

**Title:**

CLASSIFICATION OF REACTION TO FIRE  
PERFORMANCE  
IN ACCORDANCE WITH  
BS EN 13501-1: 2018.

**Product Name:**

"ALPOLIC™ A1, ALPOLIC™ NC"

**Report No:**

WF 505465

**Issue No:**

1

**Prepared for:**

Mitsubishi Polyester Film GmbH, Alpolic  
Division  
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**Date:**

7<sup>th</sup> July 2021

## 1. Introduction

This classification report defines the classification assigned to "ALPOLIC™ A1, ALPOLIC™ NC", a family of aluminium composite panel products, in line with the procedures given in BS EN 13501-1: 2018.

## 2. Details of classified product

### 2.1 General

The products, "ALPOLIC™ A1, ALPOLIC™ NC", are defined as being suitable for construction applications, excluding flooring and linear pipe thermal insulation.

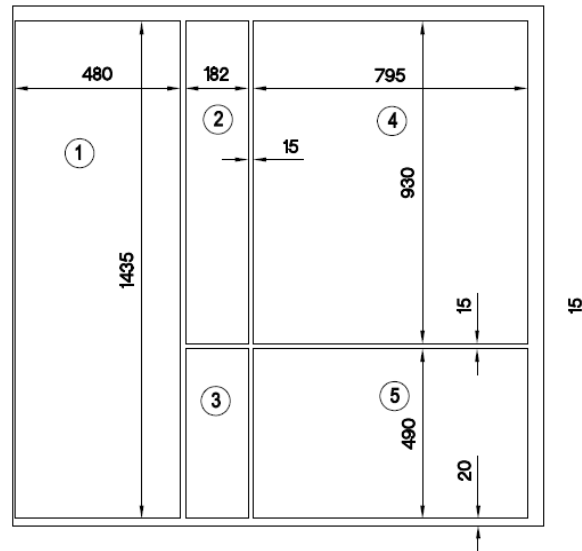
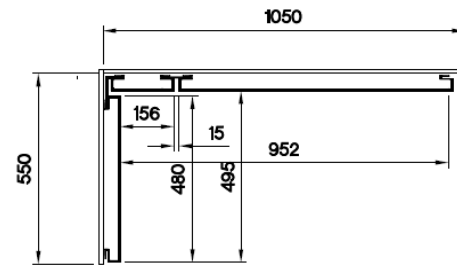
### 2.2 Product description

The products, "ALPOLIC™ A1, ALPOLIC™ NC", are fully described below and in the test reports provided in support of classification listed in Clause 3.1.

General description	Aluminium composite panel – cassette fixed or face fixed (flat)
Product reference of composite	"ALPOLIC™ NC" or "ALPOLIC™ A1"
Colour reference of composite	Any
Thickness of composite	4mm
Weight per unit area of composite	8.6kg/m <sup>2</sup>
Thickness of cassette	42.72mm (determined by Warringtonfire)

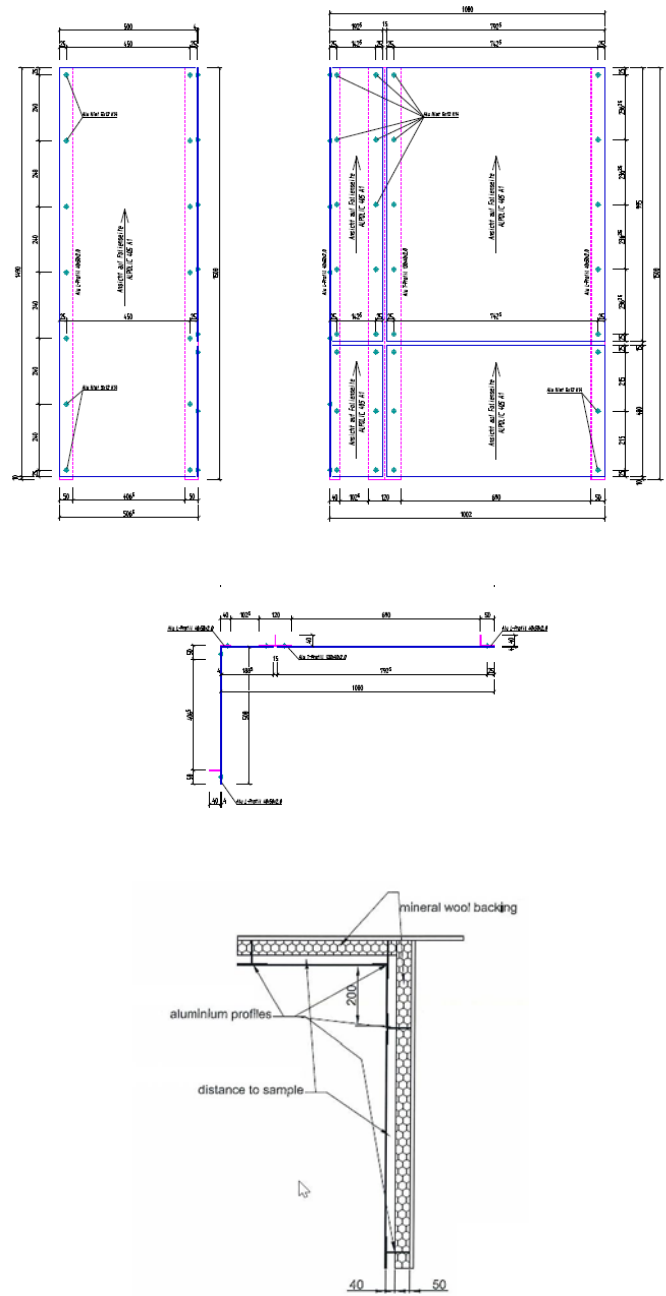
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BS EN 13823 Configuration - Cassette form







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BS EN 13823 Configuration - Face fix (flat)  
form



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<p>Photographic example of specimens, indicating fixing method – cassette form</p>			
<p>Photographic example of specimens, indicating fixing method – face fix (flat) form</p>			
<p>Top coat (test face)</p>	<p>Product reference</p>	<p><b>See Note 1 below</b></p>	
	<p>Generic type</p>	<p>Lumiflon-based FEVE type fluorocarbon coating</p>	
	<p>Name of manufacturer</p>	<p><b>See Note 1 below</b></p>	
	<p>Colour reference</p>	<p>"Clear"</p>	
	<p>Number of coats</p>	<p><b>See Note 1 below</b></p>	
	<p>Specific gravity</p>	<p><b>See Note 1 below</b></p>	
	<p>Application thickness</p>	<p>22microns</p>	
	<p>Application rate</p>	<p>30.8g /m<sup>2</sup></p>	
	<p>Application method</p>	<p>Coil coated</p>	
	<p>Curing process</p>	<p>Oven cure</p>	
<p>Flame retardant details</p>	<p><b>See Note 2 below</b></p>		

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Base coat	Product reference	<b>See Note 1 below</b>
	Generic type	Lumiflon-based FEVE type fluorocarbon coating
	Name of manufacturer	<b>See Note 1 below</b>
	Colour reference	Any
	Number of coats	One
	Specific gravity	<b>See Note 1 below</b>
	Application rate	47.3g/m <sup>2</sup> (Sparkling White) 40.5g/m <sup>2</sup> (Sparkling Black) 36.5g/m <sup>2</sup> (Sparkling Red)
	Application thickness	25 microns
	Application method	Coil coated
	Curing process	Oven cure
	Flame retardant details	<b>See Note 2 below</b>
Primer coat	Product reference	<b>See Note 1 below</b>
	Generic type	Polyester coating
	Name of manufacturer	<b>See Note 1 below</b>
	Colour reference	"White"
	Number of coats	One
	Specific gravity	<b>See Note 1 below</b>
	Application thickness	7 microns
	Application rate	11.6 g/m <sup>2</sup>
	Application method	Coil coated
	Curing process	Oven cure
Flame retardant details	<b>See Note 2 below</b>	
Aluminium	Product reference	<b>See Note 1 below</b>
	Generic type	Aluminium
	Name of manufacturer	<b>See Note 1 below</b>
	Thickness	0.5mm
	Weight per unit area	1.355kg/m <sup>2</sup>
	Flame retardant details	The aluminium is inherently flame retardant
Corrosion control coat	Product reference	<b>See Note 1 below</b>
	Generic type	Epoxy coating
	Name of manufacturer	<b>See Note 1 below</b>
	Colour reference	"Yellow Green"
	Number of coats	One
	Specific gravity	<b>See Note 1 below</b>
	Application thickness	<b>See Note 1 below</b>
	Application rate	10.3g/m <sup>2</sup>
	Application method	Coil coated
	Curing process	Oven cure
Flame retardant details	<b>See Note 2 below</b>	

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Adhesive	Product reference	<b>See Note 1 below</b>
	Generic type	Modified polyolefin
	Name of manufacturer	<b>See Note 1 below</b>
	Colour reference	"Clear"
	Thickness	<b>See Note 1 below</b>
	Weight per unit area	24.4g/m <sup>2</sup>
	Flame retardant details	<b>See Note 2 below</b>
Core	Product reference	<b>See Note 1 below</b>
	Generic type	Non combustible core
	Name of manufacturer	"ALPOLIC™ NC core"
	Thickness	3mm
	Weight per unit area	5.9kg/m <sup>2</sup>
	Colour reference	"White"
	Trade name of flame retardant	<b>See Note 1 below</b>
	Generic type of flame retardant	Inorganic filler
Amount of flame retardant	<b>See Note 1 below</b>	
Adhesive	Product reference	<b>See Note 1 below</b>
	Generic type	Modified polyolefin
	Name of manufacturer	<b>See Note 1 below</b>
	Colour reference	"Clear"
	Thickness	<b>See Note 1 below</b>
	Weight per unit area	24.4g/m <sup>2</sup>
	Flame retardant details	<b>See Note 2 below</b>
Corrosion control coat	Product reference	<b>See Note 1 below</b>
	Generic type	Epoxy coating
	Name of manufacturer	<b>See Note 1 below</b>
	Colour reference	"Yellow Green"
	Number of coats	<b>See Note 1 below</b>
	Specific gravity	1.72
	Application thickness	6 microns
	Application rate	10.3g/m <sup>2</sup>
	Application method	Coil coated
	Curing process	Oven cure
Flame retardant details	<b>See Note 2 below</b>	
Aluminium	Product reference	<b>See Note 1 below</b>
	Generic type	Aluminium
	Name of manufacturer	<b>See Note 1 below</b>
	Thickness	0.5mm
	Weight per unit area	1.355kg/m <sup>2</sup>
Flame retardant details	The aluminium is inherently flame retardant	

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Primer coat	Product reference	<b>See Note 1 below</b>
	Generic type	Polyester coating
	Name of manufacturer	<b>See Note 1 below</b>
	Colour reference	"White"
	Number of coats	One
	Specific gravity	<b>See Note 1 below</b>
	Application thickness	7 microns
	Application rate	11.6g/m <sup>2</sup>
	Application method	Coil coated
	Curing process	Oven cure
	Flame retardant details	<b>See Note 2 below</b>
Base coat (Optional)	Product reference	<b>See Note 1 below</b>
	Generic type	Lumiflon-based FEVE type fluorocarbon coating
	Name of manufacturer	<b>See Note 1 below</b>
	Colour reference	Any
	Number of coats	One
	Specific gravity	<b>See Note 1 below</b>
	Application rate	47.3g/m <sup>2</sup> (Sparkling White) 40.5g/m <sup>2</sup> (Sparkling Black) 36.5g/m <sup>2</sup> (Sparkling Red)
	Application thickness	25 microns
	Application method	Coil coated
	Curing process	Oven cure
	Flame retardant details	<b>See Note 2 below</b>
Top coat (reverse face) (Optional)	Product reference	<b>See Note 1 below</b>
	Generic type	Lumiflon-based FEVE type fluorocarbon coating
	Name of manufacturer	<b>See Note 1 below</b>
	Colour reference	"Clear"
	Number of coats	One
	Specific gravity	<b>See Note 1 below</b>
	Application thickness	22 microns
	Application rate	30.8g/m <sup>2</sup>
	Application method	Coil coated
	Curing process	Oven cure
Flame retardant details	<b>See Note 2 below</b>	
Mounting and fixing details	<p>In the case of WF 505099 (Issue 2) a 40mm ventilated cavity was situated between the reverse face of the specimens and the mineral wool substrate (basked by a calcium silicate backing board) as specified in EN 13238: 2010</p> <p>In the case of all other specimens tested, a calcium silicate substrate was situated behind the reverse face of the specimens such that a 40mm air gap was created between the back of the specimens and the substrate.</p>	

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Joint details	The specimens incorporated vertical and horizontal joints as detailed in EN 13823
Brief description of manufacturing process	<b>See Note 1 below</b>

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

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

### 3. Test reports/extended application reports & test results in support of classification

#### 3.1 Test reports/extended application reports

Name of Laboratory	Name of sponsor	Test reports/extended application report Nos.	Test method / extended application rules & date
Warringtonfire	Mitsubishi Chemical Corporation	WF 419327, WF 419328, WF 419329, WF 419330, WF 419331, WF 419332, WF 419334, WF 419335	BS EN ISO 1716:2018
Warringtonfire	Mitsubishi Chemical Corporation	WF 419761 - ISSUE 3 WF 419762 - ISSUE 3	BS EN ISO 1716:2018 Composite report
Warringtonfire	Mitsubishi Chemical Corporation	WF 422939 - ISSUE 3 (formal) WF 422937, WF 422938 (indicative)	BS EN 13823:2010+A1:2014
Warringtonfire	Mitsubishi Polyester Film GmbH	WF 505063-ISSUE 2, WF 505097-ISSUE 2, WF 505099-ISSUE 2 (indicative)	BS EN 13823: 2020
Warringtonfire	Mitsubishi Chemical Corporation	WF 417086-ISSUE 2	BS EN ISO 1182:2010
Warringtonfire	Mitsubishi Chemical Corporation	WF 423155-ISSUE 3	BS EN 13501-1: 2018
Warringtonfire	Mitsubishi Chemical Corporation	WF 423088 – ISSUE 3, WF 505466	BS EN 15117:2005 BS EN 15725:2010

### 3.2 Test results

Test method & test number	Parameter	No. tests		Results	
				Continuous parameter - mean (m)	Compliance parameters
EN 13823	FIGRA <sub>0.2MJ</sub>	3	WF 422939 - ISSUE 3	0 W/s	-
		1	WF 422937	0 W/s	-
		1	WF 422938	0 W/s	-
		1	WF 505063- ISSUE 2	0 W/s	-
		1	WF 505097- ISSUE 2	0 W/s	-
		1	WF 505099- ISSUE 2	0 W/s	-
	FIGRA <sub>0.4MJ</sub>	3	WF 422939 - ISSUE 3	0 W/s	-
		1	WF 422937	0 W/s	-
		1	WF 422938	0 W/s	-
		1	WF 505063- ISSUE 2	0 W/s	-
		1	WF 505097- ISSUE 2	0 W/s	-
		1	WF 505099- ISSUE 2	0 W/s	-
	THR <sub>600s</sub>	3	WF 422939 - ISSUE 3	0.4 MJ	-
		1	WF 422937	0.3 MJ	-
		1	WF 422938	0.3 MJ	-
		1	WF 505063- ISSUE 2	0.3 MJ	-
		1	WF 505097- ISSUE 2	0.3 MJ	-
		1	WF 505099- ISSUE 2	0.1 MJ	-
	LFS	3	WF 422939 - ISSUE 3	-	Compliant
		1	WF 422937	-	Compliant
		1	WF 422938	-	Compliant
		1	WF 505063- ISSUE 2	-	Compliant
		1	WF 505097- ISSUE 2	-	Compliant
		1	WF 505099- ISSUE 2	-	Compliant

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EN 13823 (continued)	SMOGRA	3	WF 422939 - ISSUE 3	0 m <sup>2</sup> s <sup>2</sup>	-
		1	WF 422937	0 m <sup>2</sup> s <sup>2</sup>	-
		1	WF 422938	0 m <sup>2</sup> s <sup>2</sup>	-
		1	WF 505063- ISSUE 2	0 m <sup>2</sup> s <sup>2</sup>	-
		1	WF 505097- ISSUE 2	0 m <sup>2</sup> s <sup>2</sup>	-
		1	WF 505099- ISSUE 2	0 m <sup>2</sup> s <sup>2</sup>	-
	TSP <sub>600s</sub>	3	WF 422939 - ISSUE 3	3 m <sup>2</sup>	-
		1	WF 422937	2 m <sup>2</sup>	-
		1	WF 422938	6 m <sup>2</sup>	-
		1	WF 505063- ISSUE 2	8 m <sup>2</sup>	-
		1	WF 505097- ISSUE 2	18 m <sup>2</sup>	-
		1	WF 505099- ISSUE 2	17 m <sup>2</sup>	-
	Fall of Flaming Droplet/Particle?	3	WF 422939 - ISSUE 3	-	Compliant
		1	WF 422937	-	Compliant
		1	WF 422938	-	Compliant
		1	WF 505063- ISSUE 2	-	Compliant
		1	WF 505097- ISSUE 2	-	Compliant
		1	WF 505099- ISSUE 2	-	Compliant
	Flaming of Fallen Particle Exceeding 10s?	3	WF 422939 - ISSUE 3	-	Compliant
		1	WF 422937	-	Compliant
		1	WF 422938	-	Compliant
		1	WF 505063- ISSUE 2	-	Compliant
		1	WF 505097- ISSUE 2	-	Compliant
		1	WF 505099- ISSUE 2	-	Compliant

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BS EN ISO 1716*	Top coating - PCS (b)	3	0.5955 MJ/m <sup>2</sup>	-
	Base coating – PCS (b)		0.6203 MJ/m <sup>2</sup> (Black) 0.5905 MJ/m <sup>2</sup> (White) 0.6380 MJ/m <sup>2</sup> (Red)	-
	Primer coating- PCS (b)		0.2063 MJ/m <sup>2</sup>	-
	Aluminium - PCS (a)		Deemed to satisfy – (0.0000 MJ/kg)	-
	Corrosion control coating – PCS (d)		0.1717 MJ/m <sup>2</sup>	-
	Adhesive – PCS (d)		1.1160 MJ/m <sup>2</sup>	-
	Core material – PCS (a)		0.5691 MJ/kg	-
	Adhesive– PCS (d)		1.1160 MJ/m <sup>2</sup>	-
	Corrosion control coating– PCS (d)		0.1717 MJ/m <sup>2</sup>	-
	Aluminium - PCS (a)		Deemed to satisfy – (0.0000 MJ/kg)	-
	Primer coating- PCS (b)		0.2063 MJ/m <sup>2</sup>	-
	Base coating – PCS (b)		0.6203 MJ/m <sup>2</sup> (Black) 0.5905 MJ/m <sup>2</sup> (White) 0.6380 MJ/m <sup>2</sup> (Red)	-
	Top coating - PCS (b)		0.5955 MJ/m <sup>2</sup>	-
	Non-substantial External components – PCS (b/c)		N/a	≤ 1.4398 MJ/m <sup>2</sup>
	Non-substantial Internal components – PCS (d)	N/a	1.2877 MJ/m <sup>2</sup>	-
	Product as a Whole with optional back coating– PCS (e)	N/a	≤0.9973 MJ/kg	-
Product as a Whole without optional back coating– PCS (e)	N/a	≤0.8643 MJ/kg	-	
BS EN ISO 1182 - "ALPOLIC™ NC core"	Furnace thermocouple temperature rise	5	2.9 °C	-
	Duration of sustained flaming (seconds)		None	-
	Mass Loss (%)		33.96 %	-

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\* Although the product does not demonstrate a PCS value of  $<2.0$  MJ/kg for the external non-substantial components, they do demonstrate a total value of  $<2.0$  MJ/m<sup>2</sup>. This is compliant with A1 Classification when used in conjunction with the A1 criteria for BS EN 13823 test performance, which is FIGRA  $<20$  W/s, THR  $<4.0$  MJ, LFS  $<$ End of specimen and s1 and d0 smoke and droplet criteria. The EN 1182 test on the "ALPOLIC™ NC core", the only substantial component that must demonstrate A1 performance by testing, proves the A1 Classification of the product.

#### **4. Classification and field of application**

##### **4.1 Reference of classification**

This classification has been carried out in accordance with clause 8 of BS EN 13501-1: 2018, EAD 090062-00-0404: 2018, BS EN 15725: 2010 and EN/TS 15117: 2005.

##### **4.2 Classification**

The products, "ALPOLIC™ A1, ALPOLIC™ NC", a family of aluminium composite panel products, in relation to their reaction to fire behaviour is classified:

## **Reaction to fire classification: A1**

##### **4.3 Field of application**

This classification is valid for the following end use applications:

- i) Construction applications applied over any substrate with a minimum density of  $652.5\text{kg/m}^3$ , having a minimum thickness of 9mm and a fire performance of A2-s1,d0 or better with the cassette or face fix mounting and fixing arrangement as tested (ie aluminium framing)
- ii) Construction applications applied over a mineral wool substrate having a density of  $30\text{-}70\text{kg/m}^3$ , and a minimum thickness of 50mm and a fire performance of A2-s1,d0 or better with the cassette or face fix mounting and fixing arrangement as tested (ie aluminium framing)
- iii) Air gap details:  $\geq 40\text{mm}$  allowed

This classification is also valid for the following product parameters:

Base coat colour	Any variation allowed
Coatings (reverse face)	Allowed with or without base and topcoats (as described)
Coating application rate	No variation allowed
Product composition	No further variation allowed
Product construction	No further variation allowed
Air gap details	≥40mm allowed
Joint details	Valid with and without vertical and horizontal joints, up to 15mm spacing
Panel form	Cassette or flat (face fix) as described
Framing	Valid for aluminium framing system
Mounting and fixing arrangement	Valid for mounting arrangements with the cassette or flat sheet as described

## 5. Limitations

This document does not represent type approval or certification of the product.

**SIGNED**



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**Stacey Deeming**

Principal Engineer  
Technical Department

**APPROVED**



.....

**Matthew Dale**

Principal Certification Engineer  
Technical Department  
on behalf of [Warringtonfire](#)

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