



Classification Report

from

Efectis

Marlon ST | 4-35mm | Clear

by

BRETT MARTIN LTD

Classification by EN 13501-1: 2018

Reference: EUI-23-000272

Classification: B s1 d0

REACTION TO FIRE - CLASSIFICATION REPORT EUI-23-000272

1. INTRODUCTION

This classification report defines the classification assigned to MARLON ST in accordance with the procedures given in BS EN 13501-1:2018.

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

Sponsor : BRETT MARTIN Limited
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Approved Body No: 2822

Product name: Flat multiwall polycarbonate
Referenced: MARLON ST

Classification report No.: EUI-23-000272

Issue number: 1

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2. DOCUMENT TRACKING

Revision Index.	Modification
0	Original document

3. DESCRIPTION OF THE PRODUCT

3.1. GENERAL

The product, MARLON ST, is defined as light transmitting flat multiwall polycarbonate (PC) sheet according to the product standard BS EN 16153:2013+A1:2015 – Light transmitting flat multiwall polycarbonate (PC) sheets for internal and external use in roofs, walls and ceilings. Requirements and test methods.

3.2. PRODUCT DESCRIPTION

The product, MARLON ST is described below or is described in the reports provided in support of classification listed in 4.1.

Product description	
Trade mark	MARLON ST
Composition	Flat polycarbonate+ coextruded UV protection wall. Several structures are available, see Appendix 1.
Colour	Clear
4mm Twinwall	Thickness: 4 mm Mass per unit area: 0.7 kg/m ² Top/Bottom skin thickness: 0.18 mm
8mm Fourwall	Thickness: 8 mm Mass per unit area: 1.5 kg/m ² Top/Bottom skin thickness: 0.38 mm Web thickness: 0.4 mm Upright thickness: 0.4 mm
10mm Twinwall	Thickness: 10 mm Mass per unit area: 1.7 kg/m ² Top/Bottom skin thickness: 0.45 mm Upright thickness: 0.4 mm
10mm Fourwall	Thickness: 10 mm Mass per unit area: 1.7 kg/m ² Top/Bottom skin thickness: 0.45 mm Web thickness: 0.35 mm Upright thickness: 0.3 mm
16 X wall	Thickness: 16 mm Mass per unit area: 2.5 kg/m ² Top/Bottom skin thickness: 0.45 mm Web thickness: 0.07 mm Upright thickness: 0.25 mm
16mm Triplewall	Thickness: 16 mm Mass per unit area: 2.7 kg/m ² Top/Bottom skin thickness: 0.65 mm

	Web thickness: 0.15 mm Upright thickness: 0.55 mm
16mm 7 Wall	Thickness: 16 mm Mass per unit area: 2.5 kg/m ² Top/Bottom skin thickness: 0.52 mm Web thickness: 0.055 mm Upright thickness: 0.4 mm
16mm x 32M-Wall	Thickness: 16 mm Mass per unit area: 4 kg/m ² Top/Bottom skin thickness: 1.1 mm Web thickness: 0.2 mm Upright thickness: 0.7 mm
25mm 7X wall	Thickness: 25 mm Mass per unit area: 3.1 kg/m ² Top/Bottom skin thickness: 0.65 mm Web thickness: 0.06 mm Upright thickness: 0.4 mm
32mm 7 wall	Thickness: 32 mm Mass per unit area: 3.6 kg/m ² Top/Bottom skin thickness: 0.7 mm Web thickness: 0.1 mm Upright thickness: 0.55 mm
32mm 9 wall	Thickness: 32 mm Mass per unit area: 3.6 kg/m ² Top/Bottom skin thickness: 0.6 mm Web thickness: 0.6 mm Upright thickness: 0.55 mm
35mm 7 wall	Thickness: 35 mm Mass per unit area: 3.9 kg/m ² Top/Bottom skin thickness: 0.75 mm Web thickness: 0.08 mm Upright thickness: 0.52 mm

4. REPORTS AND RESULTS IN SUPPORT OF THIS CLASSIFICATION

4.1. REPORTS

Name of Laboratory	Name of sponsor	Report ref. no	Test method and date field of application rules and date
EFFECTIS UK/Ireland	BRETT MARTIN Limited	EUI-23-SBI-000272	BS EN 13823 : 2020
EFFECTIS FRANCE	BRETT MARTIN Limited	EFR-23-000800-SF	NF EN ISO 11925-2 : 2020

4.2. RESULTS

Test method and test number	Parameter	No. Tests ^{a)}	Results	
			Continuous parameter - mean (m)	Compliance with parameters
BS EN 13823 : 2020 EUI-23-SBI-000272 4mm Twinwall	FIGRA _{0,2 MJ} (W/s)	3	0.00	-
	FIGRA _{0,4 MJ} (W/s)		0.00	-
	THR _{600 s} (MJ)		0.07	-
	LFS		-	Compliant
	SMOGRA		0.00	-
	TSP _{600s} (m ²)		4.96	-
Flaming droplets or particles	-	Compliant		
BS EN 13823 : 2020 EUI-23-SBI-000272 8mm Fourwall	FIGRA _{0,2 MJ} (W/s)	1	0.00	-
	FIGRA _{0,4 MJ} (W/s)		0.00	-
	THR _{600 s} (MJ)		0.15	-
	LFS		-	Compliant
	SMOGRA		0.00	-
	TSP _{600s} (m ²)		0.55	-
Flaming droplets or particles	-	Compliant		
BS EN 13823 : 2020 EUI-23-SBI-000272 10mm Twinwall	FIGRA _{0,2 MJ} (W/s)	1	0.00	-
	FIGRA _{0,4 MJ} (W/s)		0.00	-
	THR _{600 s} (MJ)		0.14	-
	LFS		-	Compliant
	SMOGRA		0.00	-

	TSP _{600s} (m ²)		1.71	-
	Flaming droplets or particles		-	Compliant
BS EN 13823 : 2020 EUI-23-SBI-000272 10mm Fourwall	FIGRA _{0,2 MJ} (W/s)	1	0.00	-
	FIGRA _{0,4 MJ} (W/s)		0.00	-
	THR _{600 s} (MJ)		0.04	-
	LFS		-	Compliant
	SMOGRA		0.00	-
	TSP _{600s} (m ²)		4.96	-
	Flaming droplets or particles		-	Compliant
BS EN 13823 : 2020 EUI-23-SBI-000272 16 X wall	FIGRA _{0,2 MJ} (W/s)	1	0.00	-
	FIGRA _{0,4 MJ} (W/s)		0.00	-
	THR _{600 s} (MJ)		0.07	-
	LFS		-	Compliant
	SMOGRA		0.00	-
	TSP _{600s} (m ²)		2.65	-
	Flaming droplets or particles		-	Compliant
BS EN 13823 : 2020 EUI-23-SBI-000272 16mm Triplewall	FIGRA _{0,2 MJ} (W/s)	1	0.00	-
	FIGRA _{0,4 MJ} (W/s)		0.00	-
	THR _{600 s} (MJ)		0.05	-
	LFS		-	Compliant
	SMOGRA		0.00	-
	TSP _{600s} (m ²)		2.12	-

	Flaming droplets or particles		-	Compliant
BS EN 13823 : 2020 EUI-23-SBI-000272 16mm 7 wall	FIGRA _{0,2 MJ} (W/s)	1	0.00	-
	FIGRA _{0,4 MJ} (W/s)		0.00	-
	THR _{600 s} (MJ)		0.17	-
	LFS		-	Compliant
	SMOGRA		0.00	-
	TSP _{600s} (m ²)		2.30	-
Flaming droplets or particles			-	Compliant
BS EN 13823 : 2020 EUI-23-SBI-000272 16mm X 32M-wall	FIGRA _{0,2 MJ} (W/s)	1	0.00	-
	FIGRA _{0,4 MJ} (W/s)		0.00	-
	THR _{600 s} (MJ)		0.11	-
	LFS		-	Compliant
	SMOGRA		0.00	-
	TSP _{600s} (m ²)		0.88	-
Flaming droplets or particles			-	Compliant
BS EN 13823 : 2020 EUI-23-SBI-000272 25mm 7X wall	FIGRA _{0,2 MJ} (W/s)	1	0.00	-
	FIGRA _{0,4 MJ} (W/s)		0.00	-
	THR _{600 s} (MJ)		0.09	-
	LFS		-	Compliant
	SMOGRA		0.00	-
	TSP _{600s} (m ²)		7.33	-

	Flaming droplets or particles		-	Compliant
BS EN 13823 : 2020 EUI-23-SBI-000272 32mm 7 wall	FIGRA _{0,2 MJ} (W/s)	1	0.00	-
	FIGRA _{0,4 MJ} (W/s)		0.00	-
	THR _{600 s} (MJ)		0.24	-
	LFS		-	Compliant
	SMOGRA		0.00	-
	TSP _{600s} (m ²)		3.01	-
Flaming droplets or particles		-	Compliant	
BS EN 13823 : 2020 EUI-23-SBI-000272 32mm 9 wall	FIGRA _{0,2 MJ} (W/s)	1	0.00	-
	FIGRA _{0,4 MJ} (W/s)		0.00	-
	THR _{600 s} (MJ)		0.13	-
	LFS		-	Compliant
	SMOGRA		0.00	-
	TSP _{600s} (m ²)		5.17	-
Flaming droplets or particles		-	Compliant	
BS EN 13823 : 2020 EUI-23-SBI-000272 35mm 7 wall	FIGRA _{0,2 MJ} (W/s)	3	0.00	-
	FIGRA _{0,4 MJ} (W/s)		0.00	-
	THR _{600 s} (MJ)		0.10	-
	LFS		-	Compliant
	SMOGRA		0.00	-
	TSP _{600s} (m ²)		5.32	-

	Flaming droplets or particles		-	Compliant
NF EN ISO 11925-2 : 2020 EFR-23-000800-SF	Fs	6	-	Compliant
	Filter paper		-	Compliant

a) Not for extended application
 (-) means not applicable

Note : second and third trials of 4mm Twinwall and 35mm 7 wall were performed in accordance with BS EN 13823:2020+A1:2022 – Reaction to fire tests for building products – Building products excluding floorings exposed to thermal attack by a single burning item.

5. CLASSIFICATION AND FIELD OF APPLICATION

5.1. REFERENCE OF CLASSIFICATION

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

5.2. CLASSIFICATION

The product, MARLON ST, in relation to its reaction to fire behaviour is classified:
B

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 products excluding floorings and linear pipe thermal insulation products is:

Fire behaviour		Smoke production				Flaming droplets
B	-	s	1	,	d	0

i.e.B-s1,d0

Reaction to fire classification	B-s1,d0
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5.3. FIELD OF APPLICATION

According to the standard BS EN 16153:2013+A1:2015, this classification is valid for the following product parameters and end-use applications:

Thickness	Valid for the thickness range of 4 - 35 mm
Colour	Valid for only clear colours
Type of product	Valid for tested type of product only (same formulation) as described in section 3.2 and listed in Appendix 1.
Cavity/airgap	Valid for installation with an air gap \geq 80 mm
Orientation	Valid for multiwall polycarbonate sheet laid vertically

6. LIMITATIONS

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

“The classification assigned to the product in this report is appropriate to a declaration of conformity by the manufacturer within the context of system 3 attestation of conformity and UKCA/UKNI marking under the Construction Products Regulation.

The manufacturer has made a declaration, which is held on file. This confirms that the products design requires no specific processes, procedures or stages (e.g. no addition of flame-retardants, limitation of organic content, or addition of fillers) that are aimed at enhancing the fire performance in order to obtain the classification achieved. As a consequence the manufacturer has concluded that system 3 attestation is appropriate.

The test laboratory has, therefore, played no part in sampling the product for the test, although it holds appropriate references, supplied by the manufacturer, to provide for traceability of the samples tested.”

SIGNED




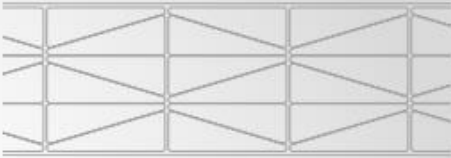

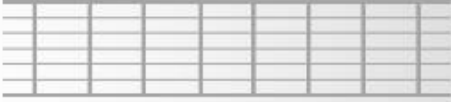



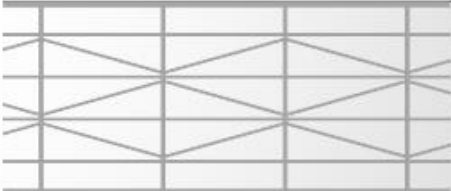

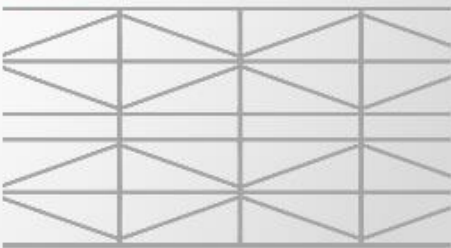
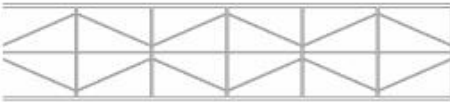
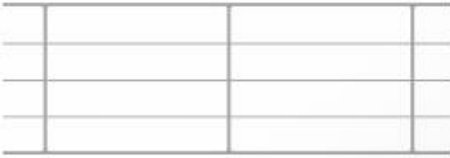
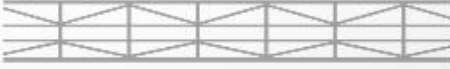
Hamed Zoghi
Project Leader

APPROVED



Damien Flammier
Technical Manager

APPENDIX 1 – STRUCTURES OF WALLS

<p>Twinwall (Twin) Thicknesses 4, 6, 8, 10 & 30mm</p> 	<p>7X Wall (7X) Thicknesses 20mm & 25mm</p> 
<p>Fourwall (Four) Thicknesses 8mm & 10mm</p> 	<p>Sevenwall (Seven) Thicknesses 16, 32 & 35mm</p> 
<p>Triplewall (Triple) Thickness 16mm</p> 	<p>XX wall (XX) Thicknesses 32 & 35mm</p> 
<p>M Wall (M) Thickness 16mm</p> 	<p>Ninewall Thickness 32mm</p> 
<p>16x32mm M Wall (M) Improved Clarity</p> 	<p>Tenwall Thickness 35, 40 & 55mm</p> 
<p>X Wall (X) Thickness 16mm</p> 	
<p>Fivewall (Five) Thicknesses 16 & 25mm</p> 	
<p>Sixwall (Six) Thickness 10mm</p> 	

APPENDIX 2 – INFORMATIONS

		Marlon ST Sheet Thickness (mm)																			
		4	6	8	10	10	16	16	20	25	25	30	30	32	32	35	35	40	40	55	
Structure	Twin Twin Twin Four Twin Four Six Triple Five M M X Seven 7X 7X Five Twin XX Seven Nine XX Seven Ten Ten																				
Sheet thickness mm (±0.5)	4 6 8 8 10 10 10 10 16 16 16 16 16 16 20 20 25 25 30 32 32 32 35 35 35 40 55																				
Rib spacing (nominal) mm	6 6 10 10 12.5 10 12.5 11.3 20 20 17.5 32 12.4 14 20 20 20 20 35 16 20 20 16 20 20 20 20 20																				
Maximum Sheet width mm	2100 2100 2100 2100 2100 2100 2100 2100 2100 1250 1220 2100 2100 2100 2100 2100 2100 1250 1250 1250 980 2100 1250 1250 1250 1250																				
Approx weight g/m ²	800 1300 1500 1500 1700 1700 1700 2700 2700 2800 4000 2500 2500 2800 3100 3400 3500 3800 3600 3600 4200 3900 3900 4200 5000																				
Light transmission %																					
Clear S	85 82 82 74 82 74 70 77 69 73 74 66 64 62 62 68 77 64 64 57 67 63 54 54 52																				
Bronze B	28 26 20 21 20 20 - 18 16 - - - - 7 11 18 11 7 - 11 7 - - -																				
Opal V	39 39 39 39 40 34 - 42 39 35 39 - - 28 28 30 37 40 33 - 33 31 35 33 32																				
U-value W/M ² K	3.9 3.7 3.4 2.8 3.2 2.5 2.4 2.4 1.9 2.2 2.5 2.0 1.78 1.6 1.4 1.6 2.6 1.4 1.25 1.2 1.4 1.2 1.08 0.99 0.83																				
Falling dart Gardiner impact at 23°C Nm	21.3 27 >27																				