

## ***Reaction to fire classification report Nr 15397E***

### **Owner of the classification report**

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### **Introduction**

This classification report defines the classification assigned to the product '**Lexan Thermoclear**' in accordance with the procedures given in the standard EN 13501-1+A1: 2009: Fire classification of construction products and building elements - Part 1: classification using data from reaction to fire tests.

**This classification report consists of 9 pages**

## 1. DETAILS OF CLASSIFIED PRODUCT

### a) Nature and end use application

The product **Lexan Thermoclear** is defined as a 'polycarbonate multi wall'.  
Its classification is valid for the following end use application(s):  
'Exterior glazing applications'.

### b) Description

The tested product is a polycarbonate multi-wall sheet.

|                                     | Nominal values                       |
|-------------------------------------|--------------------------------------|
| <b>Lexan Thermoclear LT2UV 4mm</b>  |                                      |
| Structure                           | 2-wall rectangular (image 1 below)   |
| Coating                             | Standard UV-coating                  |
| Colour                              | Standard clear color (112)           |
| Organic pigment loading (%)         | 0.000                                |
| Thickness (mm)                      | 4                                    |
| Surface mass (g/m <sup>2</sup> )    | 800                                  |
| <b>Lexan Thermoclear LT2UV 16mm</b> |                                      |
| Structure                           | 3-wall rectangular (image 2 below)   |
| Coating                             | Standard UV-coating                  |
| Colour                              | Standard clear color (112)           |
| Organic pigment loading (%)         | 0.000                                |
| Thickness (mm)                      | 16                                   |
| Surface mass (g/m <sup>2</sup> )    | 2700                                 |
| <b>Lexan Thermoclear LT2UV 16mm</b> |                                      |
| Structure                           | 3-wall rectangular (image 2 below)   |
| Coating                             | Standard UV-coating                  |
| Colour                              | Standard opal white color (WH7A092X) |
| Organic pigment loading (%)         | 0.186                                |
| Thickness (mm)                      | 16                                   |
| Surface mass (g/m <sup>2</sup> )    | 2700                                 |

| <b>Lexan Thermoclear LT2UV 3X 16mm</b> |                                    |
|--|------------------------------------|
| Structure                              | 3-wall X-structure (image 3 below) |
| Coating                                | Standard UV-coating                |
| Colour                                 | Standard clear color (112)         |
| Organic pigment loading (%)            | 0.000                              |
| Thickness (mm)                         | 16                                 |
| Surface mass (g/m <sup>2</sup> )       | 2800                               |
| <b>Lexan Thermoclear LTD3TS 16mm</b>   |                                    |
| Structure                              | 3-wall rectangular (image 2 below) |
| Coating                                | Drippgard                          |
| Colour                                 | Standard clear color (112)         |
| Organic pigment loading (%)            | 0.000                              |
| Thickness (mm)                         | 16                                 |
| Surface mass (g/m <sup>2</sup> )       | 2700                               |
| <b>Lexan Thermoclear LTD2RS 20mm</b>   |                                    |
| Structure                              | 6-wall S-structure (image 4 below) |
| Coating                                | Drippgard                          |
| Colour                                 | Standard clear color (112)         |
| Organic pigment loading (%)            | 0.000                              |
| Thickness (mm)                         | 20                                 |
| Surface mass (g/m <sup>2</sup> )       | 3000                               |
| <b>Lexan Thermoclear LT2XP 20mm</b>    |                                    |
| Structure                              | 6-wall S-structure (image 4 below) |
| Coating                                | Sun XP                             |
| Colour                                 | Standard clear color (112)         |
| Organic pigment loading (%)            | 0.000                              |
| Thickness (mm)                         | 20                                 |
| Surface mass (g/m <sup>2</sup> )       | 3000                               |

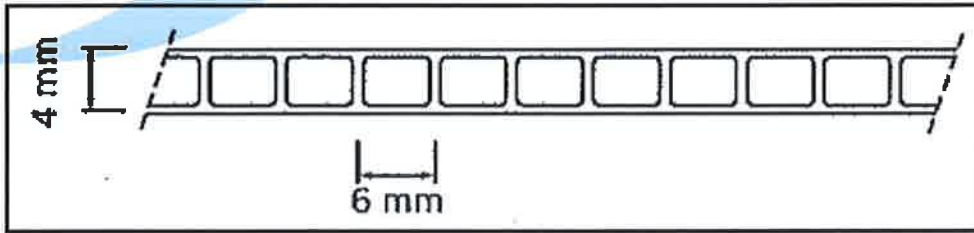


Image 1: 2-wall Rectangular

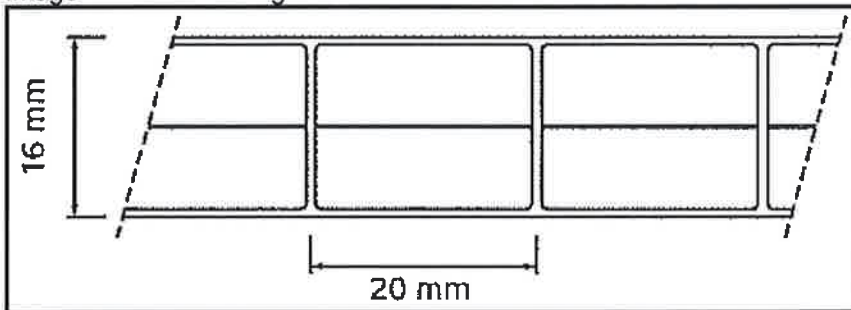


Image 2: 3-wall Rectangular

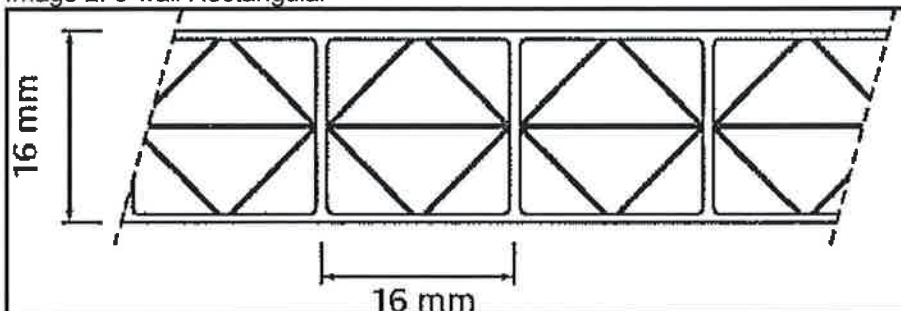


Image 3: 3-wall X-structure

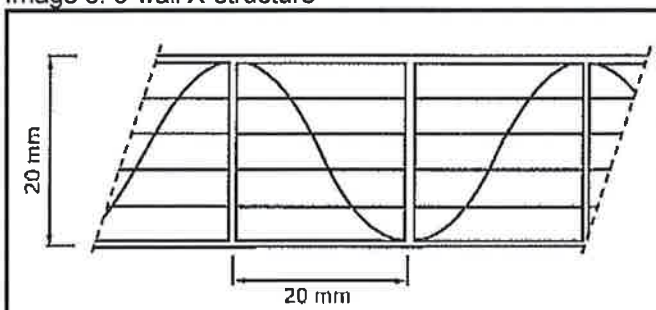


Image 4: 6-wall S-structure

## 2. TEST REPORTS AND TEST RESULTS IN SUPPORT OF THIS CLASSIFICATION

### a) Test reports

| <b>Name of the laboratory</b> | <b>Name of the sponsor</b>                      | <b>Test report ref. Nr.</b> | <b>Test method</b>                                   |
|-------------------------------|---|-----------------------------|--|
| WFRGENT nv<br>Ghent, Belgium  | Sabic Innovative Plastics BV<br>The Netherlands | 15397C<br>15397D            | EN 13823<br>(February 2002 &<br>July 2010)           |
| WFRGENT nv<br>Ghent, Belgium  | Sabic Innovative Plastics BV<br>The Netherlands | 15397A<br>15397B            | EN ISO 11925-2<br>(February 2002 &<br>November 2010) |
| WFRGENT nv<br>Ghent, Belgium  | Sabic Innovative Plastics BV<br>The Netherlands | 15397F                      | EXAP according to<br>CEN/TS 15117                    |

b) Test results

| Test method   | Parameter  | Number of tests | Results  |  | Criteria for Class B-s1,d0  |  |
|---|--|-----------------|--|--|---|--|
|   |  |                 | Continuous parameters Mean                           | Compliance parameters                                  | Continuous parameters   | Compliance parameters                                  |
|   |  |                 |  |  |   |  |
| EN ISO 11925-2 (*) (1)<br>30s flame application:<br><u>Surface exposure</u><br>- front side | $F_s \leq 150\text{mm}$<br>Ignition filter paper   | 6               | (-)<br>(-)   | Yes<br>No  | (-)<br>(-)  | Yes<br>No  |
| EN 13823 (2)  | FIGRA <sub>0,2 MJ</sub> (W/s)<br>FIGRA <sub>0,4 MJ</sub> (W/s)<br>LFS <sub>edge</sub><br>THR <sub>600s</sub> (MJ)<br>SMOGRA (m <sup>2</sup> /s <sup>2</sup> )<br>TSP <sub>600s</sub> (m <sup>2</sup> )<br>Flaming droplets/particles<br>f<10s<br>f>10s | 3               | 93<br>11<br>(-)<br>0,8<br>22<br>41<br><br>(-)<br>(-) | (-)<br>(-)<br>Yes<br>(-)<br>(-)<br>(-)<br><br>No<br>No | $\leq 120$<br>$\leq 120$<br>(-)<br>$\leq 7,5$<br>$\leq 30$<br>$\leq 50$<br><br>(-)<br>(-) | (-)<br>(-)<br>Yes<br>(-)<br>(-)<br>(-)<br><br>No<br>No |

(-) Not applicable

(\*) The material melted but didn't pull away from the pilot burner.

(1) Based on the results obtained in test report Nr. 15397B: Lexan Thermoclear LT2UV 3X 16mm (transparent)

(2) Based on the results obtained in test report Nr. 15397D: Lexan Thermoclear LT2UV 3X 16mm (transparent)

|   | Surface exposure        |                       |
|---|-------------------------|-----------------------|
|   | $F_s \leq 150\text{mm}$ | Ignition filter paper |
| Lexan Thermoclear LT2UV 4mm (transparent)     | Yes                     | No                    |
| Lexan Thermoclear LT2UV 16mm (transparent)    | Yes                     | No                    |
| Lexan Thermoclear LT2UV 16mm (white)          | Yes                     | No                    |
| Lexan Thermoclear LT2UV 3X 16mm (transparent) | Yes                     | No                    |
| Lexan Thermoclear LTD3TS 16mm (transparent)   | Yes                     | No                    |
| Lexan Thermoclear LT2XP 20mm (transparent)    | Yes                     | No                    |

Based on the results obtained in test report Nr. 15397A: only surface exposure was performed per product variation, with protection of cut edges.

|   | FIGRA (W/s) | THR <sub>600S</sub> (MJ) | SMOGRA (m <sup>2</sup> /s <sup>2</sup> ) | TSP <sub>600S</sub> (m <sup>2</sup> ) |
|---|-------------|--------------------------|--|---------------------------------------|
| Lexan Thermoclear<br>LT2UV 4mm<br>(transparent)     | 0           | 0,2                      | 0  | 20                                    |
| Lexan Thermoclear<br>LT2UV 16mm<br>(transparent)    | 0           | 0,2                      | 0  | 25                                    |
| Lexan Thermoclear<br>LT2UV 16mm (white)             | 0           | 0,2                      | 0  | 20                                    |
| Lexan Thermoclear<br>LT2UV 3X 16mm<br>(transparent) | 86          | 0,6                      | 19                                       | 37                                    |
| Lexan Thermoclear<br>LTD3TS 16mm<br>(transparent)   | 0           | 0,3                      | 13                                       | 30                                    |
| Lexan Thermoclear<br>LTD2RS 20mm<br>(transparent)   | 101         | 1,9                      | 19                                       | 39                                    |
| Lexan Thermoclear<br>LT2XP 20mm<br>(transparent)    | 77          | 1,6                      | 16                                       | 46                                    |

Based on the results obtained in test report Nr. 15397C: only one test on each product has been carried out instead of the standard three replicates.

### 3. CLASSIFICATION AND DIRECT FIELD OF APPLICATION

a) Reference and direct field of application

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

b) Classification

The product **Lexan Thermoclear** in relation to its reaction to fire behavior is classified as:

| Fire behavior | Smoke production | Flaming droplets |
|---------------|------------------|------------------|
| B             | s1               | d0               |

c) Field of application

This classification for the product as described in §1b, is valid for the following end use conditions :

- Self supporting
- With a void
- With protection of cut edges
- No Joints

This classification is valid for the following product parameters:

- Nominal thickness : 4 mm to 16 mm
- Nominal mass per unit area: 800 g/m<sup>2</sup> to 2800 g/m<sup>2</sup>
- Coatings: Standard UV, Sun XP & Dripgard
- Structure: 2- to 9-wall sinus / tunnel / rectangular / X-structure
- Colours: all colours

| Color Number | Color                     |
|--------------|---------------------------|
| WH7A092X     | Standard opal white color |
| 31923        | Custom green color        |
| GY5B422T     | Standard SCIR grey color  |
| 215102       | Custom blue color         |
| 715081       | Custom smoke grey color   |
| BL8B089T     | Standard SCIR blue color  |
| GN8B038T     | Standard SCIR green color |
| 515055       | Standard bronze color     |
| 112          | Standard clear color      |



#### 4. RESTRICTIONS

At the time the standard EN 13501-1+A1:2009 was published, no decision was made concerning the duration of validity of a classification report.

#### 5. WARNING



This classification report does not represent type approval nor certification of the product.

The following statement is included in accordance with Fire Sector Group Recommendation 001rev2:

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

The manufacturer has made a declaration, which is held on file. This confirms that the product's 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 to the manufacturer's factory production control that is aimed to be relevant to the samples tested and that will provide for their traceability.

| Report      | Name         | Signature (*)  | Date         |
|-------------|--------------|--|--------------|
| Prepared by | I. LAMMERTYN |  | 05 APR. 2012 |
| Reviewed by | ir. K. CATRY |  | 05 APR. 2012 |

(\*) For and on behalf of "WFRGENT nv"

EN 13501-1 B-C-D WG 3E\*

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