

TEST REPORT

REACTION TO FIRE TEST

Test Sponsor:

Alstone Manufacturing Pvt. Ltd.
15th Floor, Vijaya Building
Barakhamba Road, Connaught Place
New Delhi - 110001, India
T: +91 011 41232400
Website: www.alstoneindia.com

Test Material:

25mm thick Alstone Honeycomb Panel

Test Standard

BS EN 13823:2020 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: 30-Sep-22
Issue Date: 17-Oct-22
Test Reference No: WH174-2

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DUBAI

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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

www.egolf.org.uk

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 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 13823:2020.

2. SPONSOR

Name: Alstone Manufacturing Pvt. Ltd.
Address: 15th Floor, Vijaya Building
Barakhamba Road, Connaught Place
New Delhi - 110001, India
T: +91 011 41232400
Website: www.alstoneindia.com

3. MANUFACTURER

Name: Alstone Manufacturing Pvt. Ltd.
Address: Khasra No: 1393, Langha Road Industrial Area
Village Chharba, P.O. Sahaspur, Dehradun 248197
Uttarakhand, India

4. 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

5. DATE OF TEST

Sample Received: 26-Sep-22
Test date: 30-Sep-22

The test was not witnessed by the sponsor.



6. 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.*

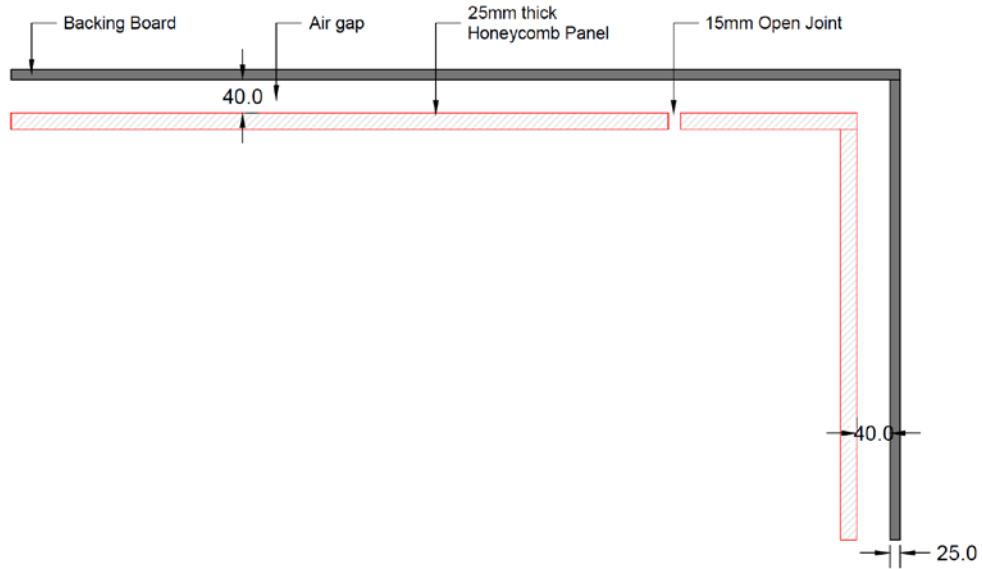
Product Description		25mm thick metal honeycomb sandwich panel			
Product Reference		Alstone Honeycomb Panel*			
Manufacturer		Alstone Manufacturing Pvt. Ltd. *			
Thickness		24.8mm (measured by TBWIC)			
Area Weight		4.3 kg/m ² (measured by TBWIC)			
Product Details	Top coat (Fire Side)	Material	PVDF*		
		Reference	Kynar 500 PVDF*		
		Manufacturer	Deju*		
		Colours Tested	White (observed by TBWIC)		
		Dry Film Thickness	20µm* (stated)		
		Area Weight	0.032 kg/m ² * (stated)		
		Dry Density	1610 kg/m ³ * (stated)		
	Primer	Material	Polyester*		
		Manufacturer	Deju*		
		Dry Film Thickness	5µm* (stated)		
		Area Weight	0.008 kg/m ² * (stated)		
		Dry Density	1610 kg/m ³ * (stated)		
	Metal top skin	Material	Aluminium*		
		Alloy Grade	AA3003*		
		Thickness	0.7mm*		
		Density	2710 kg/m ³ *		
	Adhesive	Material	Polyfine film*		
		Manufacturer	Ecoplast*		
		Dry Film Thickness	80µm* (stated)		
		Area Weight	0.074 kg/m ² * (stated)		
		Dry Density	930 kg/m ³ * (stated)		
	Honeycomb core	Material	Aluminium Honeycomb*		
		Reference	Honeycomb Cell (Hexagonal)*		
		Manufacturer	Suzhou Bee Core Honeycomb Materials Co.*		
		Alloy Grade	AA3003*		
		Thickness	Metal Sheet	0.05mm* (stated)	
			Layer	23.8mm* (stated)	
		Area Weight	1.3 kg/m ² @ 25mm* (stated)		
Adhesive	Material	Polyfine film*			



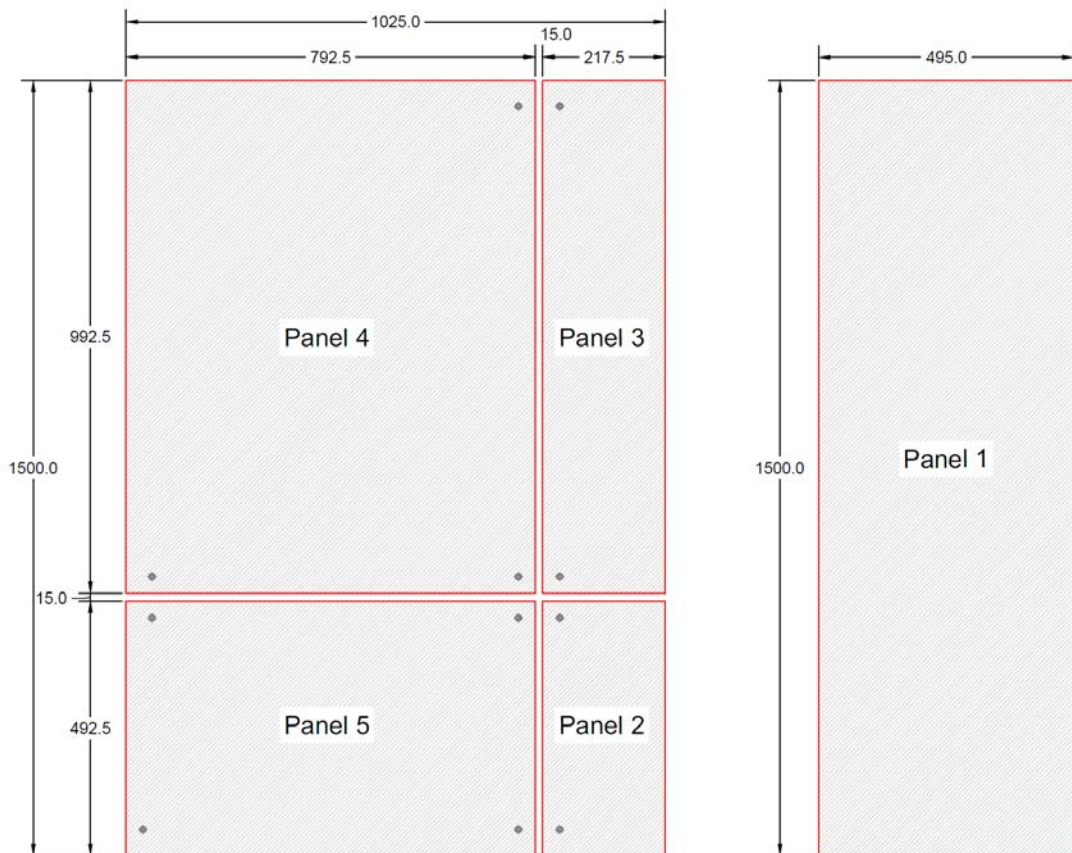
		Manufacturer	Ecoplast*	
		Dry Film Thickness	80µm* (stated)	
		Area Weight	0.074 kg/m ² * (stated)	
		Dry Density	930 kg/m ³ * (stated)	
	Metal bottom skin	Material	Aluminium*	
		Alloy Grade	AA3003*	
		Thickness	0.5mm*	
		Density	2710 kg/m ³ *	
	Back coat	Material	Polyester*	
		Manufacturer	Deju*	
		Dry Film Thickness	5µm* (stated)	
Area Weight		0.008 kg/m ² * (stated)		
Dry Density		1610 kg/m ³ * (stated)		
Backing Board	Material	Calcium Silicate Board (Verified by TBWIC)		
	Density	900 kg/m ³ (Measured by TBWIC)		
	Thickness	9mm (Measured by TBWIC)		
	Classification	A2-s1, d0 as per BS EN 13501-1:2018 (Verified by TBWIC)		
Exposed Face	Kynar 500 PVDF (White) coated face (verified by TBWIC)			
Type of joint	<p>1. Vertical Joints: A 15mm vertical open joint was maintained at 200mm from the corner line to the center of the joints, measured when the wings were mounted.</p> <p>2. Horizontal Joints: A 15mm horizontal open joint was maintained at 500mm from the bottom edge of the specimen to the center of the joint, measured when the wings were mounted.</p> <p>Refer to Drawing No.1 & 2 for more details.</p>			
Specimen Dimensions	<p>Small Wing: Panel 1 - 495 x 1500 mm (w x h)</p> <p>Long Wing: Panel 2 – 217.5 x 492.5 mm (w x h)</p> <p>Panel 3 – 217.5 x 992.5 mm (w x h)</p> <p>Panel 4 – 792.5 x 992.5 mm (w x h)</p> <p>Panel 5 – 792.5 x 492.5 mm (w x h)</p> <p>Refer to Drawing No. 1 & 2 for more details.</p>	Measured by TBWIC		
Specimen Placement/ Mounting	<p>The 25mm thick metal honeycomb sandwich panel was prepared according to section 5.2.2 of BS EN 13823:2020. The panels were tested with a 40mm air cavity between the rear of the panel to the face of the backing board. The specimen was placed such that the bottom edges of the long and short wings rested against the respective U-profiles on the trolley floor, and the side edge of the short wing specimen met the extended long wing specimen at the primary burner side.</p> <p>Refer to Drawing No. 1 & 2 for more details.</p>			



7. SPECIMEN DRAWING



Drawing 1: Top view of the mounted specimen with airgap.
All dimensions are in millimeters (mm)



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



8. SPECIMEN VERIFICATION

The choice, design and definition of the specimen have been made by Alstone Manufacturing Pvt. Ltd., 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.

9. METHOD OF TEST

9.1. Test Procedure

The test was performed in accordance with the requirements of BS EN 13823:2020 “Reaction to fire tests for building products – Building products excluding floorings exposed to the thermal attack by the single burning item”.

9.2. Conditioning

After delivery on 19-Sep-22, 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”.

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.

10. OBSERVATION

Test Data and Observation

General Information	Specimen 1	Specimen 2	Specimen 3
Observations			
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

11. SUMMARY OF RESULTS

The test specimen has been evaluated in accordance with BS EN 13823:2020 Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item.



The complete test results for the panels are:

TEST PARAMETERS	TEST RESULTS			Average
	Specimen 1	Specimen 2	Specimen 3	
FIGRA _{0.2MJ} , W/s	69	113	47	76
FIGRA _{0.4MJ} , W/s	69	113	47	76
THR _{600s} , MJ	3.4	4.2	3.3	3.6
SMOGR _A , m ² /s ² Note 1	4	5	0	3
TSP _{600s} , m ² Note 1	25	28	25	26
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 ≥ 10s within the first 600s	Nil	Nil	Nil	Nil
Burning droplets/particles ≤ 10 s within the first 600s	Nil	Nil	Nil	Nil

Note 1: Corrected value as per ANNEX A, Clause A.6.1.2 of BS EN 13823:2020.

12. LIMITATION

“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 13823:2020.

Results are valid for the tested configuration only.

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 & Authorized by:

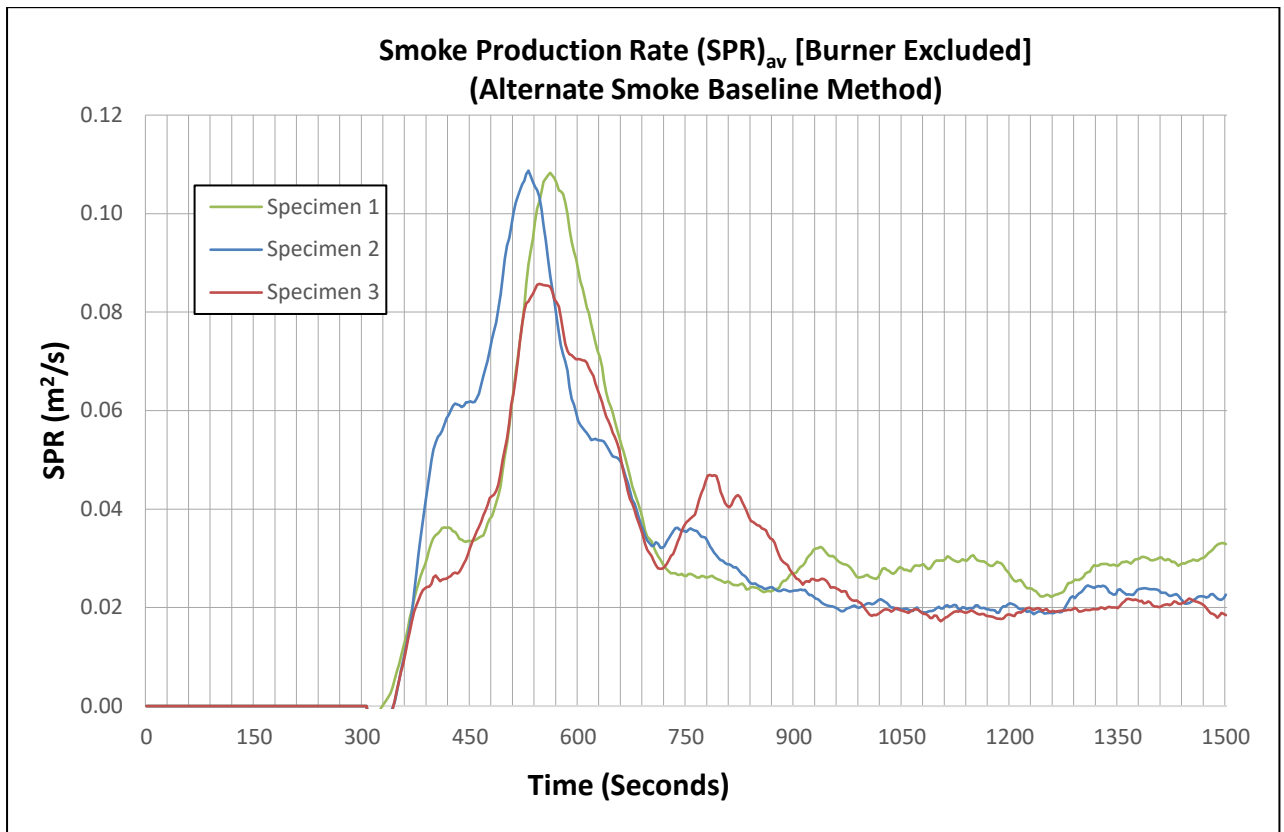
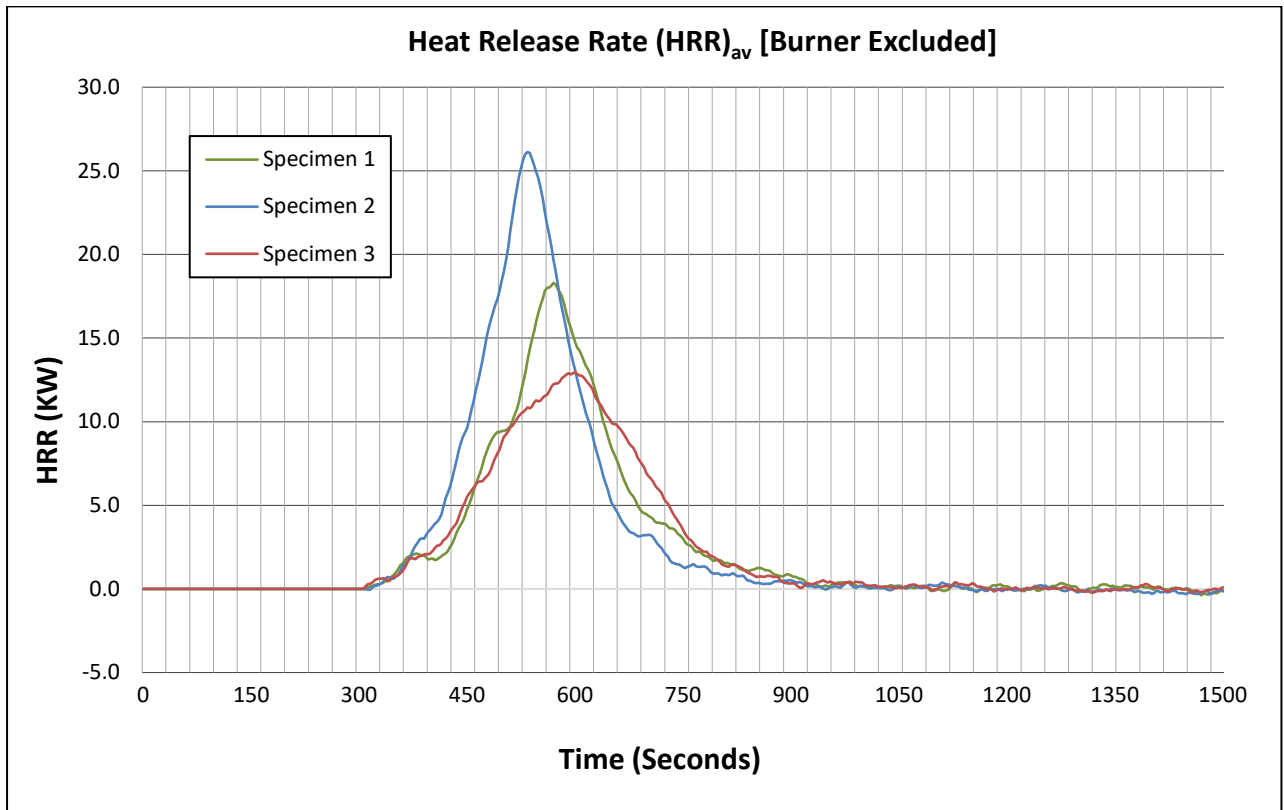
Suketa Tyagi
Manager - Reaction to Fire

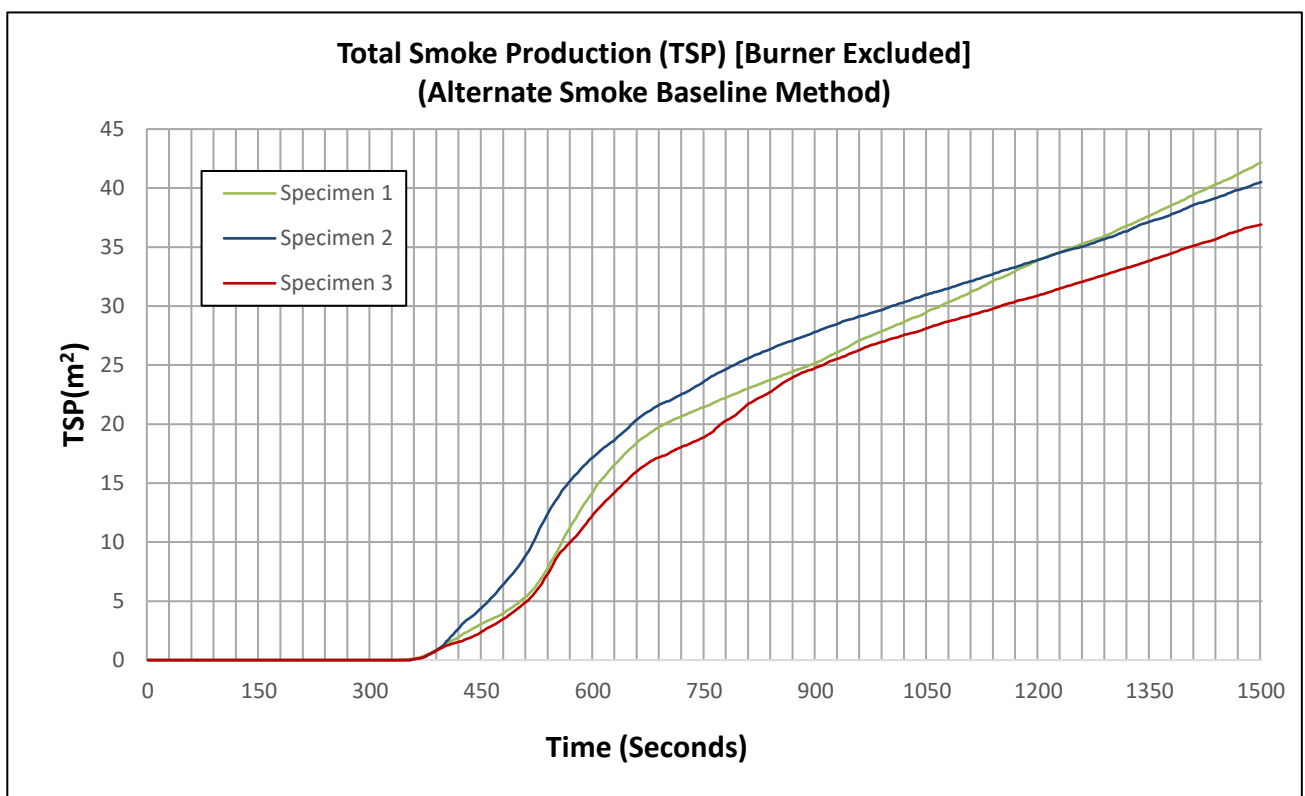
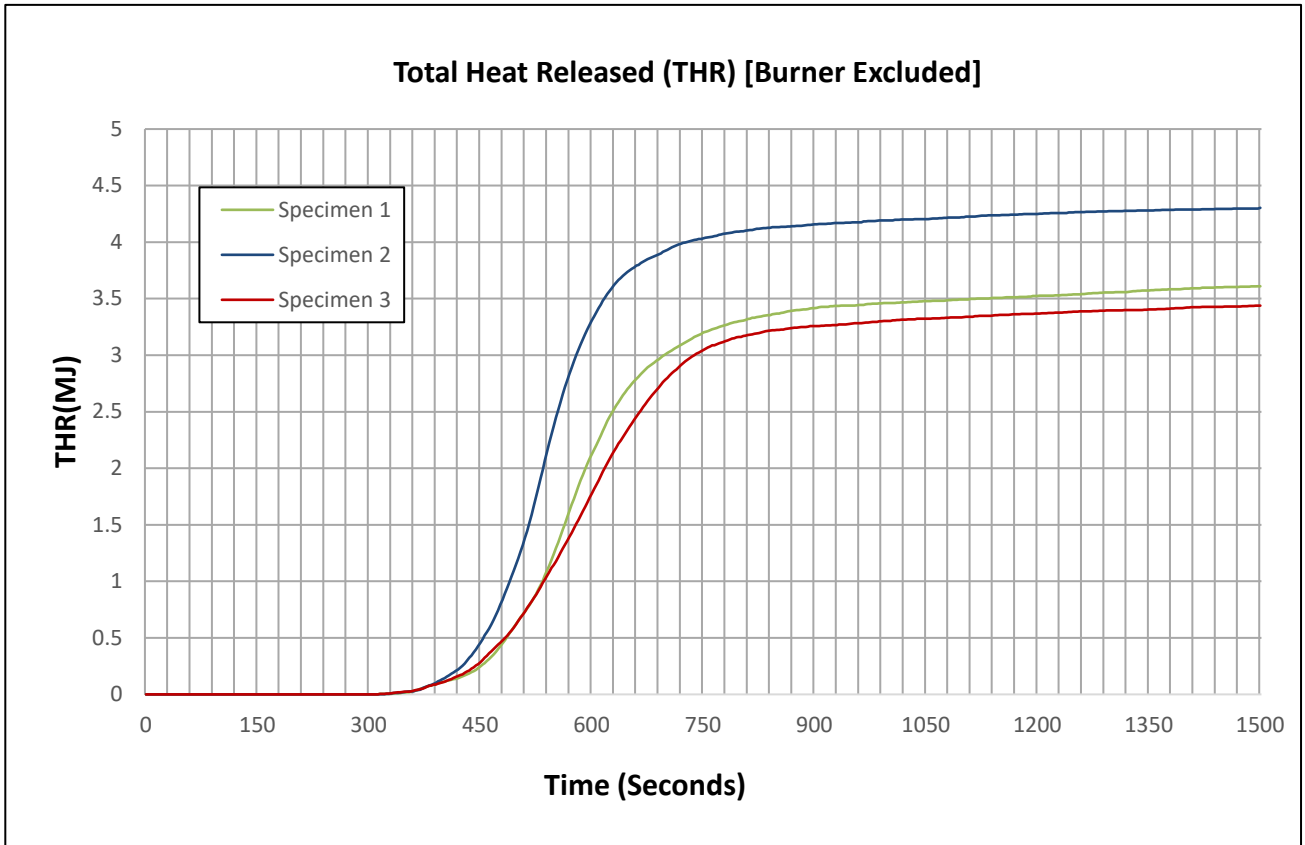


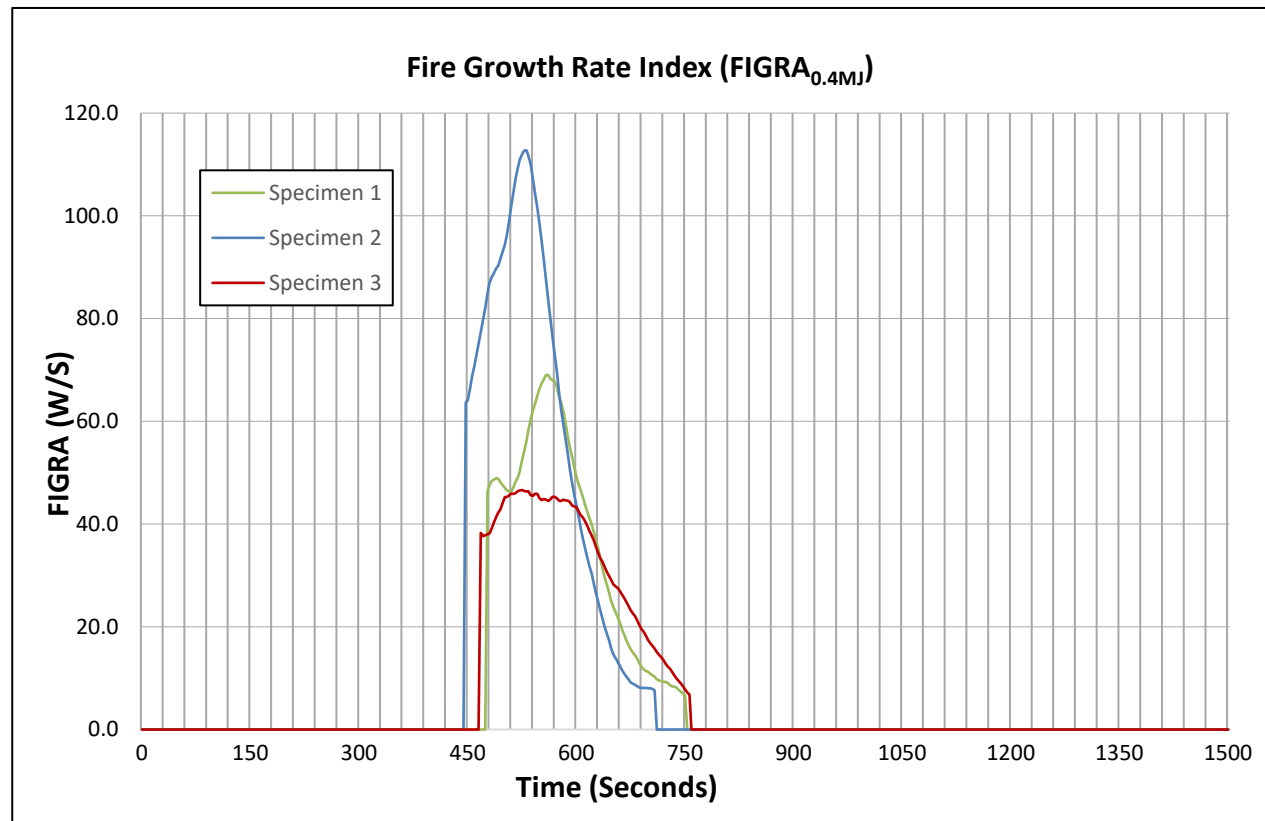
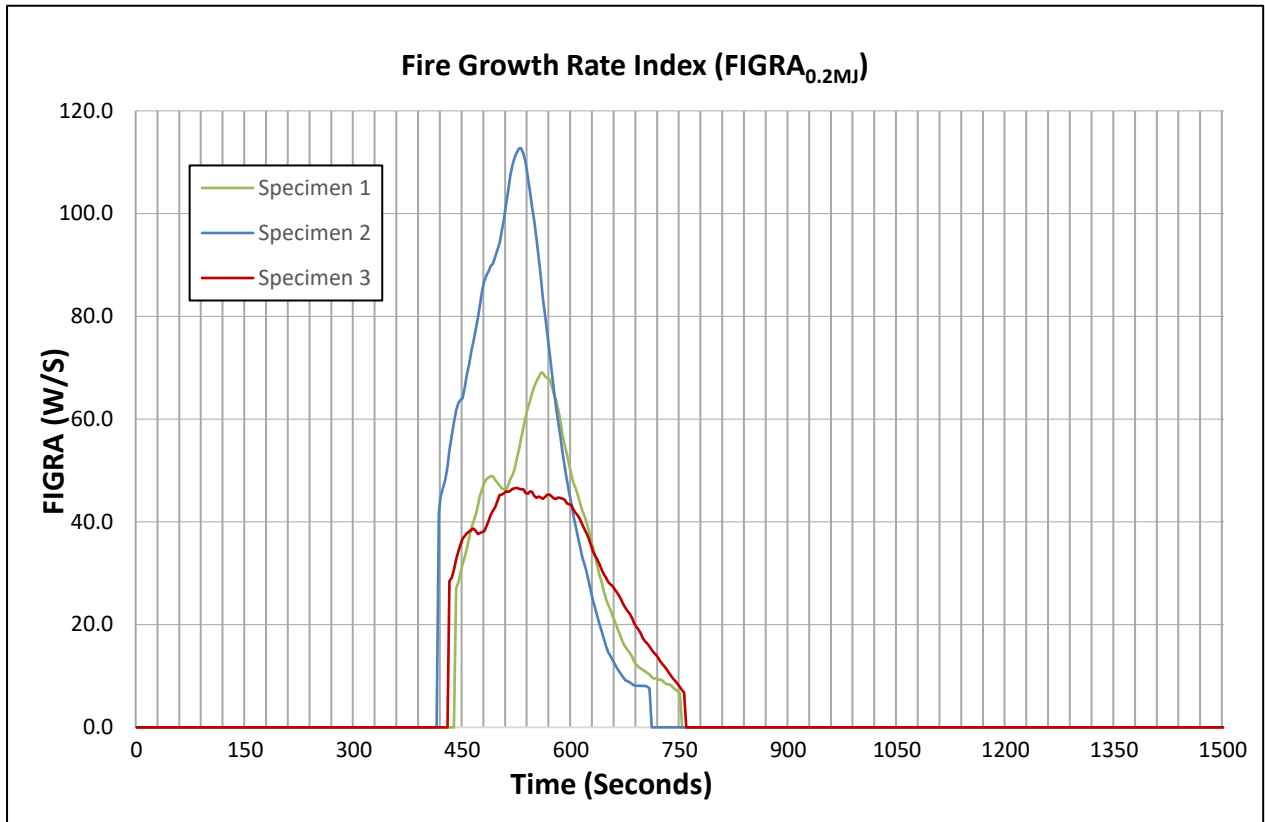
Report Revision Tracking		
Revision No.	Date Issued	Notes & Amendments
Rev. 00	17-Oct-22	This is the first issue of the report. No revisions are included.

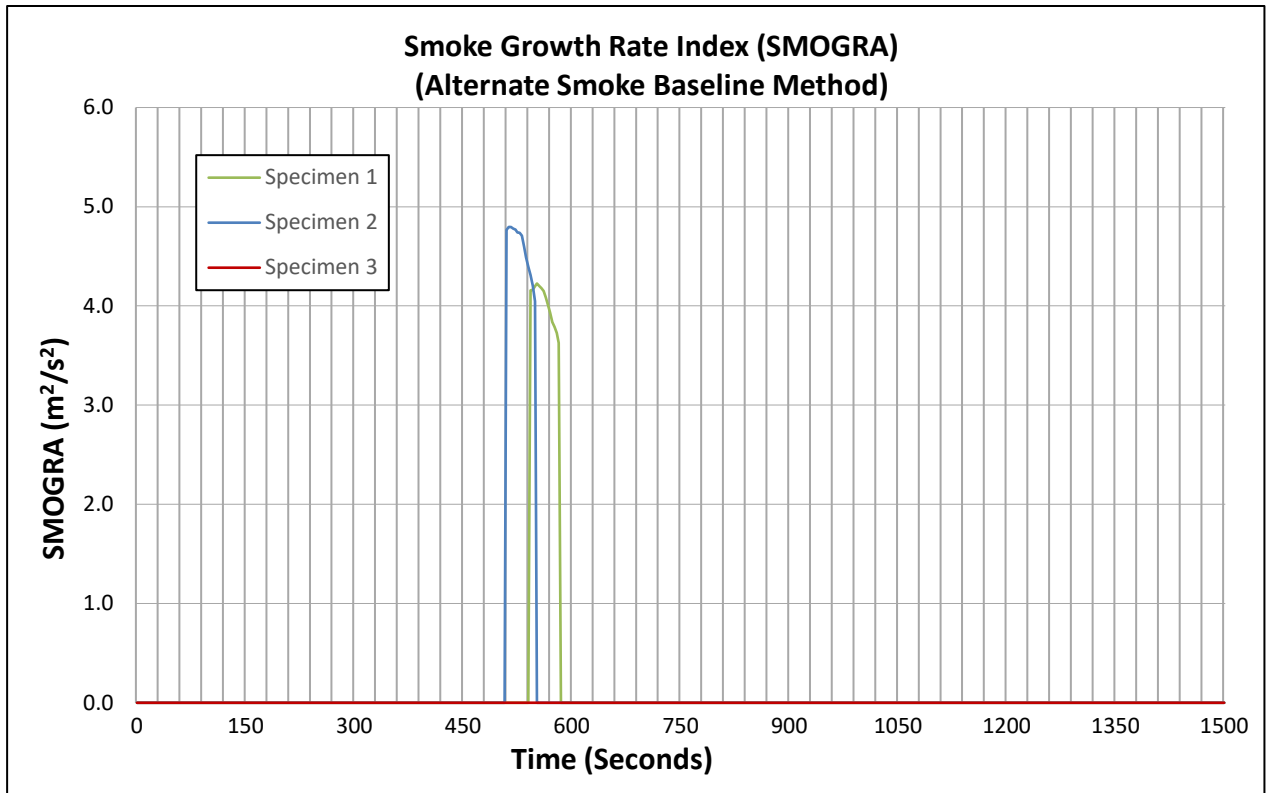


13. APPENDIX 1 – GRAPHS











14. APPENDIX 2 – PHOTOGRAPHS



Specimen before the test



Specimen after the test

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