Reaction to fire test report

Warringtonfire Testing and Certification Limited

Test standard:	EN 13823:2020
Test sponsor(s):	CGL Facades
Product(s):	System 1 Traypanel
Job number:	504457
Test date:	29 October 2021
Version:	One

Quality management

Version	Date	Summary of amendments including reasons		
One	14 December 2021	Description	Initial issue	
			Prepared by	Authorised by
		Name	Gareth Morris	Keith Hughes
		Signature		
			*Signed for and on behalf of Warringtonfire	

Contents

1. Introduction

This report documents the findings of the reaction to fire test of System 1 Traypanel in accordance with EN 13823:2020.

Warringtonfire Testing and Certification Limited (Warringtonfire) performed the test on 29 October 2021 at the request of the test sponsor listed in Table 1.

Table 1 Test sponsor details

Test sponsor	Address
CGL Facades	2 Young Place, Kelvin Industrial Estate Glasgow, East Kilbride G75 0TD United Kingdom

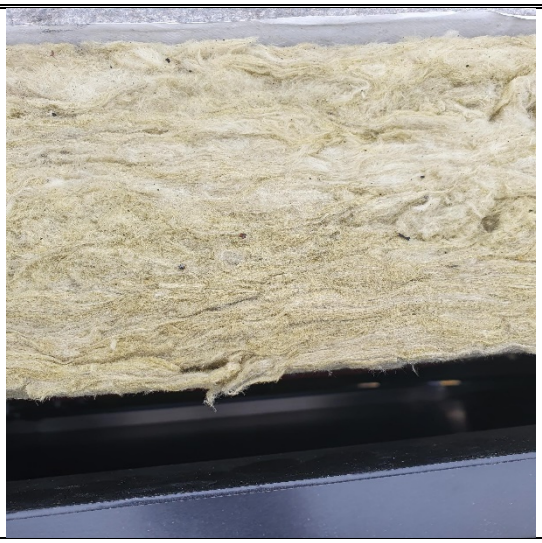
2. Test specimens

The description of the test specimens is detailed in Table 2. Unless otherwise specified:

- All measurements were taken by Warringtonfire.
- All values quoted are nominal.

Table 2 Test specimen description

General description		CGL Traypanel Cladding System
Product reference of coating system		"CGL Facades Traypanel Interpon D2525"
Name of manufacturer		CGL Systems
Overall thickness		190mm (determined by Warringtonfire)
Overall weight per unit area		11kg/m^2 (stated by sponsor)
Coating (Test face)	Generic type	Polyester Powder Coating
	Product reference	"Interpon D2525"
	Name of manufacturer	AkzoNobel powder Coatings
	Colour reference	"RAL 9010"
	Colour	"White"
	Number of coats	One
	Application thickness	60 - 90 Microns
	Application rate	84.5g/m^2
	Specific gravity	1.5
	Application method	Automatic Electrostatic Spray
	Flame retardant details	**See Note 1 Below**
	Curing process	20 minutes at 200 degrees Celsius
Aluminium	Generic type	Aluminium Solid Panel
	Product reference	"3103 H14 Grade Aluminium"
	Name of manufacturer	Norsk Hydro
	Thickness	2mm
	Weight per unit area	5.42kg/m^2
	Flame retardant details	**See Note 1 Below**
Mineral Wool	Generic type	100mm Rockwool
	Product reference	"Duo Slab"
	Name of manufacturer	Rockwool
	Thickness	100mm
	Weight per unit area	**See Note 2 Below**
	Flame retardant details	**See Note 1 Below**
Mounting details		The specimens were tested with a fibre cement backing board butted up against the reverse face of the specimen
Joint details		Vertical and horizontal joints were incorporated in the specimen

Picture of profile from the side	
Brief description of manufacturing process	**See Note 3 Below**

Note 1: The sponsor of the test has confirmed that no flame retardant additives were utilised in the production of the component.

Note 2: The sponsor was unable to provide this information.

Note 3: The sponsor was unwilling to provide this information.

3. Test procedure

Table 3 details the test procedure for this reaction to fire test.

Table 3 Test procedure

Item	Detail
Test standard	The test was performed in accordance with EN 13823:2020.
Product standard and/or EAD	Not applicable
Supplementary standard	EN 13501: 2018
EGOLF agreements and/or recommendations	Not applicable
Deviations from the test standard	None
Pre-test conditioning	The test specimens were received on 5 May 2021.
	Before testing, the test specimens were conditioned in accordance with the requirements of EN 13238:2010 for a fixed period of 28 days at a temperature of 23 ± 2 °C and a relative humidity of 50 ± 5%.
Sampling / test specimen selection	The test specimens were sampled by the test sponsor. Warringtonfire was not involved in any selection or sampling procedure.
Intended application	Exterior cladding
Test face	The decorative face of the test specimens was exposed to the heating conditions of the test when the test specimens were mounted in the test position.
Test specimen preparation	The test specimen walls (or wings) were installed in the trolley in accordance with the requirements of section 5.3 of BS EN 13823:2020.
Number of replicate tests	Three

4. Test results and observations

4.1 Test results

Table 4 shows a summary of the results for the test specimens.

Table 4 Test results

Parameter	Unit	Results			
		Specimen 1	Specimen 2	Specimen 3	Mean
Fire spread					
FIGRA (THR(t) threshold of 0.2MJ)	W/s	47	0	0	16
FIGRA (THR(t) threshold of 0.4MJ)	W/s	0	0	0	0
THR_{600s}	MJ	0.4	0.0	0.2	0.2
Lateral flame spread to edge of test specimen?	-	No	No	No	No
Smoke production					
SMOGRA	m^2/s^2	7	0	6	4
TSP_{600s}	m^2	47	9	30	29
Flaming droplets and particles					
Fall of flaming droplets/particles < 10s?	-	No	No	No	No
Fall of flaming droplets/particles > 10s?	-	No	No	No	No

4.2 Test observations

Table 5 shows a list of initial observations noted for every tested specimen.

Table 5 Common specimen observations

Min	Sec	Initial observations for each specimen
0	0	Pre-checks performed on analysers
2	0	Auxiliary burner switched on to check correct burner operating conditions
5	0	Gas flow switched from auxiliary burner to main burner & test flames impinge on specimen

Observations of any significant behaviour of the specimen during the tests are summarised in Table 6 below.

Table 6 Test observations

Min	Sec	Observations during test
Specimen 1		
5	9	Discolouration of the surface of the test specimen occurred in the region of the burner
6	51	Flaming on the surface of the test specimen occurred in the region of the burner
26	0	End of test conditions. All flaming ceased.
Specimen 2		
5	6	Discolouration of the surface of the test specimen occurred in the region of the burner
7	0	Flaming on the surface of the test specimen occurred in the region of the burner
26	0	End of test conditions. All flaming ceased.
Specimen 3		
5	6	Discolouration of the surface of the test specimen occurred in the region of the burner
6	57	Flaming on the surface of the test specimen occurred in the region of the burner
26	0	End of test conditions. All flaming ceased.

5. Application of test results

5.1 Validity

This document is the original version of this test report and is written in English. In case of doubt the original version prevails over a translation. This document is issued subject to Warringtonfire's standard terms and conditions, which are available at: *Terms and Conditions | Element*.

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, nor can the results be extrapolated and applied to other products.

Reports are statements of fact prepared in accordance with the referenced version of the standards stated in Section 3 of this report. Reports are based upon the information provided to Warringtonfire. Warringtonfire takes no responsibility for the accuracy or completeness of such information.

The results stated in this report apply to the sample as received. Any differences in composition, production process, thickness, density or colour of the product may significantly affect the performance and will therefore invalidate the application of the test results to the variant product. It is recommended that any proposed variation to the tested configuration or product should be referred to the test sponsor. The test sponsor should then obtain appropriate documentary evidence of compliance from Warringtonfire or another accredited testing authority. The supplier of the product is responsible for ensuring that the product which is supplied for use is identical to the test specimens that were tested.

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5.2 Uncertainty of measurement

The determination of the uncertainty of measurement of FIGRA, THR600s, SMOGRA and TSP600s is an ongoing topic within CEN. PD CEN/TR 16988: 2016 provides the latest work of the CEN committee tasked with working on this matter. Until this work is finalised the measurement of uncertainty is not reported.

Appendix A Test data

A.1 Heat release rate

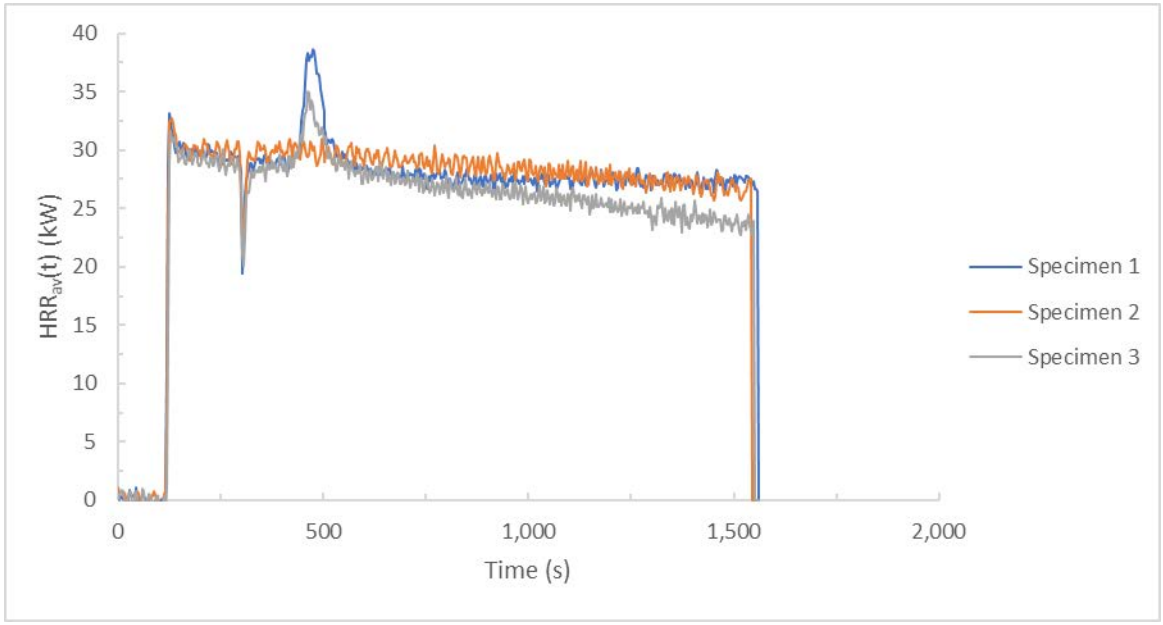

Figure 1 Heat release rate vs time

A.2 Total heat release

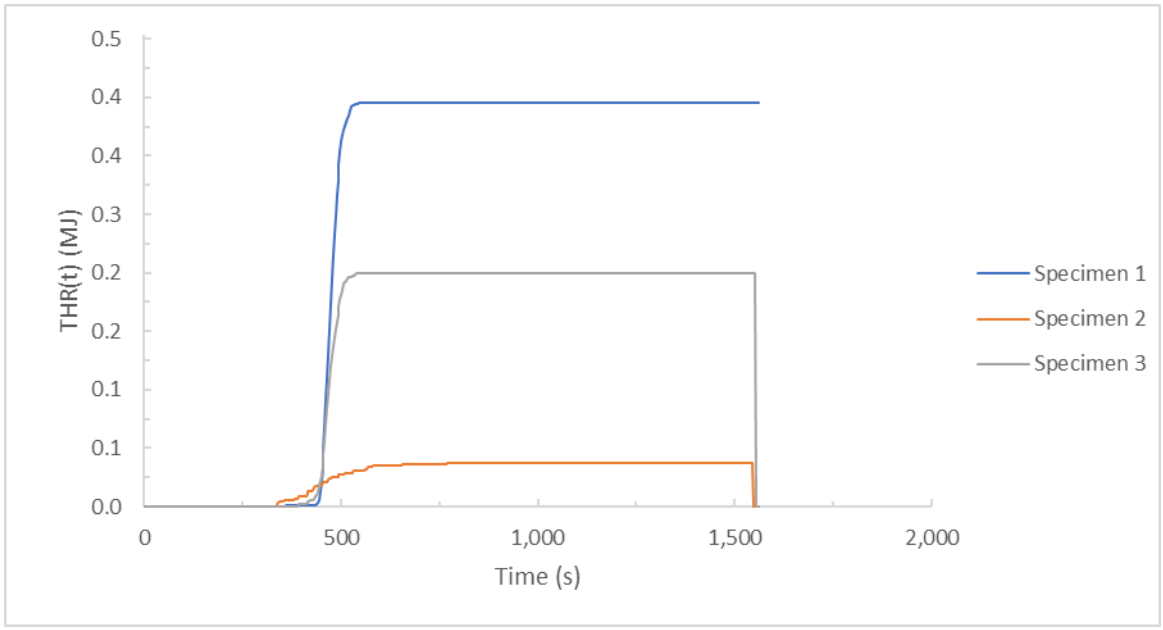

Figure 2 Total heat release vs time

A.3 1000 x HRR_{av} (t) / (t-300)

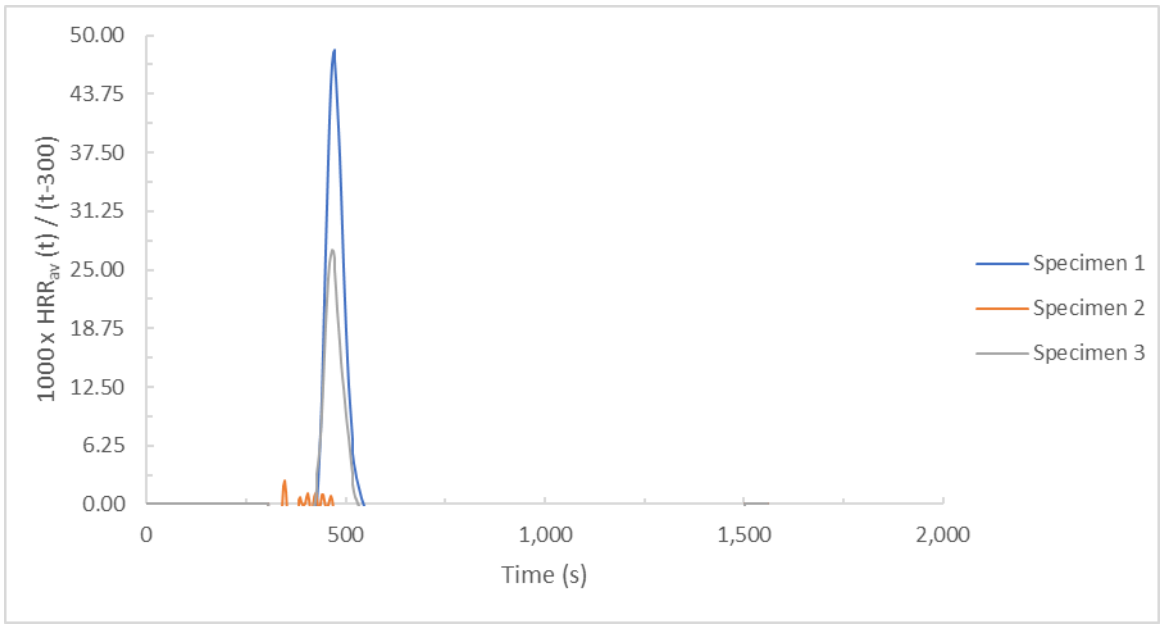

Figure 3 1000 x HRR_{av} (t) / (t-300) vs time

A.4 Smoke production rate

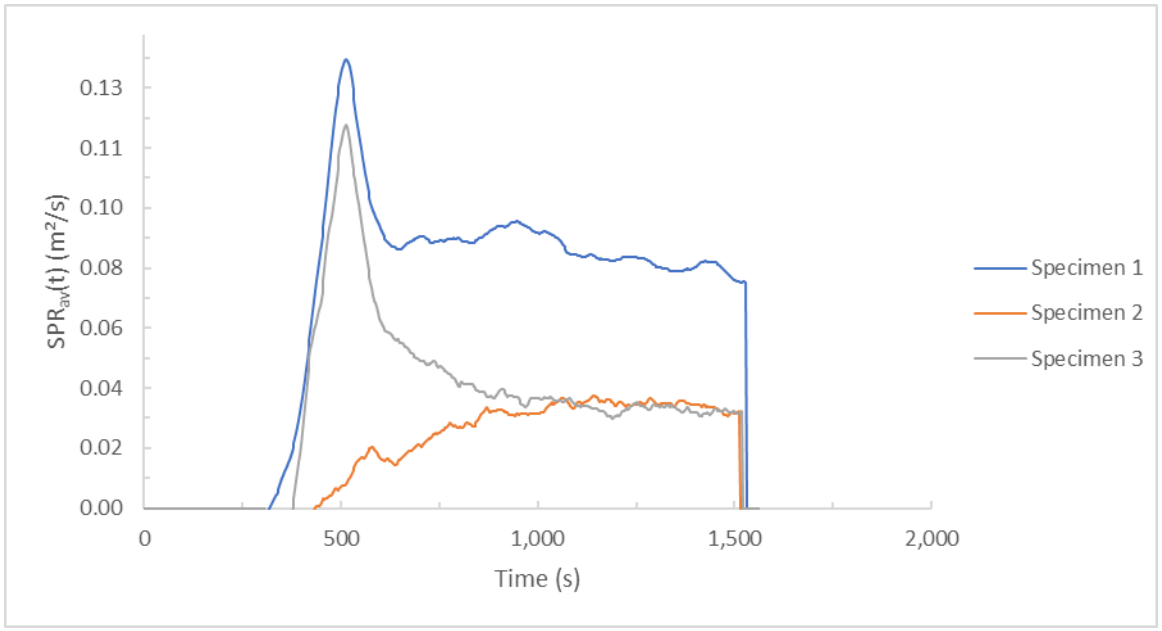

Figure 4 Smoke production rate vs time

A.5 Total smoke production

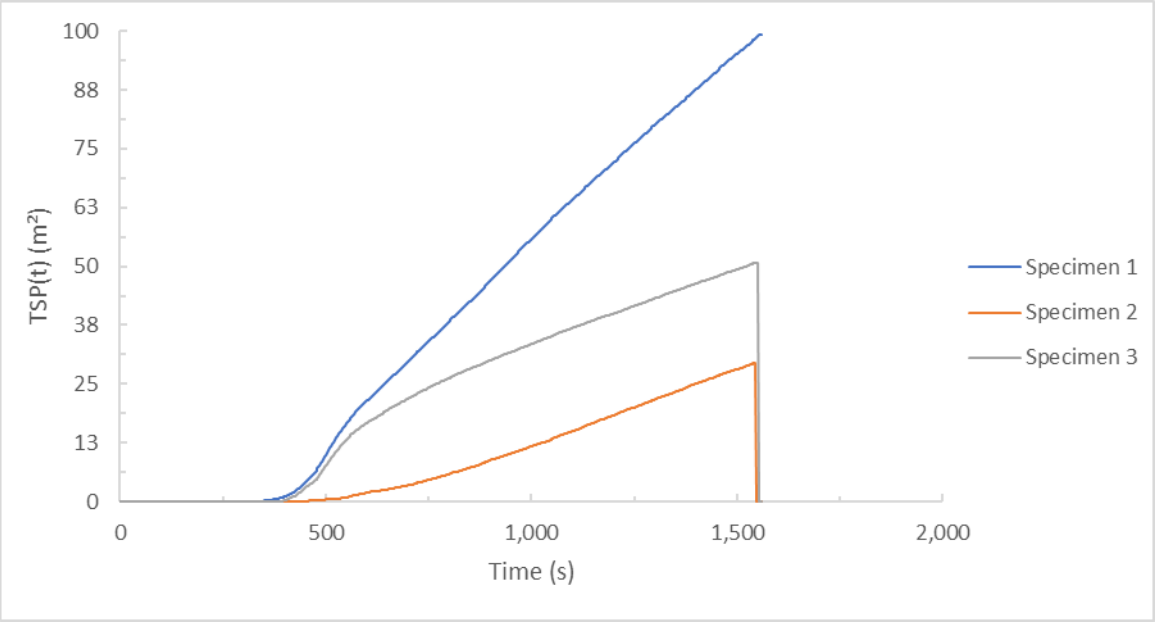

Figure 5 Total smoke production vs time

A.6 10000 x SPR_{av} (t) / (t-300)

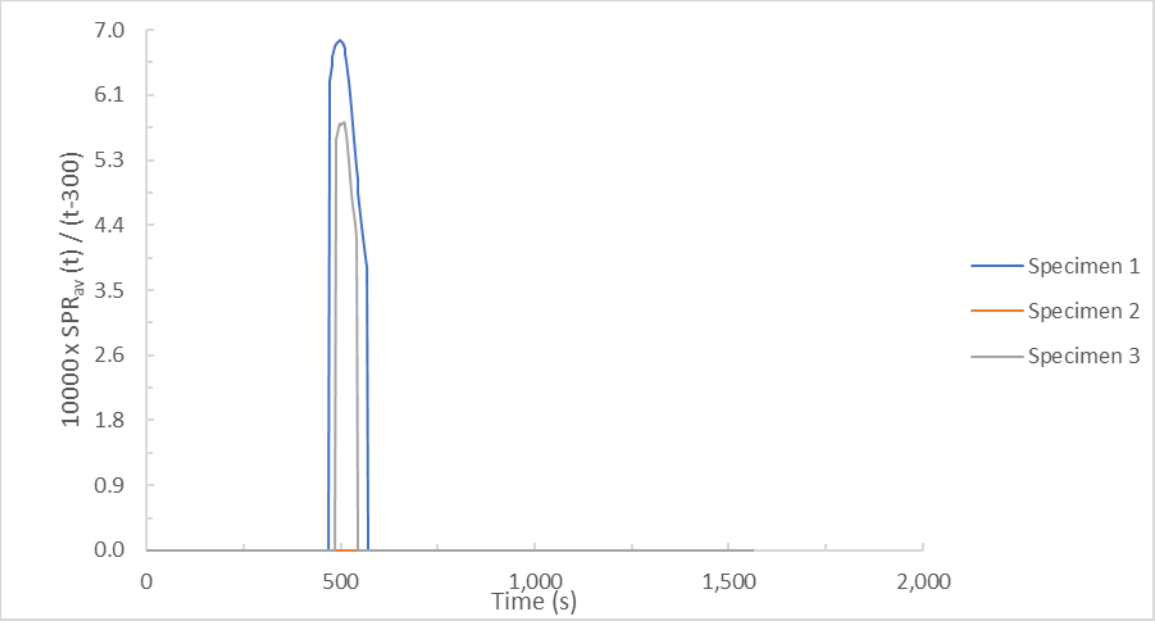

Figure 6 10000 x SPR_{av} (t) / (t-300) vs time

Appendix B Test specimen photographs

Figure 7: Total view of the exposed surface of the long wing prior to testing

Figure 8: Close up view of the vertical outer edge of the long wing at a height of 500mm prior to testing

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