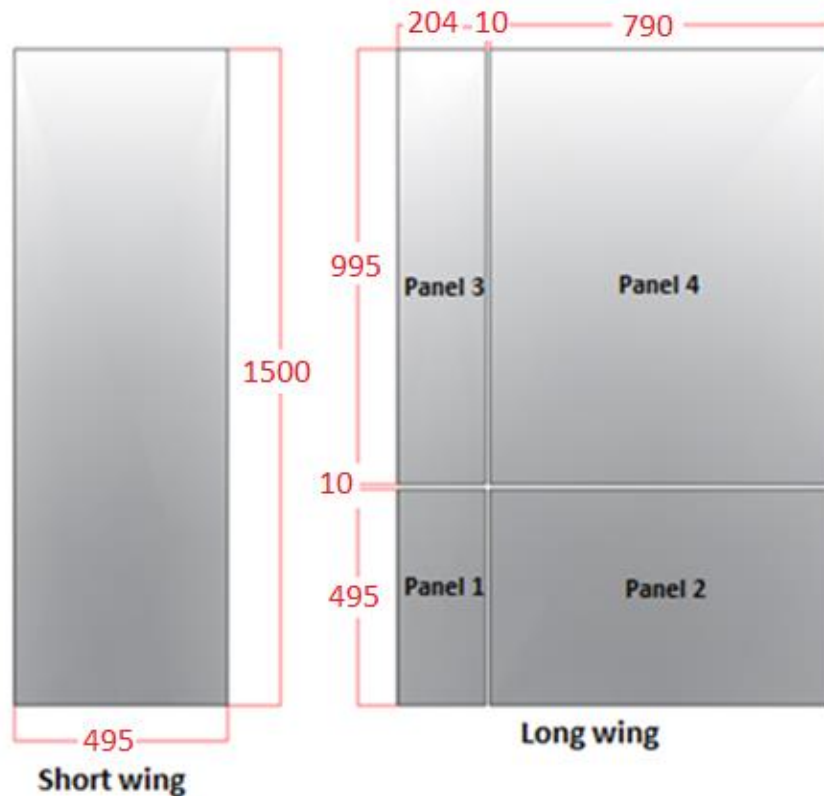
*Note: There are contexts where information has been provided by the sponsor and verification of information has been done through either technical datasheet or other document submission, or as indicated directly by the sponsor. For this reason, materials have been tested in an as-received condition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



## 7. SPECIMEN DRAWING



Drawing 1: Isometric view of the Specimen. The ACP assembly was tested with an 80mm air gap.



Drawing 2: Dimensions of the long and short wing of test specimen.  
All dimensions are in millimeters (mm).



## 8. METHOD OF TEST

### 8.1. Test Procedure

The test was performed in accordance with the requirements of BS EN 13823:2010+A1:2014 “Reaction to fire tests for building products – Building products excluding floorings exposed to the thermal attack by the single burning item”.

### 8.2. Conditioning

After delivery on 23-Apr-20, the specimens were conditioned to constant weight at 21 to 25 °C and 45 to 55% relative humidity as per BS EN 13238:2010 “Reaction to fire tests for building products – Conditioning procedures and general rules for selection of substrates”.

## 9. OBSERVATION

Test Data and Observation

General Information	Specimen 1	Specimen 2	Specimen 3
Checks Analyzers, Start of Test, min:s	0:00	0:00	0:00
Burner switch response time, s	6	9	6
<b>Observations</b>			
Occurrence of sustained flames reaching the far edge of long wing specimen at any height between 500-1000mm at any time during the test - LFS	Nil	Nil	Nil
Flaming droplets/particles within the first 600s	Nil	Nil	Nil
Burning droplets/particles ≤10 s within the first 600s	Nil	Nil	Nil
End of test, s	1560	1560	1560

## 10. SUMMARY OF RESULTS

The test specimen has been evaluated in accordance with BS EN 13823:2010 +A1:2014 Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item.

Deviations: No deviations from the test method.

**The complete test results are:**

TEST PARAMETERS	TEST RESULTS			Average
	Specimen 1	Specimen 2	Specimen 3	
FIGRA, W/s (THR (t) Threshold of 0.2 MJ)	0	0	0	0
FIGRA, W/s (THR (t) Threshold of 0.4 MJ)	0	0	0	0
THR 600s, MJ	0.5	0.9	0.6	0.7
SMOGRA, m <sup>2</sup> /s <sup>2</sup>	0	0	0	0





TSP 600s, m <sup>2</sup>	10	8	15	11
Occurrence of sustained flames reaching the far edge of long wing specimen at any height between 500-1000mm at any time during the test - LFS	Nil	Nil	Nil	Nil
Flaming droplets/particles $\geq$ 10s within the first 600s	Nil	Nil	Nil	Nil
Burning droplets/particles $\leq$ 10 s within the first 600s	Nil	Nil	Nil	Nil

The test results relate to the behavior of the test specimens of a product under the particular conditions of the test; they are not intended to be sole criterion for assessing the potential fire hazard of the product in use - Clause 10q, BS EN 13823:2010+A1:2014

Any product supplied or used during the test should be taken carefully to ensure that it is fully represented by the specimens which were tested.

## 11. LIMITATION

Results are valid for the tested configuration only.

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:

Reviewed and Approved by:

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Rachel Marie Novelo  
Fire Testing Engineer

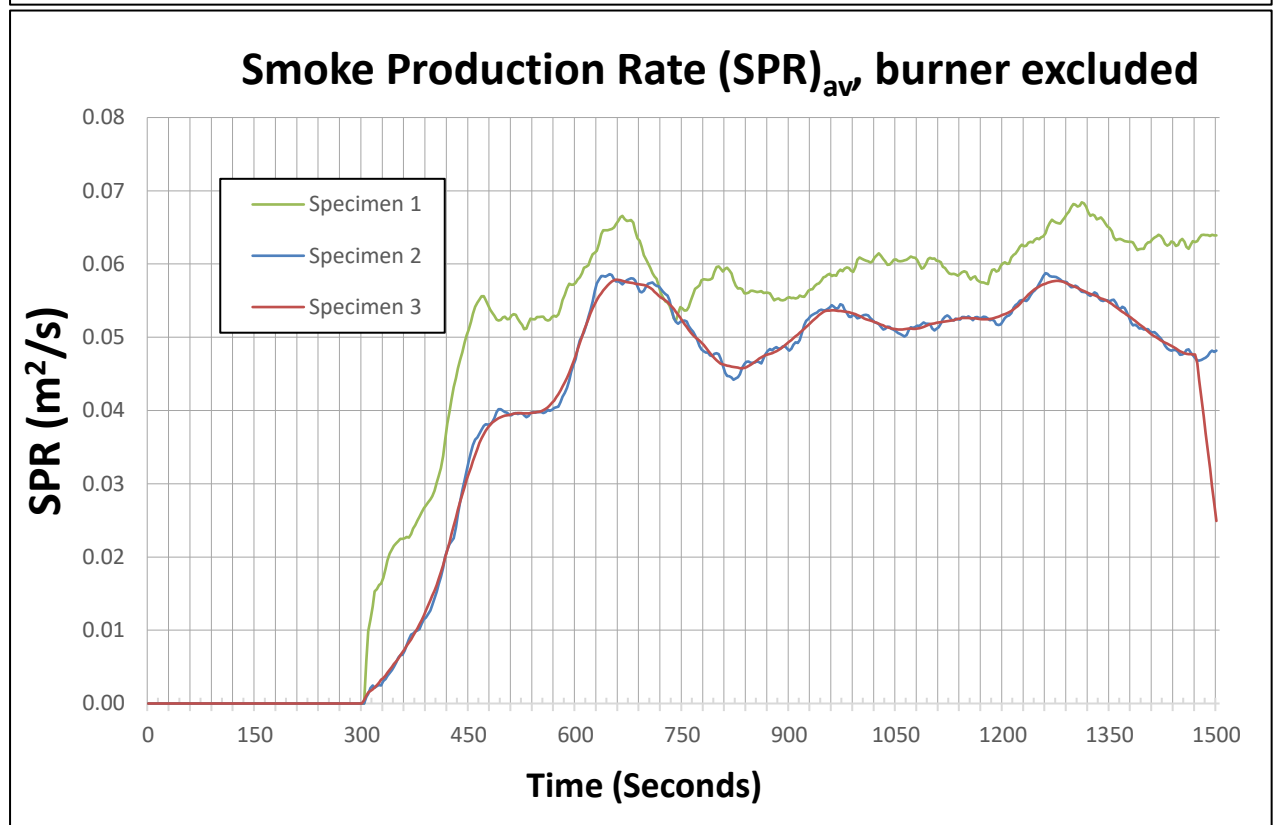
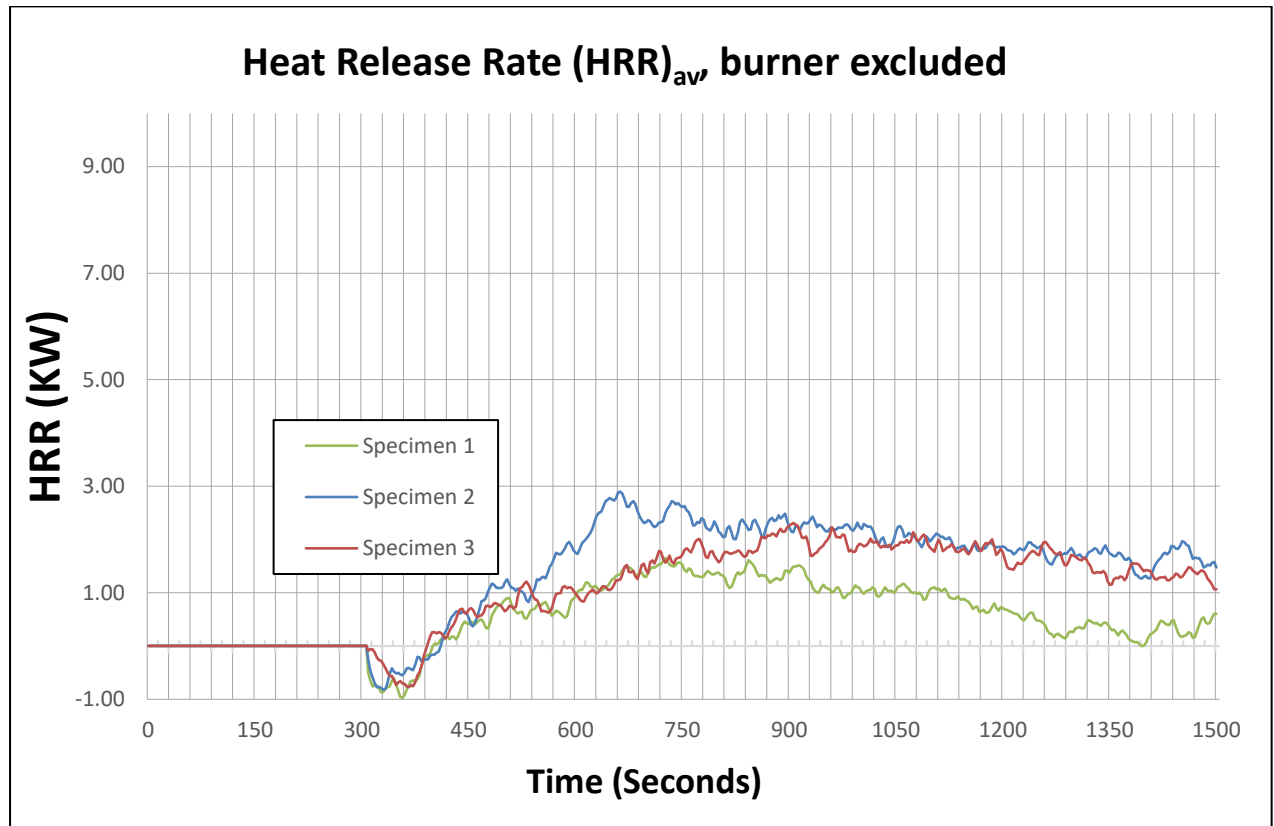
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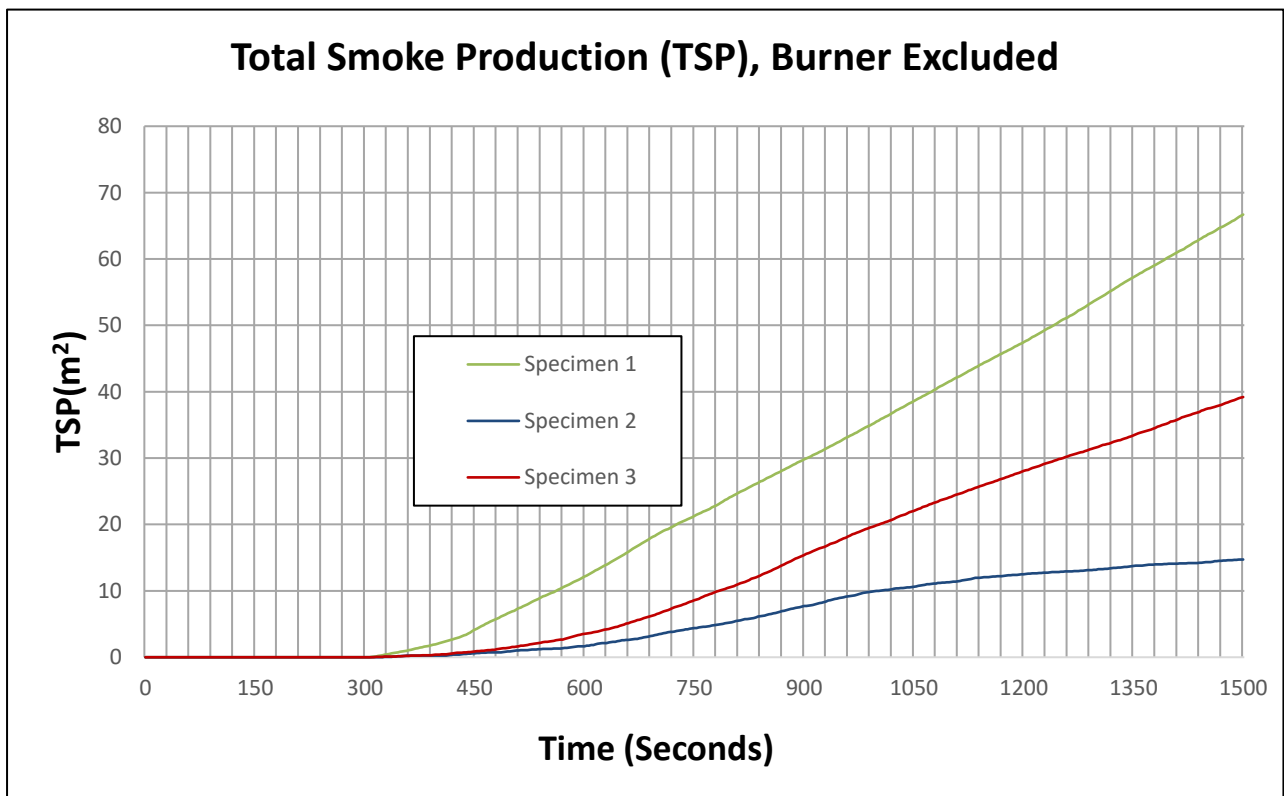
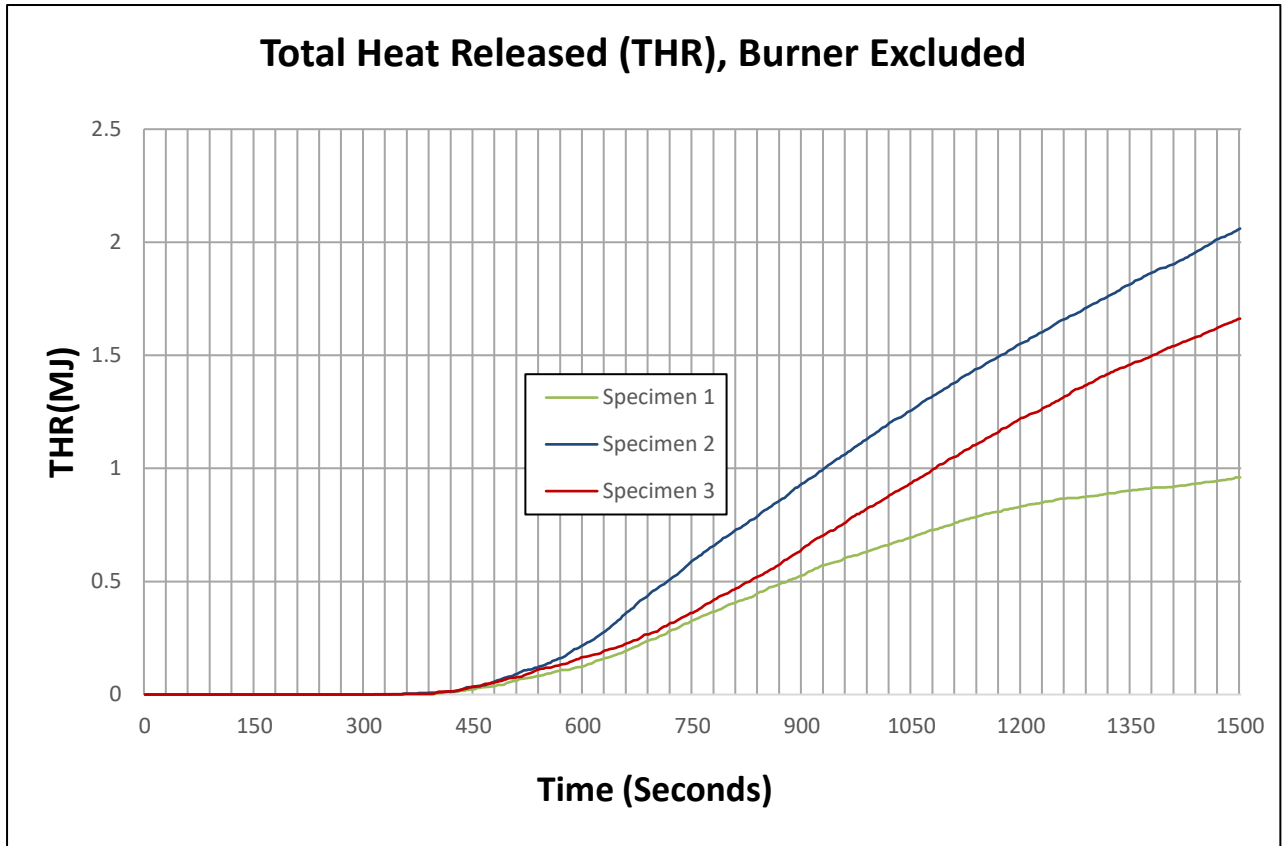
Suketa Tyagi  
Reaction to Fire Manager

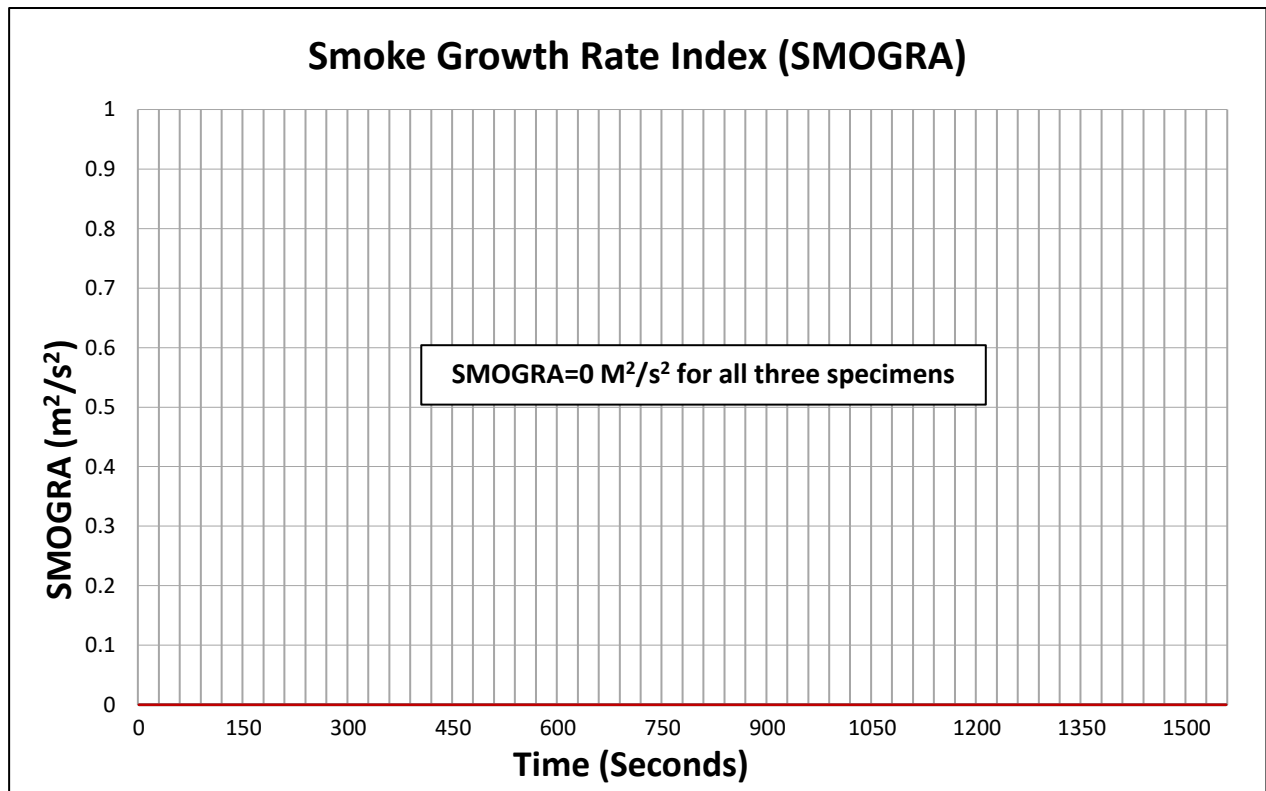
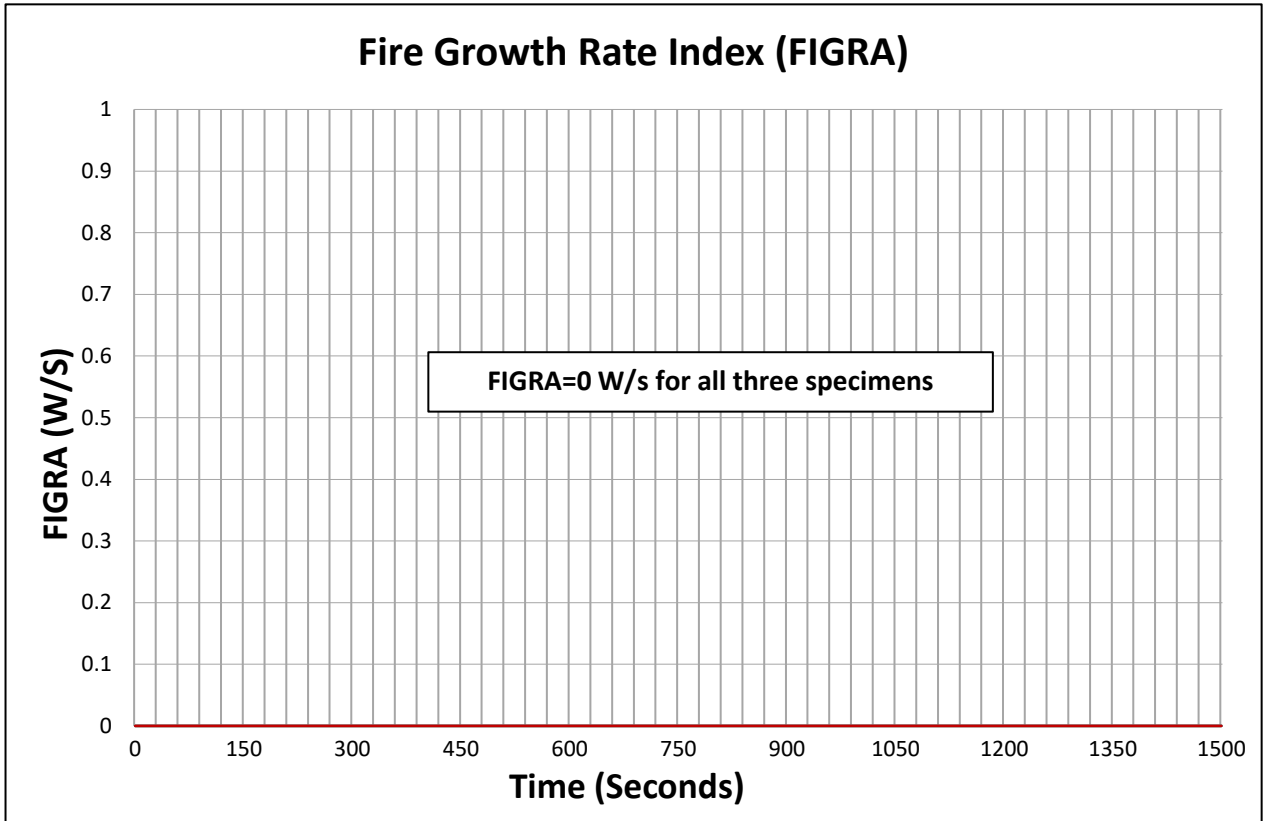




## 12. APPENDIX 1- GRAPHS









### 13. APPENDIX 2- PHOTOGRAPHS



Picture 1: Specimen before the test



Picture 2: Specimen after the test

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