

# ***Classification report for roofs/roof coverings exposed to external fire***

## ***No. 19249L***

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

Renolit Belgium nv  
De Bruwaan 43  
9700 Oudenaarde

### **Introduction**

This classification report defines the classification assigned to the roof/roof covering “**Alkorplan F**” in accordance with the procedures given in the standard EN 13501-5:2016: Fire classification of construction products and building elements – Part 5: Classification using data from external fire exposure to roof tests: Test 1: Method with burning brands.

**This classification report consists of 7 pages.**

## 1. DESCRIPTION OF THE ROOF/ROOF COVERING

|  | Nominal value  | Measured value |
|--|--|----------------|
| <b>SUPPORTING DECK</b>                     |  |                |
| Material                                   | Wood particle board with gaps $5,0 \pm 0,5$ mm according to § 4.4.2. of the standard CEN/TS 1187 |                |
| OR<br>Material                             | Trapezoidal profiled steeldeck 106/750 according to § 4.4.2. of the standard CEN/TS 1187         |                |
| <b>VAPOUR BARRIER</b>                      |  |                |
| 1.1 Vapour barrier layer                   |  |                |
| Material                                   | Low-density polyethylene (LDPE) thermoplastic vapour control layer                               |                |
| Trade name                                 | <b>LDPE Alkorplus 81012</b>  |                |
| Manufacturer / Supplier                    | Renolit Belgium nv   |                |
| Colour                                     | Opaque blue  |                |
| Thickness (mm)                             | 0,25   | 0,25           |
| Density (g/cm <sup>3</sup> )               | 0,92   | 0,899          |
| Flame retardants                           | No   | (1)            |
| Fixing method                              | Mechanically fixed in the corners  |                |
| Reaction to fire according to EN 13501-1   | F  |                |
| OR   |  |                |
| 1.1 Vapour barrier layer                   |  |                |
| Material                                   | Vapour control layer   |                |
| Trade name                                 | <b>Alkorplus 81002</b>   |                |
| Manufacturer / Supplier                    | Renolit Belgium nv   |                |
| Colour                                     | Opaque blue  |                |
| Thickness (mm)                             | 0,8  | 0,8            |
| Surface weight (g/m <sup>2</sup> )         | 850  | 866            |
| Flame retardants                           | No   | (1)            |
| Fixing method                              | Self-adhesive  |                |
| Reaction to fire according to EN 13501-1   | F  |                |
| <b>INSULATING LAYER</b>                    |  |                |
| 1.1 Insulation layer                       |  |                |
| Material                                   | Expanded Polystyrene (EPS) foam board  |                |
| Trade name                                 | <b>EPS 100 SE</b>  |                |
| Manufacturer                               | Isomo  |                |
| Supplier                                   | Renolit Belgium nv   |                |
| Thickness (mm)                             | 100  | 98             |
| Density (kg/m <sup>3</sup> )               | 20   | 15             |
| Flame retardants                           | Yes  | (1)            |
| Fixing method                              | Mechanically fixed in the corners  |                |
| Reaction to fire according to EN 13501-1   | E  |                |
| Compressive strength (according to EN 826) | CS (10) 100  |                |

(1) Not verifiable

|  | Nominal value  | Measured value |
|--|--|----------------|
| <b>ROOF COVERING</b>                         |  |                |
| 1.1 First layer                              |  |                |
| Material                                     | Glass fleece, used as separation and protection layer                    |                |
| Trade name                                   | <b>Alkorplus 81001</b>   |                |
| Manufacturer / Supplier                      | Renolit Belgium nv   |                |
| Colour                                       | White  |                |
| Thickness (mm)                               | 1,34   | 0,5            |
| Surface weight (g/m <sup>2</sup> )           | 120  | 124            |
| Flame retardants                             | No   | (1)            |
| Fixing method                                | Mechanically fixed in the corners  |                |
| Reaction to fire according to EN 13501-1     | A2   |                |
| 1.2 Top layer                                |  |                |
| Material                                     | Waterproofing PVC laminated membrane, with woven polyester reinforcement |                |
| Trade name                                   | <b>Renolit Alkorplan F</b>   |                |
| Manufacturer / Supplier                      | Renolit Belgium nv   |                |
| Colour                                       | Light grey   |                |
| Reinforcement (material + g/m <sup>2</sup> ) | Polyester, 93 g/m <sup>2</sup>   |                |
| Thickness (mm)                               | 1,2  | 1,2            |
| Surface weight (g/m <sup>2</sup> )           | 1500   | 1585           |
| Flame retardants                             | Yes  | (1)            |
| Fixing method                                | Mechanically fixed in the corners  |                |
| Reaction to fire according to EN 13501-1     | E  |                |

(1) Not verifiable

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

### a) Test reports

| Name of the laboratory | Name of the sponsor           | Test report No.                     | Test method                 |
|------------------------|-------------------------------|-------------------------------------|-----------------------------|
| WFRGENT nv<br>Belgium  | Renolit Belgium nv<br>Belgium | 19249H<br>(18/07/2018)              | CEN/TS 1187:2012:<br>Test 1 |
| WFRGENT nv<br>Belgium  | Renolit Belgium nv<br>Belgium | 19249J<br>(18/07/2018 & 26/07/2018) | CEN/TS 1187:2012:<br>Test 1 |
| WFRGENT nv<br>Belgium  | Renolit Belgium nv<br>Belgium | 19249K<br>(02/08/2018)              | CEN/TS 1187:2012:<br>Test 1 |
| WFRGENT nv<br>Belgium  | Renolit Belgium nv<br>Belgium | 19249                               | CEN/TS 16459:2013<br>EXAP   |

b) Test results

Test conditions: 19249H

- Test pitch: 15°
- Supporting deck: Wood particle board with gaps  $5,0 \pm 0,5$  mm
- Vapour barrier 19249H-1: LDPE
- Vapour barrier 19249A-2: Bituminous

| Parameters   | Criteria               | Test results |          | Compliance |
|--|------------------------|--------------|----------|------------|
|  |                        | 19249H-1(*)  | 19249H-2 |            |
| Internal fire spread upwards (mm)                  | < 700 mm               | 0            | 0        | Yes        |
| External fire spread upwards (mm)                  | < 700 mm               | 160          | 200      | Yes        |
| Internal fire spread downwards (mm)                | < 600 mm               | 0            | 0        | Yes        |
| External fire spread downwards (mm)                | < 600 mm               | 60           | 0        | Yes        |
| Maximum burned length internal (mm)                | < 800 mm               | 0            | 0        | Yes        |
| Maximum burned length external (mm)                | < 800 mm               | 220          | 200      | Yes        |
| Burning, droplets/debris falling from exposed side | None                   | None         | None     | Yes        |
| Burning, glowing particles penetrating the roof    | None                   | None         | None     | Yes        |
| Single through opening (mm <sup>2</sup> )          | < 25 mm <sup>2</sup>   | 0            | 0        | Yes        |
| Sum of all through openings (mm <sup>2</sup> )     | < 4500 mm <sup>2</sup> | 0            | 0        | Yes        |
| Lateral fire spread                                | < edges*               | < edges      | < edges  | Yes        |
| Internal glowing combustion                        | None                   | None         | None     | Yes        |
| Radius of fire spread (horizontal roof) (mm)       | < 200 mm               | (-)          | (-)      | (-)        |

\* edges measuring zone                      (-) Not applicable

(\*) This test result was reused for the official test 19249J (type 3).

Test conditions: 19249J

- Test pitch: 15°
- Vapour barrier: LDPE
- Supporting deck: Wood particle board with gaps  $5,0 \pm 0,5$  mm

| Parameters   | Criteria               | Test Results |        |        |        | Compliance<br>yes/no |
|--|------------------------|--------------|--------|--------|--------|----------------------|
|  |                        | 1            | 2      | 3      | 4      |                      |
| Internal fire spread upwards (mm)                  | < 700 mm               | 0            | 0      | 0      | 0      | yes                  |
| External fire spread upwards (mm)                  | < 700 mm               | 150          | 200    | 160    | 220    | yes                  |
| Internal fire spread downwards (mm)                | < 600 mm               | 0            | 0      | 0      | 0      | yes                  |
| External fire spread downwards (mm)                | < 600 mm               | 40           | 60     | 60     | 30     | yes                  |
| Maximum burned length internal (mm)                | < 800 mm               | 0            | 0      | 0      | 0      | yes                  |
| Maximum burned length external (mm)                | < 800 mm               | 190          | 260    | 220    | 250    | yes                  |
| Burning, droplets/debris falling from exposed side | None                   | None         | None   | None   | None   | yes                  |
| Burning, glowing particles penetrating the roof    | None                   | None         | None   | None   | None   | yes                  |
| Single through opening (mm <sup>2</sup> )          | < 25 mm <sup>2</sup>   | 0            | 0      | 0      | 0      | yes                  |
| Sum of all through openings (mm <sup>2</sup> )     | < 4500 mm <sup>2</sup> | 0            | 0      | 0      | 0      | yes                  |
| Lateral fire spread                                | < edges*               | < edge       | < edge | < edge | < edge | yes                  |
| Internal glowing combustion                        | None                   | None         | None   | None   | None   | yes                  |
| Radius of fire spread (horizontal roof only) (mm)  | < 200 mm               | (-)          | (-)    | (-)    | (-)    | yes                  |

Test conditions: 19249K

- Test pitch: 15°
- Vapour barrier: LDPE
- Supporting deck: Trapezoidal profiled steeldeck 106/750

| Parameters   | Criteria               | Test Results |        |        |        | Compliance<br>yes/no |
|--|------------------------|--------------|--------|--------|--------|----------------------|
|  |                        | 1            | 2      | 3      | 4      |                      |
| Internal fire spread upwards (mm)                  | < 700 mm               | 0            | 0      | 0      | 0      | yes                  |
| External fire spread upwards (mm)                  | < 700 mm               | 180          | 180    | 240    | 220    | yes                  |
| Internal fire spread downwards (mm)                | < 600 mm               | 0            | 0      | 0      | 0      | yes                  |
| External fire spread downwards (mm)                | < 600 mm               | 30           | 30     | 40     | 100    | yes                  |
| Maximum burned length internal (mm)                | < 800 mm               | 0            | 0      | 0      | 0      | yes                  |
| Maximum burned length external (mm)                | < 800 mm               | 210          | 210    | 280    | 320    | yes                  |
| Burning, droplets/debris falling from exposed side | None                   | None         | None   | None   | None   | yes                  |
| Burning, glowing particles penetrating the roof    | None                   | None         | None   | None   | None   | yes                  |
| Single through opening (mm <sup>2</sup> )          | < 25 mm <sup>2</sup>   | 0            | 0      | 0      | 0      | yes                  |
| Sum of all through openings (mm <sup>2</sup> )     | < 4500 mm <sup>2</sup> | 0            | 0      | 0      | 0      | yes                  |
| Lateral fire spread                                | < edges*               | < edge       | < edge | < edge | < edge | yes                  |
| Internal glowing combustion                        | None                   | None         | None   | None   | None   | yes                  |
| Radius of fire spread (horizontal roof only) (mm)  | < 200 mm               | (-)          | (-)    | (-)    | (-)    | yes                  |

### 3. CLASSIFICATION AND DIRECT FIELD OF APPLICATION

#### a) Reference

This classification has been carried out in accordance with clause 9 Test 1 of EN 13501-5:2016 and EN 13956:2012.

#### b) Classification

The roof / roof covering “Alkorplan F” in relation to its external fire performance is classified:

### BROOF (t1)

#### c) Direct field of application

The classification is valid for the system as described in §1 for the following conditions:

- Range of pitches: < 20°
- Nature of the deck:  
Any non-combustible continuous deck with a minimum thickness of 10 mm  
Any wooden continuous deck

d) Extended field of application

The classification is valid for the system as described in §1 for the following conditions:

Layer 0: Top layer: PVC laminated membrane, with woven polyester reinforcement

|                 |  |
|-----------------|--|
| Thickness:      | 1,2 mm to 2,4 mm   |
| Surface weight: | 1500 g/m <sup>2</sup> to 3000 g/m <sup>2</sup>                                       |
| Reinforcement:  | Polyester, 93 g/m <sup>2</sup> or lower<br>Additional glass reinforcement is allowed |
| Fixation:       | Mechanically fixed OR<br>Loosely laid  |
| Colour          | All colours  |

Layer 1: First layer: Glass fleece (separation and protection layer)

|                 |                      |
|-----------------|----------------------|
| Thickness:      | 1,34 mm              |
| Surface weight: | 120 g/m <sup>2</sup> |
| Fixation:       | Mechanically fixed   |

Layer 2: Insulation: Expanded Polystyrene (EPS) foam board

|  |                      |
|--|----------------------|
| Thickness:                               | 50 mm or greater     |
| Density:                                 | 20 kg/m <sup>3</sup> |
| Fixation:                                | Mechanically         |
| Reaction to fire according to EN13501-1: | E                    |

Layer 3: The membrane: Vapour barrier : Self-adhesive bituminous or PE or no vapour barrier

|   |  |
|---|--|
| Range of products:  | Valid for self-adhesive bituminous vapour barriers ( according to EN 13970:2004/A1:2006) and for PE vapour barriers ( according to EN 13984:2013).<br><br>OR no vapour barrier |
| Range of reaction to fire (only applicable to the bituminous vapour layer): | The vapour barrier can be replaced by any other material which have a reaction to fire classification of E or higher.  |

Layer 4: Support:

|                           |                            |
|---------------------------|----------------------------|
| Range of supporting deck: | Following CEN/TS 1187:2012 |
|---------------------------|----------------------------|

#### 4. **LIMITATIONS**

At the time the standard EN 13501-5:2016 was published, no decision was made concerning the duration of validity of a classification document.

Provisions of Regulation (EU) 305/2011, commonly known as the Construction Products Regulation (CPR), prevail over any conflicting provisions in the harmonised standards and technical specifications.

#### 5. **WARNING**

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

#### 6. **CONCERNING DECLARATION OF PERFORMANCE (DOP) ACCORDING TO THE CONSTRUCTION PRODUCT REGULATION (CPR)**

Annex ZA of the harmonised standard EN 13956: 2012 - Flexible sheets for waterproofing — Plastic and rubber sheets for roof waterproofing declares that a System 3 Attestation of Conformity (AoC) under the Construction Products Directive (CPD: 89/106/EEC) is required for all external fire performance declarations better than class F<sub>roof</sub> (t1, t2, t3, t4). Under the Construction Products Regulation (CPR: EU 305/2011) this corresponds with a System 1 of Assessment and Verification of Constancy of Performance (AVCP) as basis for a Declaration of Performance (DoP).

The classification assigned to the product in this report is appropriate to such a Declaration of Performance of the essential characteristics of the construction product by the manufacturer within the context of a System 1 Assessment and Verification of Constancy of Performance. Under the Construction Products Regulation a Declaration of Performance (DoP) is a requirement for affixing the CE marking.

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