

Title:

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

Notified Body No:

0833

Product Name:

"Thermaset Limited Polyester Powder
Coatings"

Report No:

WF 424509

Issue No:

2

Prepared for:

Thermaset Ltd.,
Claire Works,
Anders,
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Date:

12th February 2020

1. Introduction

This classification report defines the classification assigned to "Thermaset Limited Polyester Powder Coatings", a family of coated aluminium or steel sheet products comprising a polyester powder coating applied to each face of an aluminium or steel substrate, in line with the procedures given in EN 13501-1: 2018.

2. Details of classified product

2.1 General

The product, "Thermaset Limited Polyester Powder Coatings", is defined as being suitable for construction applications, excluding flooring and linear pipe thermal insulation.

2.2 Product description

The product, "Thermaset Limited Polyester Powder Coatings", is fully described below and in the test reports provided in support of classification listed in Clause 3.1.

General description		Polyester powder coating applied to both faces of an aluminium or steel sheet	
Product reference of system		"Thermaset Limited Polyester Powder Coatings"	
Overall thickness of composite (coated aluminium – formal test)		1.06mm (determined by Warringtonfire)	
Overall weight per unit area of composite (coated aluminium – formal test)		2.82 kg/m ² (determined by Warringtonfire)	
Coating	Product reference	"TLP-9797-G", "TLQ-G033-S", "TLQ-0004-M", "TLQ-G003-G", "TLQ-9034-G" (as tested)	
	Generic type	Polyester	
	Name of manufacturer	Thermaset Ltd	
	Colour	"Black", "Yellow", "White" (as tested)	
	Colour reference	"RAL 9005", "RAL 9010", "RAL 1028" (as tested)	
	Number of coats	One	
	Application thickness	80 microns	
	Specific gravity	1.4 - 1.6 (varies by coating type / colour)	
	Weight per unit area	112-128g/m ² (based on varying s.g.)	
	Application method	Electrostatic spray	
	Curing process	Gloss: 10 minutes at 180°C metal temperature Semi-gloss & Matt: 10 minutes at 200°C metal temperature	
Flame retardant details	See Note 1 below		
Substrate	Product reference	"Aluminium"	"Steel"
	Generic type	Aluminium	Steel
	Name of manufacturer	AALCO	John Tainton
	Thickness	1mm	0.8mm
	Weight per unit area	2.71 kg/m ²	6.28kg/m ²
	Flame retardant details	This component is inherently flame retardant	

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Coating (Reverse face)	Product reference	"TLP-9797-G", "TLQ-G033-S", "TLQ-0004-M", "TLQ-G003-G", "TLQ-9034-G" (as tested)
	Generic type	Polyester
	Name of manufacturer	Thermaset Ltd
	Colour	"Black", "Yellow", "White" (as tested)
	Colour reference	"RAL 9005", "RAL 9010", "RAL 1028" (as tested)
	Number of coats	One
	Application thickness	80 microns
	Specific gravity	1.4 - 1.6 (varies by coating type / colour)
	Weight per unit area	112-128g/m ² (based on varying s.g.)
	Application method	Electrostatic spray
	Curing process	Gloss: 10 minutes at 180°C metal temperature Semi-gloss & Matt: 10 minutes at 200°C metal temperature
Flame retardant details	See Note 1 below	
Mounting and fixing details	The specimens were tested with a 12mm thick calcium silicate substrate, having a density of 870kg/m ³ , butted up against the reverse face. Additional testing was also performed on a specimen with an 80mm ventilated cavity situated behind the reverse face and the calcium silicate board.	
Brief description of manufacturing process	Resins, pigments etc are blended then hot melt extruded. The extrudate is cold rolled and kibbled before grinding to a powder ready for spraying	

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

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	Thermaset Ltd.	WF 423725 & 423726	EN 1716: 2018
Warringtonfire	Thermaset Ltd.	WF 424417 & 424419	EN 1716: 2018 composite reports
Warringtonfire	Thermaset Ltd.	Formal: WF 423220 Indicative: WF 422577, 422576, 421746 & 421743	EN 13823: 2010 + A1: 2014
Warringtonfire	Thermaset Ltd.	WF 424510	BS EN 15725 & EN/TS 15117

3.2 Test results

Test method & test number	Parameter	No. tests	Results	
			Continuous parameter - mean (m)	Compliance parameters
EN 13823	FIGRA _{0.2MJ}	Formal test average	28.46 W/s	-
		Indicative 1	0.00 W/s	
		Indicative 2	29.51 W/s	
		Indicative 3	48.23 W/s	
		Indicative 4	0.00 W/s	
		Indicative 5	0.00 W/s	
	Indicative 6	24.76 W/s		
	FIGRA _{0.4MJ}	Formal test average	14.79 W/s	-
		Indicative 1	0.00 W/s	
		Indicative 2	0.00 W/s	
		Indicative 3	34.19 W/s	
		Indicative 4	0.00 W/s	
		Indicative 5	0.00 W/s	
	THR _{600s}	Formal test average	0.65 MJ	-
		Indicative 1	0.35 MJ	
		Indicative 2	0.55 MJ	
		Indicative 3	0.71 MJ	
		Indicative 4	0.20 MJ	
Indicative 5		0.76 MJ		
Indicative 6	0.88 MJ			

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EN 13823 (continued)	LFS	Formal test average	None	-
		Indicative 1	None	
		Indicative 2	None	
		Indicative 3	None	
		Indicative 4	None	
		Indicative 5	None	
	Indicative 6	None		
	SMOGRA	Formal test average	4.58 m ² /s ²	-
		Indicative 1	0.00 m ² /s ²	
		Indicative 2	0.00 m ² /s ²	
		Indicative 3	0.00 m ² /s ²	
		Indicative 4	0.00 m ² /s ²	
		Indicative 5	0.00 m ² /s ²	
	TSP _{600s}	Formal test average	34.38 m ²	-
		Indicative 1	31.42 m ²	
		Indicative 2	25.94 m ²	
		Indicative 3	15.85 m ²	
		Indicative 4	22.85 m ²	
Indicative 5		39.42 m ²		
EN ISO 1716	Coating - PCS (c)	3, 3	2.3979 MJ/m ² 2.5942 MJ/m ²	-
	Aluminium / Steel – PCS (a)	Deemed to satisfy (0.00)		-
	Coating - PCS (c)	3, 3	2.3979 MJ/m ² 2.5942 MJ/m ²	-
	For the product as a whole PCS (e) - aluminium	Summary result	1.6345 MJ/kg 1.7493 MJ/kg	-
	For the product as a whole PCS (e) - steel	Summary result	0.7374 MJ/kg 0.7938 MJ/kg	

4. Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with clause 8 of EN 13501-1: 2018.

4.2 Classification

The product, "Thermaset Limited Polyester Powder Coatings", a family of coated aluminium or steel sheet products comprising a polyester powder coating applied to each face of an aluminium or steel substrate, in relation to its reaction to fire behaviour is classified:

A2

The additional classification in relation to smoke production is:

s1

The additional classification in relation to flaming droplets / particles is:

d0

The format of the reaction to fire classification for construction applications, excluding flooring and linear pipe thermal insulation is:

Fire Behaviour		Smoke Production			Flaming Droplets	
A2	-	s	1	,	d	0

i.e. **A2 – s1 , d0**

Reaction to fire classification: A2 – s1, d0

4.3 Field of application

This classification is valid for the following end use applications:

- i) Construction applications used over any substrate with a density equal to or greater than 870kg/m³, having a minimum thickness of 12mm and a fire performance of A2 or better (excluding paper faced gypsum plasterboard).
- ii) Free standing construction applications.

This classification is also valid for the following product parameters:

Coating thickness	Up to 80microns (per face)
Coating specific gravity	1.4-1.6
Coating weight per unit area	112-128g/m ²
Coating colour	Any colour allowed (providing the same generic type of coating is applied at the same thickness or less and the same application rate or less)
Coating gloss level	Any gloss level (matt, semi-gloss, gloss) as detailed above
Coating type	No variation allowed
Product composition	No variation allowed other than detailed above
Product construction	No variation allowed

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



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Katie Williams
Junior Certification Engineer
Technical Department
on behalf of Warringtonfire

Issue 2: Revised 13th May 2020 by S Deeming. Additional testing has been conducted on a coated steel product and incorporated in order to extend the field of application of the product range.

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