

„MEŽA UN KOKSNES PRODUKTU PĒTNIECĪBAS UN ATTĪSTĪBAS INSTITŪTS” SIA

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Extended classification of reaction to fire in accordance with EN 13501-1:2018

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Sponsor: Teknos A/S.

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Manufacturer and owner of test report: Teknos A/S.

Prepared by: SIA “Meža un koksnes produktu pētniecības un attīstības institūts” (*Forest and Wood Products Research and Development Institute Ltd*).

Test performed at: SIA “Meža un koksnes produktu pētniecības un attīstības institūts” (*Forest and Wood Products Research and Development Institute Ltd*), *Dobeles street 41, Jelgava, LV-3001, Latvia and “Pienavas katlu māja”, Pienava, Džūkstes pagasts, Tukuma novads, LV-3147, Latvia (“Pienava heat plant”, Pienava, Džūkste parish, Tukums region, LV-3147, Latvia).*

Product name: TEKNOSAFE FLAME GUARD 2457-10 family.

Laboratory involved in testing is accredited by the Latvian National Accreditation Bureau (LATAK) according to the standard LVS EN ISO/IEC 17025 under the terms of Latvian legislation with reg. No. T-316. Laboratory is a notified body with reg. No. NB 2040 under construction product regulation No. 305/2011.

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1. Introduction

This classification report defines the reaction to fire classification assigned to TEKNOSAFE FLAME GUARD 2457-10 family in accordance with the procedures given in EN 13501-1:2018.

2. Details of classified product

2.1. General

TEKNOSAFE FLAME GUARD 2457-10 family is defined as fire retardant treatment for wood-based products - wood based panels according to product standard EN 13986:2004+A1:2015 or solid wood panelling and cladding according to product standard EN 14915:2013.

2.2. Product description

- Product name: TEKNOSAFE FLAME GUARD 2457-10 family.
- Manufacturer: Teknos A/S.
- Materials used for manufacturing:
 - spruce plywood with 450 kg/m³ density;
 - chipboard with 720 kg/m³ density;
 - solid spruce wood boards with nominal thickness 18 mm and nominal density 460 kg/m³;
 - fire retardant paint TEKNOSAFE FLAME GUARD 2457-10 with minimal consumption 250 g/m².
- Coating systems tested for extended application:

Variations tested on composite substrate – plywood + chipboard:

- primer: UV SEALER 1456 with consumption 20 g/m² under TEKNOSAFE FLAME GUARD 2457-10.
- top coating: TEKNOLUX AQUA 1728 with consumption 65 g/m²;
- top coating: TEKNOCOAT AQUA 2580 with consumption 65 g/m²;
- top coating: TEKNOCOAT 1633 with consumption 65 g/m²;
- top coating: TEKNOSAFE FLAME PROTECT 2458-00 with consumption 100 g/m².
- top coating: TEKNOCOAT AQUA 1864 with consumption 50 g/m²;
- top coating: UVILUX 651 with consumption 12 g/m²;

Variations tested on chipboard substrate:

- TEKNOSAFE FLAME GUARD 2457-10 with minimal consumption 250 g/m²

Variations tested on 18 mm solid spruce wood boards (horizontal and vertical orientation):

- TEKNOSAFE FLAME PROTECT 2458-00 with consumption 100 g/m².
- Coatings was applied on three sides of board, back side untreated.
- Nominal thickness tested: 9 mm (plywood) and 12 mm (chipboard).
- Colour: RAL 4007.

3. Test reports and test results in support of classification

3.1. Specific conditions

Not applicable

3.2. Test reports

Name of laboratory	Name of sponsor	Test reports	Test method
SIA „ Meža un koksnes produktu pētniecības un attīstības institūts” Testing Laboratory	Teknos A/S	5256-1/2021	EN 13823:2020
SIA „ Meža un koksnes produktu pētniecības un attīstības institūts” Testing Laboratory	Teknos A/S	5256-2/2021	EN ISO 11925-2:2020
SIA „ Meža un koksnes produktu pētniecības un attīstības institūts” Testing Laboratory	Teknos A/S	8191-1-11	EN 13823:2020+A1:2022
SIA „ Meža un koksnes produktu pētniecības un attīstības institūts” Testing Laboratory	Teknos A/S	8191-1-12	EN 13823:2020+A1:2022
SIA „ Meža un koksnes produktu pētniecības un attīstības institūts” Testing Laboratory	Teknos A/S	8191-1-13	EN 13823:2020+A1:2022
SIA „ Meža un koksnes produktu pētniecības un attīstības institūts” Testing Laboratory	Teknos A/S	8191-1-14	EN 13823:2020+A1:2022
SIA „ Meža un koksnes produktu pētniecības un attīstības institūts” Testing Laboratory	Teknos A/S	8191-1-27	EN 13823:2020+A1:2022
RISE Research Institutes of Sweden AB	Teknos A/S	O100352-147289-1	EN 13823:2020 and EN ISO 11925-2:2022
RISE Research Institutes of Sweden AB	Teknos A/S	O100352-147289-12	EN 13823:2020
RISE Research Institutes of Sweden AB	Teknos A/S	O100352-147289-17	EN 13823:2020

- *The test results listed below show the worst case as found in the test program performed and reported according to the table above. The tests have been carried out on products covering the thickness range, fire retardant coating type, influence of colourant, and mounting of the product group. The protocol NBCPR/SH02/19/832r2 from the fire sector group of notified bodies, has been applied in the process of selecting suitable products for testing.*
- *Sampling for all fire tests was done by Norsk Treteknisk Institutt (Notified Body 1070).*

3.3. Test results

Test method	Parameter	Number of tests	Results	
			Continuous parameter mean	Compliance parameters
EN 13823:2020	FIGRA _{0,2MJ} (W/s)	3 ^a	73.1 ^a	(-)
		3 ^b	89.8 ^b	(-)
	FIGRA _{0,4MJ} (W/s)		73.1 ^a	(-)
			89.8 ^b	(-)
	THR _{600s} (MJ)		5.2 ^a	(-)
			7.5 ^b	(-)
	LFS		(-)	Compliant
		(-)	Compliant	
SMOGRA(m ² /s ²)		4.7 ^a	(-)	
		3.3 ^b	(-)	
TSP _{600s} (m ²)		31.2 ^a	(-)	
		32.2 ^b	(-)	
	Flaming droplets <10s		(-)	Compliant
	Flaming droplets >10s		(-)	Compliant
EN ISO 11925-2:2020 Exposure time 30 s. Test duration 60 s.	Flame spread (Fs)	24	(-)	Compliant
	Ignition of filter paper		(-)	Compliant
	Flaming droplets/particles		(-)	Compliant
(-) not applicable				
^a Test results from specimens on standard plywood substrate (No. 5256-1-1, 5256-1-4...5256-1-5).				
^b Test results from specimens on standard chipboard substrate (No. 5256-1-6...5256-1-8).				

Test results for specimens with additional coatings

Specimen No.	5256-1-2	5256-1-3	8191-1-11	8191-1-12	8191-1-13	8191-1-14	8191-1-27
FIGRA _{0,2MJ} , W/s	92.4	57.3	32.3	42.8	49.4	55.2	108.6
FIGRA _{0,4MJ} , W/s	92.4	57.3	32.3	42.8	49.4	55.2	108.6
THR _{600s} , MJ	6.6	4.8	3.5	6.0	5.1	4.6	6.8
SMOGRA, m ² /s ²	Threshold not reached	Threshold not reached	3.8	5.0	2.3	3.4	2.7
TSP _{600s} , m ²	34.4	25.2	34.3	29	24.4	24.8	25.8

Reports No.	O100352-147289-1	O100352-147289-12	O100352-147289-17
FIGRA _{0,2MJ} , W/s	24	97	98
FIGRA _{0,4MJ} , W/s	24	36	98
THR _{600s} , MJ	0.5	7	4
SMOGRA, m ² /s ²	3.2	3.5	2.8
TSP _{600s} , m ²	37	36	45

Specimens identification

Identification number	Thickness, mm	Pretreatment name and consumption	Coating name and consumption	Topcoating name and consumption
5256-1-2	21	-	TEKNOSAFE FLAME GUARD 2457-10, 258 g/m ²	TEKNOCOAT AQUA 1864, 50 g/m ²
5256-1-3	21	-	TEKNOSAFE FLAME GUARD 2457-10, 258 g/m ²	UVILUX 651, 11 g/m ²
8191-1-11	21	UV SEALER 1456, 20 g/m ²	TEKNOSAFE FLAME GUARD 2457-10, 250 g/m ² (RAL 4007)	-
8191-1-12	21	-	TEKNOSAFE FLAME GUARD 2457-10, 250 g/m ² (RAL 4007)	TEKNOLUX AQUA 1728, 65 g/m ² (RAL 4007)
8191-1-13	21	-	TEKNOSAFE FLAME GUARD 2457-10, 250 g/m ² (RAL 4007)	TEKNOCOAT AQUA 2580, 65 g/m ² (RAL 4007)
8191-1-14	21	-	TEKNOSAFE FLAME GUARD 2457-10, 250 g/m ² (RAL 4007)	TEKNOCOAT 1633, 65 g/m ² (RAL 4007)
8191-1-27	12	-	TEKNOSAFE FLAME GUARD 2457-10, 250 g/m ² (RAL 4007)	-
O100352-147289-1	21	-	TEKNOSAFE FLAME GUARD 2457-10, 250 g/m ² (RAL 4007)	TEKNOSAFE FLAME PROTECT 2458-00 with consumption 100 g/m ² (RAL 4007)
O100352-147289-12	18	-	TEKNOSAFE FLAME GUARD 2457-10, 250 g/m ² (RAL 4007)	TEKNOSAFE FLAME PROTECT 2458-00 with consumption 100 g/m ² (RAL 4007)
O100352-147289-17	18	-	TEKNOSAFE FLAME GUARD 2457-10, 250 g/m ² (RAL 4007)	TEKNOSAFE FLAME PROTECT 2458-00 with consumption 100 g/m ² (RAL 4007)

4. Classification and field of application
4.1. Reference of classification

This classification has been carried out in accordance with clause 11 of EN 13501-1:2018.

4.2. Classification

TEKNOSAFE FLAME GUARD 2457-10 family 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 product excluding floorings and linings is:

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

Reaction to fire classification: B-s1, d0

4.3. Field of application

4.3.1 This classification is valid for the following product end use applications:

Product is intended to use as fire retardant treatment for wood-based products.

4.3.2. This classification is also valid for following product parameters:

Coatings:

- valid for coating system as tested, with or without tested topcoat applied by spray, roller, curtain coater, brush, or hand roller.

Substrates:

- applied to a wood substrate in accordance to EN 13986 or EN 14915 of at least Euroclass D-s2,d0 with a thickness of at least 18 mm and a substrate density $\geq 433 \text{ kg/m}^3$.

or

- applied to a first wood substrate in accordance with EN 13986 or EN 14915 of at least Euroclass D-s2,d0 with a thickness of at least 8 mm and having a density of $\geq 338 \text{ kg/m}^3$. The first substrate shall be mounted direct to a second wood-based substrate in accordance with EN 13238 of at least Euroclass D-s2, d0 with a thickness of at least 10 mm and having a density of $\geq 510 \text{ kg/m}^3$;

or

- applied to a first wood-based substrate in accordance with EN 13986 or EN 14915 of at least Euroclass D-s2, d0 with a thickness of at least 8 mm and having a density of $\geq 338 \text{ kg/m}^3$. The first substrate shall be mounted directly to a second substrate of gypsum plaster board or any end use substrate of Euro classes A1 or A2-s1, d0 at least 10 mm thick having a density $\geq 510 \text{ kg/m}^3$.

or

- applied to a first wood-based substrate in accordance with EN 13986 or EN 14915 of at least Euroclass D-s2, d0 with a thickness of at least 10 mm and having a density of $\geq 510 \text{ kg/m}^3$.

Mounting:

- mounted with or without ventilated or unventilated air gap. The substrate behind the product shall consist of mineral wool with Euroclass A1 and a thickness of at least 20 mm and a density $\geq 38 \text{ kg/m}^3$ or a gypsum plasterboard (paper faced) or any end use substrate of Euroclass A1 or A2-s1, d0 at least 10 mm thick having a density $\geq 510 \text{ kg/m}^3$;
- valid for untreated wood battens or other Euroclass A1 or A2-s1, d0 products;
- valid for mechanically fixing;
- valid for product application with standard vertical and horizontal joints;
- valid for vertical and horizontal arrangements.

Color:

- valid for all colour tones*.

* According to customer's provided information from extended application report No. PHB10114A about different colour tone influence on reaction to fire performance of paints issued by Danish Institute of Fire and Security Technology (DBI) at Jernholmen 12, DK-2650 Hvidovre, Denmark on 04.12.2020.

5. Limitations.

5.1. No restrictions on the duration of validity of this classification report as long as the product specifications remain unchanged.

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

Prepared by



E. Bukšāns

(signature and name)

Reviewed by



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