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Testing. Advising. Assuring.

Title:

CLASSIFICATION OF
REACTION TO FIRE
PERFORMANCE
IN ACCORDANCE WITH
EN 13501-1:2007+A1: 2009.

Notified Body No:

0833

Product Name:

"Makrolon multi UV 5M/32-
20 Clear 1099"

Report No:

194540

Issue No:

1

Prepared for:

Bayer Sheet Europe GmbH
Certification
Otto-Hesse-Strasse
19/T9
64293
Darmstadt
Germany

Date:

19th July 2010

1. Introduction

This classification report defines the classification assigned to "Makrolon multi UV 5M/32-20 Clear 1099", an extruded multi-wall polycarbonate sheet, in line with the procedures given in EN 13501-1:2007+A1: 2009.

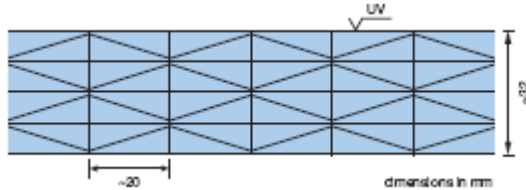
2. Details of classified product

2.1 General

The product, "Makrolon multi UV 5M/32-20 Clear 1099", an extruded multi-wall polycarbonate sheet, is defined as being suitable for construction applications, excluding flooring and linear pipe thermal insulation.

2.2 Product description

The product, "Makrolon multi UV 5M/32-20 Clear 1099", an extruded multi-wall polycarbonate sheet, is fully described below and in the test reports provided in support of classification listed in Clause 3.1.

General description		Extruded multi-wall polycarbonate sheet
Trade Name		"Makrolon multi UV 5M/32-20 Clear 1099"
Name of manufacturer		Bayer Sheet Europe GmbH
Overall thickness		32 mm (stated by sponsor) 32.13 mm (determined by Exova Warringtonfire)
Overall weight per unit area		3.70 kg/m ² (stated by sponsor) 3.79 kg/m ² (determined by Exova Warringtonfire)
Orientation of ribs for purpose of test		Vertical
Diagram of cross section of multi-wall wall polycarbonate sheet		
Skin Non U.V. (test face)	Generic type	"Makrolon" Polycarbonate
	Density	1200 kg/m ³
	Composition details	Polycarbonate
	Thickness	See Note 1
	Colour reference	"Clear 1099"
	Flame retardant details	See Note 2

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Inner skin	Generic type	"Makrolon" Polycarbonate
	Density	1200 kg/m ³
	Composition details	Polycarbonate
	Thickness	See Note 1
	Colour reference	"Clear 1099"
	Flame retardant details	See Note 2
	Location	See Note 1
Inner skin	Generic type	"Makrolon" Polycarbonate
	Density	1200 kg/m ³
	Composition details	Polycarbonate
	Thickness	See Note 1
	Colour reference	"Clear 1099"
	Flame retardant details	See Note 2
	Location	See Note 1
Inner skin	Generic type	"Makrolon" Polycarbonate
	Density	1200 kg/m ³
	Composition details	Polycarbonate
	Thickness	See Note 1
	Colour reference	"Clear 1099"
	Flame retardant details	See Note 2
	Location	See Note 1
Ribs	Generic type	"Makrolon" Polycarbonate
	Density	1200 kg/m ³
	Composition details	Polycarbonate
	Thickness	See Note 1
	Colour reference	"Clear 1099"
	Flame retardant details	See Note 2
	Rib spacing (center to center)	20 mm
Cross ribs	Generic type	"Makrolon" Polycarbonate
	Density	1200 kg/m ³
	Composition details	Polycarbonate
	Thickness	See Note 1
	Colour reference	"Clear 1099"
	Flame retardant details	See Note 2
Outer, UV protected skin (reverse face)	Generic type	"Makrolon" Polycarbonate
	Density	1200 kg/m ³
	Composition details	Polycarbonate
	Thickness	See Note 1
	Colour reference	"Clear 1099"
	Flame retardant details	See Note 2
	UV protection details	Outer layer containing high proportion of UV-absorber

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Brief description of manufacturing process	Extrusion process
Mounting and fixing details	The specimens were tested clamped into a "window" frame manufactured from 5mm steel sheet. A one piece, 'L' shaped frame was placed into the test position with the product butted up behind it. A rectangular shaped frame was then butted up behind each wall of the sample and clamped into place at the top and bottom. 5mm thick steel angle (40mm x 40mm) was placed along the full length of the unexposed edge of the corner joint and clamped into position to secure it utilising bars at the top and bottom of the angle, each extending 200mm along each wing such that each could be retained by the clamps nearest to the corner joint.
Air space details	A 180mm ventilated cavity was situated between the reverse face of each specimen and the backing board

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

Note 2 – The sponsor stated that no flame retardant additives were utilised in the construction of the component.

3. Test reports & test results in support of classification

3.1 Test reports

Name of Laboratory	Name of sponsor	Test reports/extended application report Nos.	Test method / extended application rules & date
Exova warringtonfire	Bayer Sheet Europe GmbH	WF 194497	EN ISO 11925-2
Exova warringtonfire	Bayer Sheet Europe GmbH	WF 194500	EN 13823

3.2 Test results

Test method & test number		Parameter	No. tests	Results	
				Continuous parameter - mean (m)	Compliance parameters
EN ISO 11925-2	30s exposure - surface	F _s	6	Nil	Compliant
		Flaming droplets/ particles		None	Compliant
	30s exposure – edge	F _s	6	20	Compliant
		Flaming droplets/ particles		Yes	Compliant See note 1
EN 13823		FIGRA _{0.2MJ}	3	1.22	Compliant
		FIGRA _{0.4 MJ}		1.22	Compliant
		THR _{600s}		0.44	Compliant
		LFS		Nil	Compliant
		SMOGRA		0.30	Compliant
		TSP _{600s}		29.97	Compliant

Note 1 – Although the product referenced “Makrolon multi UV 5M/32-20 Clear 1099” has produced flaming droplets during the test, the product is deemed to be compliant if the product is installed with sealed edges. Failure to seal the edges correctly during installation could lead to flaming droplets falling from the product in the event of exposure to fire.

4. Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with clause 8 of EN 13501-1:2007+A1:2009.

4.2 Classification

The product, "Makrolon multi UV 5M/32-20 Clear 1099", an extruded multi-wall polycarbonate sheet, 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 is:

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

i.e. **B – s1 , d0**

Reaction to fire classification: B – s1 , d0

The flaming droplet classification of **d0** awarded to "Makrolon multi UV 5M/32-20 Clear 1099", can only be achieved when the product is installed with sealed edges. Failure to seal the edges correctly during installation could lead to flaming droplets falling from the product in the event of exposure to fire.

4.3 Field of application

This classification is valid for the following end use applications:

- i) Construction applications mechanically installed without the presence of a substrate and with a minimum air gap of 180mm.
- ii) Installation of the panel shall ensure that the edges are sealed.

This classification is also valid for the following product parameters:

Product thickness	No variation allowed
Product weight per unit area	No variation allowed
Product composition	No variation allowed
Product construction	No variation allowed
Product colour	No variation allowed
Product installation	No exposed edges allowed

5. Limitations

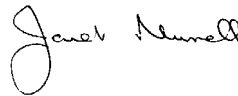
This document does not represent type approval or certification of the product

SIGNED



.....
Matthew Dale
Certification Engineer

APPROVED



.....
Janet Murrell
Technical Manager
For and on behalf of:
Exova Warringtonfire

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