

Reaction to fire test report

Warringtonfire Testing and Certification Limited

Test standard: EN 13823:2020

Test sponsor(s): Zenova Ltd


Product(s): Zenova IP applied to plasterboard

Report number: 504282

Test date: 27 May 2021

Version: 1

Quality management

Version	Date	Summary of amendments including reasons	
1	29 September 2021	Description	Initial issue
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		*Signed for and on behalf of Warringtonfire	

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1. Introduction

This report documents the findings of the reaction to fire test of Zenova IP applied to plasterboard in accordance with EN 13823:2020. The testing was done on 27 May 2021.

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

Table 1 Test sponsor details

Test sponsor	Address
Zenova Ltd	101 Kings Road Brentwood, CM14 4DR UK

2. Test specimens

The description of the test specimens in Table 2 has been prepared from the information provided by the test sponsor, unless otherwise specified:

- The information was provided by the test sponsor
- All measurements were taken by Warringtonfire
- All values quoted are nominal

Table 2 Test specimen description

General description		ZENOVA IP Painted on plasterboard
Product reference of overall composite		"Zenova IP"
Name of manufacturer of overall composite		Zenova Ltd
Thickness of overall composite		13 mm (stated by sponsor)
Weight per unit area of overall composite		8.11kg/m ² (determined by Warringtonfire)
Coating (test face)	Generic type	Water-based insulation paint consisting of a mixture of polymers, dispersants and organic compounds
	Product reference	"Zenova IP"
	Name of manufacturer	Zenova Ltd
	Colour reference	"White"
	Number of coats	One
	Application rate	See Note 1 below
	Thickness	0.5mm
	Specific gravity	See Note 1 below
	Application method	Spray gun
	Curing process per coat	2 hours per coat under controlled temperature max 24 hrs
	Flame retardant details	See Note 2 below
Substrate	Generic type	Gypsum plasterboard
	Product reference	"010156"
	Name of manufacturer	See Note 1 below
	Thickness	12.5mm
	Density	See Note 1 below
Flame retardant details	See Note 2 below	
Brief description of manufacturing process		See Note 1 below

Note 1: The sponsor was unwilling to provide this information.

Note 2: The sponsor of the test has confirmed that no flame retardant additives were utilised in the production of the component.

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 19 May 2021. Before testing, the test specimens were conditioned in accordance with the requirements of EN 13238 at a temperature of 23 ± 2 °C and a relative humidity of $50 \pm 5\%$ for a minimum period of 48 hours, until constant mass was achieved.
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	Insulation paint
Test face	The coated 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 material samples.

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	46	97	83	75
FIGRA (THR(t) threshold of 0.4MJ)	W/s	0	27	34	20
THR _{600s}	MJ	0.5	1.2	1.3	1.0
Lateral flame spread to edge of test specimen?	-	No	No	No	No
Smoke production					
SMOGRA	m ² /s ²	0	0	0	0
TSP _{600s}	m ²	18	26	21	22
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	6	Discolouration of 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
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
26	0	End of test conditions. All flaming ceased.

5. Application of test results

5.1 Validity

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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 measurements

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

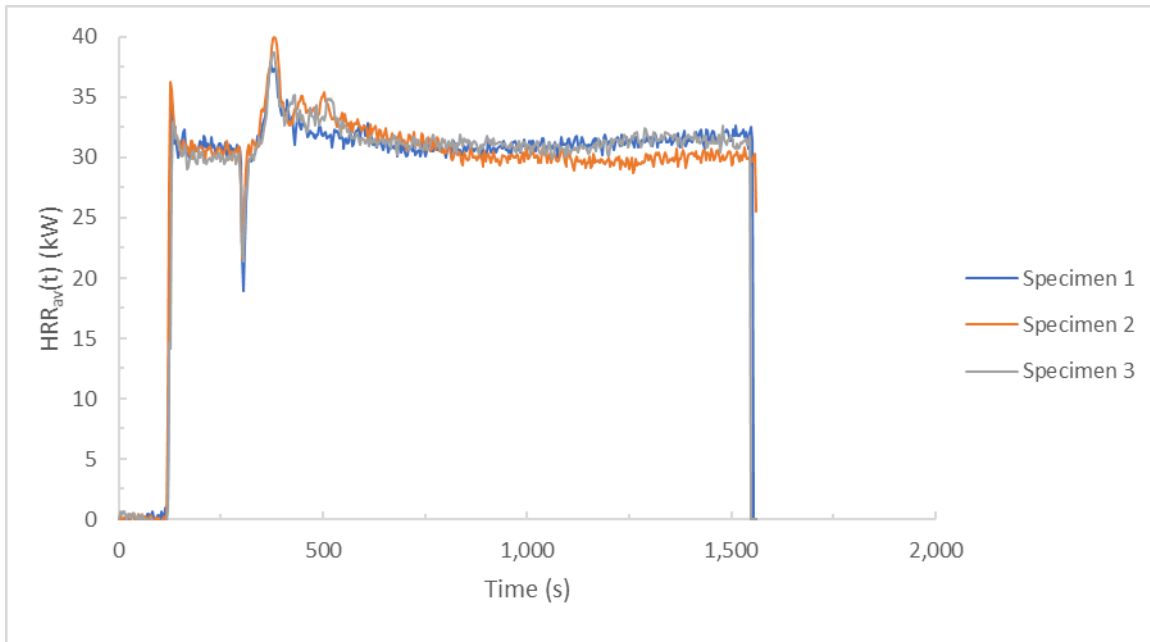


Figure 1 Heat release rate vs time

A.2 Total heat release

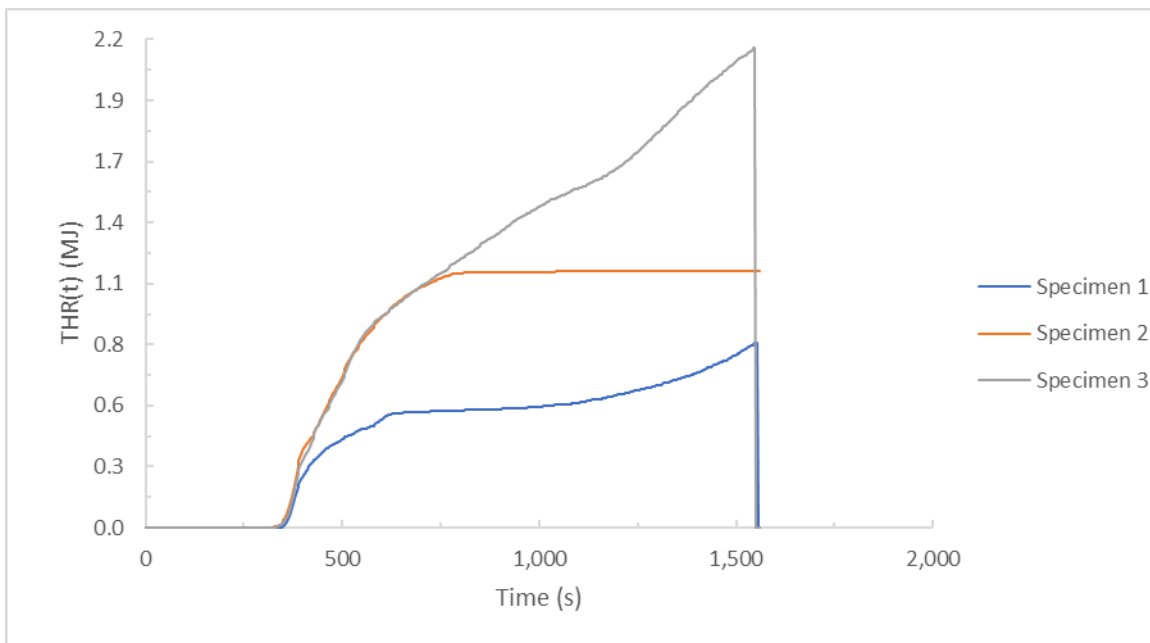


Figure 2 Total heat release vs time

A.3 $1000 \times \text{HRR}_{\text{av}}(t) / (t-300)$

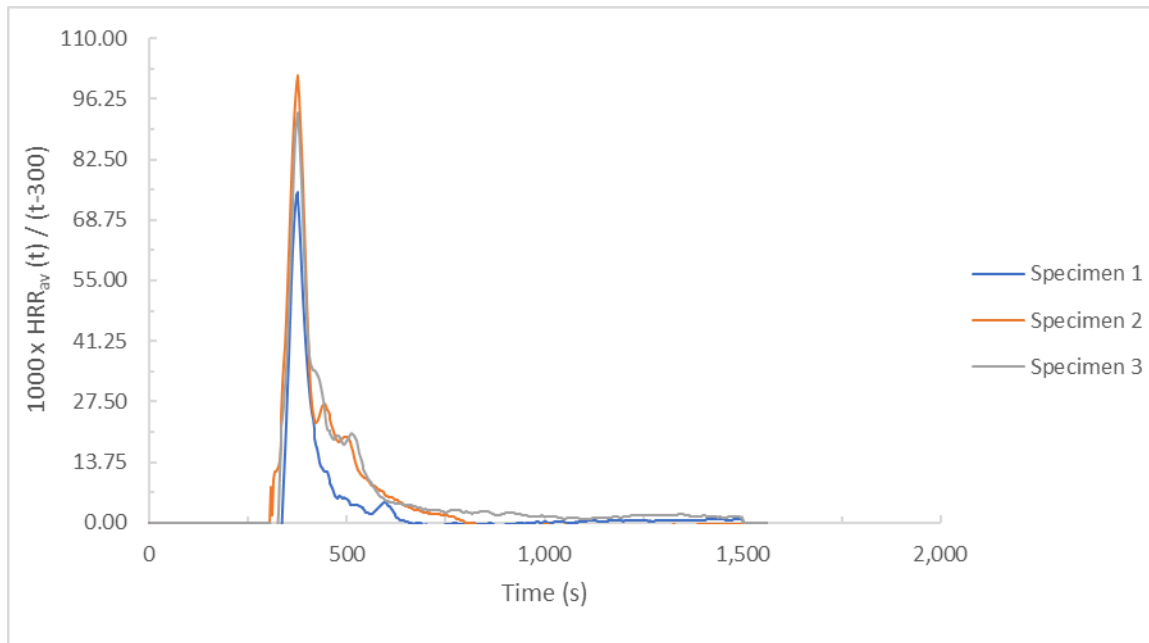


Figure 3 $1000 \times \text{HRR}_{\text{av}}(t) / (t-300)$ vs time

A.4 Smoke production rate

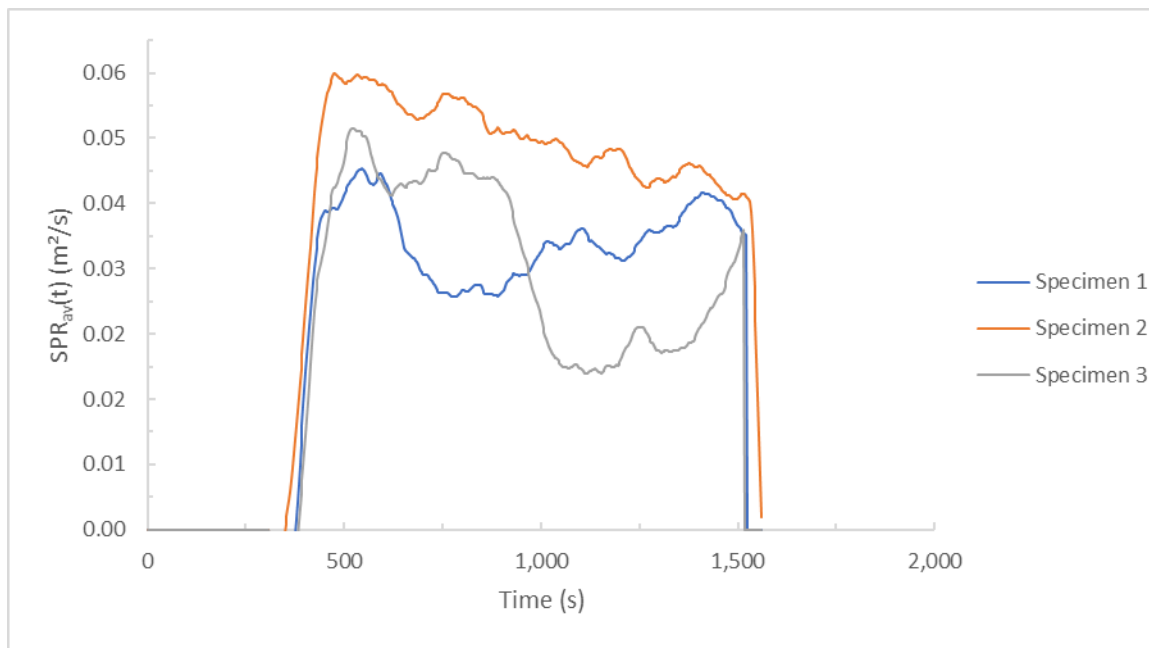


Figure 4 Smoke production rate vs time

A.5 Total smoke production

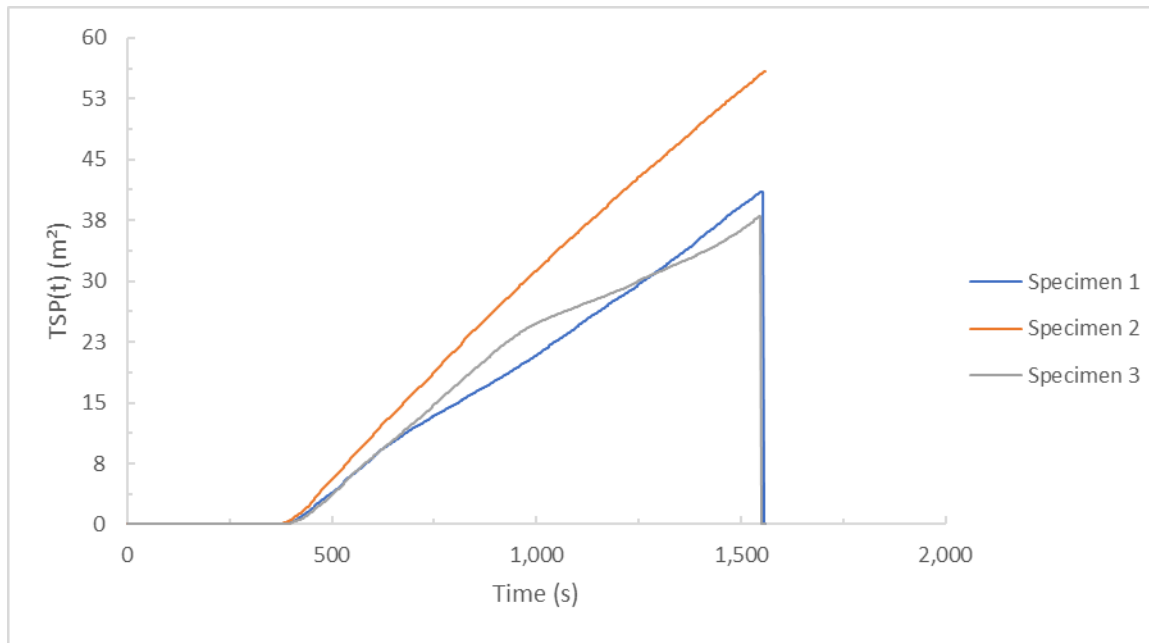


Figure 5 Total smoke production vs time

A.6 $10000 \times \text{SPR}_{\text{av}}(t) / (t-300)$

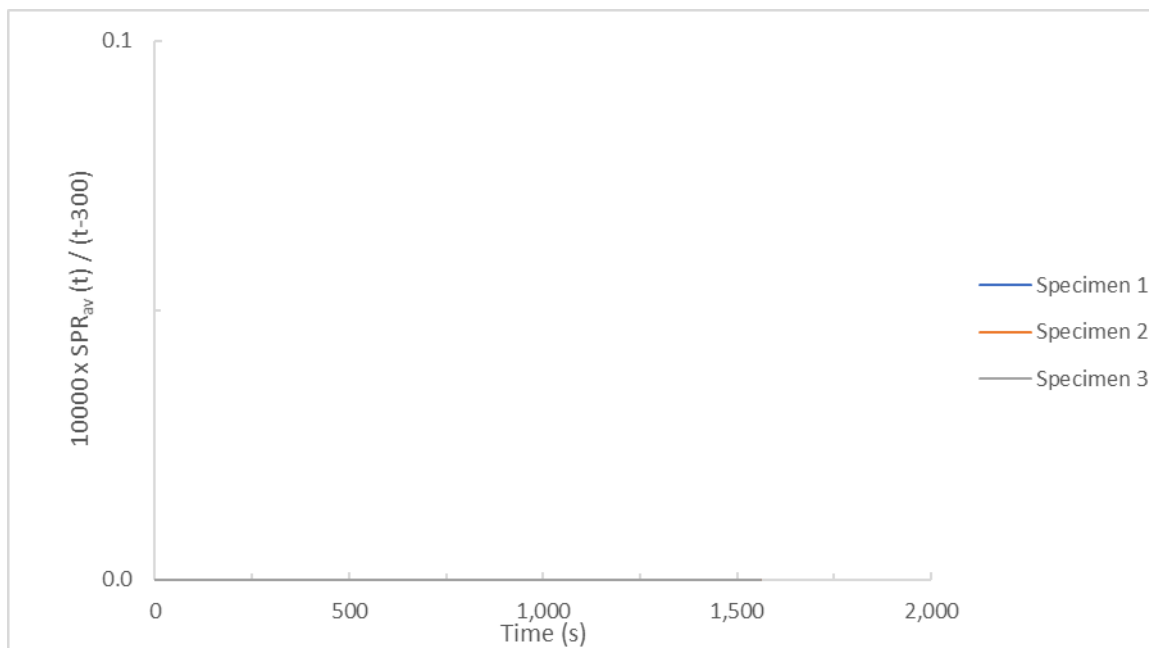


Figure 6 $10000 \times \text{SPR}_{\text{av}}(t) / (t-300)$ vs time

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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