Classification report for roofs/roof coverings exposed to external fire No. 23426G

Owner of the classification report

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Introduction

This classification report defines the classification assigned to the roof/roof covering **"RENOLIT ALKORPLAN A on mineral wool"** 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 13 pages.

1. DESCRIPTION OF THE ROOF/ROOF COVERING

This description is based on information given by the sponsor.

	Nominal values (1)	Measured values (2)
SUPPORTING DECK		
Material	Wood particle board with gaps 5,0 ± 0,5 mm according to § 4.4.2. of the standard CEN/TS 1187	
VAPOUR BARRIER (OPTIONAL)		
A) RENOLIT ALKORPLUS 81012		
Material	LDPE (low density polyethylene) vapour control layer for use in roofing systems	
Manufacturer	Known by the laboratory.	
Supplier	RENOLIT Belgium NV	
Reinforcement (material +g/m²)	None	
Total thickness (mm)	0,25	0,23
Total surface weight (g/m²)	220	225
Flame retardants	No	(3)
Fixing method	Loose laid	
Joints	According to CEN/TS 1187:2012 – test method 1	
Reaction to fire according to EN 13501-1	F according to classification report K-Hoch-130153.	
B) RENOLIT ALKORPLUS 81002		
Material	Self-adhesive bituminous vapour control layer with a fibre glass net reinforcement, and aluminium facing and a bitumen compound backing.	
Manufacturer	Known by the laboratory.	
Supplier	RENOLIT Belgium NV	
Reinforcement (material +g/m²)	Fiber glass net 54 g/m²	
Surfacing on the upper side (material + g/m²)	Aluminium 70 g/m²	
Surfacing on the lower side (material + g/m²)	Bitumen compound 730 g/m²	
Total thickness (mm)	0,80	0,8
Total surface weight (g/m²)	850	866
Flame retardants	No	(3)
Fixing method	Self-adhesive	
Factory pre-applied adhesive (material + g/m²)	Bituminous compound 730 g/m	
Joints	According to CEN/TS 1187:2012 – test method 1	
Reaction to fire according to EN 13501-1	E according to classification report LAPI 911.0DC0050/13.	

(1) Based on the information given by the sponsor
(2) Values verified by the laboratory
(3) Unverifiable by the laboratory

	Nominal values (1)	Measured values (2)
ADHESIVE (OPTIONAL)		
Material	Sprayable, one component PU adhesive	
Trade name	RENOLIT ALKORPLUS 81065 DUALFIX	
Manufacturer	Known by the laboratory.	
Supplier	RENOLIT Belgium NV	
Applied amount, wet (g/m²)	130	
Solid content (m%)	85	
Use of flame retardants	No	
Curing time (hh:mm)	00:45	
Application method	Applied in beads	
INSULATING LAYER		
Material	Mono-density mineral wool insulation board faced with a glass fleece	
Trade name	Rhinoxx D	
Backing (material + g/m²)	None	
Facing (material + g/m²)	Mineral coated glass fleece 300 g/m²	
Manufacturer / Supplier	Rockwool	
Thickness (mm)	100	(4)
Density, of the core material (kg/m³)	170	(4)
Flame retardants	No	(3)
Compressive strength (in accordance with EN 826) (kPa)	CS (10/Y) 90	
Fixing method	Adhered or mechanical fixed	
Distance between the fixations (mm)	Along with the slope: 1600. Perpendicular to the slope: 700.	
Joints	According to CEN/TS 1187:2012 – test method 1	
Type	Butted	
Overlap (mm)	0	
Reaction to fire according to EN 13501-1	A2-s1, d0 according to classification report DBI PFA10402 / 14099 / MPA / RBI.	
ADHESIVE		
Material	One component PU adhesive	
Trade name	RENOLIT ALKORPLUS 81068	
Manufacturer	Known by the laboratory.	
Supplier	RENOLIT Belgium NV	
Applied amount, wet (g/m²)	300	
Solid content (m%)	83	
Use of flame retardants	No	
Curing time (hh:mm)	06:00	
Application method	Evenly spread onto the substrate	

(1) Based on the information given by the sponsor
(2) Values verified by the laboratory
(3) Unverifiable by the laboratory
(4) Not verified by the laboratory

	Nominal values (1)	Measured values (2)
ROOF COVERING		
A) RENOLIT ALKORPLAN A 35179		
Material	Fleece-backed membrane of flexible PVC (polyvinyl chloride) with a polyester fleece backing.	
Manufacturer	RENOLIT Ibérica SA	
Supplier	RENOLIT Belgium NV	
Reinforcement (material + g/m²)	None	
Surfacing on the lower side (material + g/m²)	Polyester fleece 300 g/m²	
Total thickness (mm)	3,2 (1,2 without fleece)	(4)
Total surface weight (g/m²)	1800	(4)
Flame retardants	Yes	(3)
Organic content (m%)	Not communicated by the sponsor	
Fixing method	Fully bonded	
Joints	According to CEN/TS 1187:2012 – test method 1	
Type	Hot air welded	
Overlap (mm)	80	
B) RENOLIT ALKORPLAN A 35F79		
Material	Fleece-backed membrane of flexible PVC (polyvinyl chloride) with a polyester fleece backing and a polyester reinforcement.	
Manufacturer	RENOLIT Ibérica SA	
Supplier	RENOLIT Belgium NV	
Reinforcement (material + g/m²)	Polyester 93 g/m²	
Surfacing on the lower side (material + g/m²)	Polyester fleece 300 g/m²	
Total thickness (mm)	3,2 (1,2 without fleece)	(4)
Total surface weight (g/m²)	1800	(4)
Flame retardants	Yes	(3)
Organic content (m%)	Not communicated by the sponsor	
Fixing method	Fully bonded	
Joints	According to CEN/TS 1187:2012 – test method 1	
Type	Hot air welded	
Overlap (mm)	80	

(1) Based on the information given by the sponsor
(2) Values verified by the laboratory
(3) Unverifiable by the laboratory
(4) Not verified by the laboratory

Summary of parameters and tested systems:

	19248F	D-1	D-2	D-3	D-4
Top coat	**RENOLIT ALKORPLAN A (35179)**	**RENOLIT ALKORPLAN A (35F79)**	RENOLIT ALKORPLAN A (35F79)	RENOLIT ALKORPLAN A (35F79)	RENOLIT ALKORPLAN A (35F79)
Fixing method	Adhered	Adhered	Adhered	Adhered	Adhered
Insulation	Rhinoxx D (mech) (100mm)	Rhinoxx D (mech) (100mm)	Rhinoxx D (100mm)	Rhinoxx D (mech) (100mm)	Rhinoxx D (mech) (100mm)
Fixing method	Mechanically fixed	**Mechanically fixed**	**Adhered**	Mechanically fixed	Mechanically fixed
Vapour barrier	RENOLIT ALKORPLUS 81012	**RENOLIT ALKORPLUS 81012**	RENOLIT ALKORPLUS 81012	**RENOLIT ALKORPLUS 81002**	**N.a.**
Fixing method	Loose laid	Loose laid	Loose laid	Self-adhered	N.a.
Support	Wood particle board with gaps 5,0 ± 0,5 mm according to § 4.4.2. of the standard CEN/TS 1187				

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

a) Test reports

Name of the laboratory	Name of the sponsor	Test report ref. No.	Test date	Test method
WFRGENT N.V. Ghent, Belgium	RENOLIT BELGIUM NV	19248F	19-09-2018	CEN/TS 1187:2012 – test method
WFRGENT N.V. Ghent, Belgium	RENOLIT BELGIUM NV	23426E	28-03-2024 & 08-04-2024	CEN/TS 1187:2012 – test method
WFRGENT N.V. Ghent, Belgium	RENOLIT BELGIUM NV	23426D	06-03-2024, 15-03-2024 & 28-03-2024	CEN/TS 1187:2012 – test method
WFRGENT N.V. Ghent, Belgium	RENOLIT BELGIUM NV	19248G	N.a.	CEN/TS 16459:2013 & EN 15725:2010
WFRGENT N.V. Ghent, Belgium	RENOLIT BELGIUM NV	23426F	06-03-2024, 15-03-2024 & 28-03-2024	CEN/TS 16459:2019 & EN 15725:2023

b) Test results

Test conditions: 23426D

Specimen No.	D-1	D-2	D-3	D-4
Date of test	06-03-2024	15-03-2024	28-03-2024	28-03-2024
Roof pitch	15	15	15	15
Room temperature at start of test (°C):	14	17	15	15

Parameters	Criteria	Test results				Compliance
		D-1	D-2	D-3 (*)	D-4	**Yes/No**
Internal fire spread upwards (mm)	< 700 mm	30	70	96	50	Yes
External fire spread upwards (mm)	< 700 mm	36	68	96	52	Yes
Internal fire spread downwards (mm)	< 600 mm	35	18	40	46	Yes
External fire spread downwards (mm)	< 600 mm	40	22	45	49	Yes
Maximum burned length internal (mm)	< 800 mm	65	88	136	96	Yes
Maximum burned length external (mm)	< 800 mm	76	90	141	97	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^2)	< 25 mm^2	0	0	0	0	Yes
Sum of all through openings (mm^2)	< 4500 mm^2	0	0	0	0	Yes
Lateral fire spread	< edges*	< edges	< edges	< edges	< edges	Yes
Internal glowing combustion	None	None	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 23426E (type 3a).

Test conditions: 23426E

Specimen No.	1	2	3	4
Date of test	08-04-2024	08-04-2024	28-03-2024	08-04-2024
Roof pitch	15	15	15	15
Room temperature at start of test (°C):	16	16	15	17

Build-up: Wood particle board with gaps 5,0 ± 0,5 mm + RENOLIT ALKORPLUS 81002 + RENOLIT ALKORPLUS 81065 DUALFIX + Rhinoxx D + RENOLIT ALKORPLUS 81068 + RENOLIT ALKORPLAN A 35F79

Parameters	Criteria	Test results				Compliance
		1	2	3	4	
Internal fire spread upwards (mm)	< 700 mm	100	67	96	30	Yes
External fire spread upwards (mm)	< 700 mm	100	63	96	31	Yes
Internal fire spread downwards (mm)	< 600 mm	20	30	40	45	Yes
External fire spread downwards (mm)	< 600 mm	23	24	44	45	Yes
Maximum burned length internal (mm)	< 800 mm	120	97	136	75	Yes
Maximum burned length external (mm)	< 800 mm	123	87	140	76	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 (mm²)	< 25 mm²	0	0	0	0	Yes
Sum of all through openings (mm²)	< 4500 mm²	0	0	0	0	Yes
Lateral fire spread	< edges*	< edges	< edges	< edges	< edges	Yes
Internal glowing combustion	None	None	None	None	None	Yes
Radius of fire spread (horizontal roof) (mm)	< 200 mm	(-)	(-)	(-)	(-)	(-)

* edges measuring zone (-) Not applicable

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, the related harmonized product standard is EN 13956:2012 and EXAP-standard CEN/TS 16459:2019.

b) Classification

The roof / roof covering "**RENOLIT ALKORPLAN A on mineral wool**" in relation to its external fire performance is classified:

B_{ROOF} (t1)

c) Field of application

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

- Range of pitches: < 20°

d) Extended field of application

- Range of layer a: The Cap sheet: RENOLIT ALKORPLAN A 35179 and RENOLIT ALKORPLAN A 35F79, tested and described in §1. In accordance with the EXAP-rules, valid for:

Type of product / Product composition:	PVC, As tested
Effective thickness:	1,2 - 2,4 mm, for the same product
Surface weight:	1800 g/m² up to 3200 g/m², for the same product
Colour	Any colour
Joints:	80 mm or wider
Surfacing on the lower side:	300 g/m² or less.
Reinforcement (OPTIONAL)	• Higher or lower surface weights than 93 g/m² of polyester. • Valid for the same type of sheet with additional glass fleece.
Surfacing on the upper side:	Surfacing (paints) which does not exceed combustible mass per unit area of 250 g/m² (dry conditions).
Factory pre-applied adhesive	N.a.
Fixing method (e.g. adhesive)	Adhered
Flame retardants:	Yes

- Range of layer b: The adhesive: RENOLIT ALKORPLUS 81068 tested and described in §1. In accordance with the EXAP-rules, adhesives:

Type of product:	As tested, in combination with the membrane (waterproofing). May be changed, depending on the 'last damaged layer' and 'first undamaged layer', as described in "Order of layers in the system" in §3.2.1 of the EXAP report 23426F.
Product composition:	As tested; can be replaced by other adhesives belonging to the same type (Cold bituminous adhesives, PU-adhesives (1 or 2 component), CR-type adhesive, SBR-type adhesive, hot bitumen, …)
Binder content:	Valid for a solid content of 83% ± 15 %, for adhesives from the same type
Surface weight:	300 g/m² or less, for adhesives of the same type.
Curing time:	06:00
Flame retardants:	No

- Range of layer c: The Insulation: Rhinoxx D, tested and described in §1. In accordance with the EXAP-rules, valid for:

Product composition:	As tested
Thickness (mm):	50 mm or greater
Fixing method (e.g. adhesive)	Adhered or mechanically fixed
Spacing and type of mechanical fixing (fasteners)	As tested, narrower spacing included; type of fastener not relevant.
Binder content:	5 % or less of the same binder, provided the density is within limits.
Facing	Glass fleece or woven glass mat more than or equal to 300 g/m²
Joints:	Tested with butt joints, also valid for step joints or similar.
Compressive strength according to EN 826	CS (10/Y) 90 or less
Flame retardants:	No
Reaction to fire according to EN13501-1:	A2-s1,d0. The laboratory did not check this class to the corresponding classification report. DBI PFA10402 / 14099 / MPA / RBI .

- Range of layer d: The adhesive (OPTIONAL): RENOLIT ALKORPLUS 81065 DUALFIX tested and described in §1. In accordance with the EXAP-rules, adhesives:

Type of product:	As tested, in combination with the membrane (waterproofing). May be changed, depending on the 'last damaged layer' and 'first undamaged layer', as described in "Order of layers in the system" in §3.2.1 of the EXAP report 23426F.
Product composition:	As tested; can be replaced by other adhesives belonging to the same type (Cold bituminous adhesives, PU-adhesives (1 or 2 component), CR-type adhesive, SBR-type adhesive, hot bitumen, …)
Binder content:	Valid for a solid content of 85% ± 15 %, for adhesives from the same type
Surface weight:	130 g/m² or less, for adhesives of the same type.
Curing time:	00:45
Flame retardants:	No

- Range of layer e: The Vapour control layer (OPTIONAL): RENOLIT ALKORPLUS 81012, RENOLIT ALKORPLUS 81002, tested and described in §1. In accordance with the EXAP-rules, valid for:

Type of product / Product composition:	VCL can be replaced by other vapour barriers belonging to the same group of materials as identified in the relevant standards.
RENOLIT ALKORPLUS 81012	EN 13984:2013
RENOLIT ALKORPLUS 81002	EN 13970:2004 + A1:2006
Reaction to fire classification according to EN 13501-1	
RENOLIT ALKORPLUS 81012	F or better. The laboratory did not check this class to the corresponding classification report. K-Hoch-130153.
RENOLIT ALKORPLUS 81002	E or better. The laboratory did not check this class to the corresponding classification report LAPI 911.0DC0050/13.

- Range of layer f: Supporting deck: Wood particle board with gaps 5,0 ± 0,5 mm, in accordance with CEN/TS 1187.

Range of supporting deck:	* Any wooden continuous deck * Any non-combustible deck with gaps not exceeding 5 mm (including non-perforated steel deck)

- End-use parameters of the roof systems

Number of layers	As tested
Order of layer in the roofing system	As tested
Mounting method:	As tested
Fixing method (e.g. adhesive)	• As tested
Spacing and type of mechanical fixing (fasteners)	As tested, narrower spacing included; type of fastener not relevant.
Lowest affected layer	Insulation layer
Uppermost unaffected layer	Systems with VCL: Vapour control layer, can be replaced by any other material with reaction to fire classification F or better. The laboratory did not check this class to the corresponding classification report. Systems without VCL: substrate, can be replaced by any other material with reaction to fire classification D-s2,d0 or better.
Layer(s) below the uppermost unaffected layer	Systems with VCL: Substrate can be replaced by any other layer Systems without VCL: N/A

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 harmonized 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 harmonized 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_{roof} (t1, t2, t3, t4). Under the Construction Products Regulation (CPR: EU 305/2011) this corresponds with a System 3 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.

PREPARED BY	APPROVED BY
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This document is the original version of this classification report and is written in English.