

Contact person RISE

Richard Johansson
Division Safety and Transport
+46 10 516 56 75
richard.johansson@ri.se

Date

2022-03-28

Reference

O100352-147289-14rev1

Page

1 (6)

Teknos A/S
Industrivej 19
DK-6580 Vamdrup
Danmark

Extended application – Reaction to fire

1 Introduction

This report covers the extended application of test results obtained in accordance with the test methods EN 13823:2020 and EN ISO 11925-2:2020.

The extended application process is carried out according to the Technical Specification CEN/TS 15117:2005 *Guidance on direct and extended application* and position paper NB-CPR/SH02/19/832r2 *Reaction to fire testing and classification of untreated and fire retardant treated wood construction products to EN 13986*.

This report replaces RISE report O100352-147289-14, dated March 2, 2022. This revision includes new test data.

2 Details of the fire retardant surface coated wood product

2.1 General

The product family “TEKNOSAFE FLAME GUARD 2457-10” that is the subject of this extended application is defined as a fire retardant surface coated wood construction product.

2.2 Product description

The product family named “TEKNOSAFE FLAME GUARD 2457-10” is fully described in the test reports provided in support of classification listed in clause 3.1.

Table 1. Aimed extension to family

Substrates	Substrate Thickness	Substrate density	Product Colours	Mounting
X	X	X	X	X

RISE Research Institutes of Sweden AB

Postal address
Box 857
501 15 BORÅS
SWEDENOffice location
Brinellgatan 4
504 62 Borås
SWEDENPhone / Fax / E-mail
+46 10-516 50 00
+46 33-13 55 02
info@ri.seThis document may not be reproduced other than in full,
except with the prior written approval of RISE Research
Institutes of Sweden AB.

Table 2. Products to be included in the family.

Product Name	Base coating – type and area weight	Top coating – type and area weight	Substrate type Substrate density and thickness	Mounting
P1a-A-CS	TEKNOSAFE FLAME GUARD 2457-10 250 g/m ² (wet) All colours	None	Solid wood substrate in accordance to EN 13986 or EN 14915 (D-s2,d0 or better) ≥ 433 kg/m ³ , ≥ 18 mm Or Solid wood substrate in accordance to EN 13986 or EN 14915 (D-s2,d0 or better) ≥ 338 kg/m ³ , ≥ 8 mm	Straight on to or with an unventilated air gap to A1 mineral wool: A1 mineral wool ≥ 20 mm ≥ 38 kg/m ³
P1b-AB-CS		TEKNOSAFE FLAME PROTECT 2458-00”	Straight to a second substrate A1 or A2-s1,d0 ≥ 510 kg/m, ≥ 10 mm Or Straight to a second substrate D-s2,d0 ≥ 510 kg/m ³ , ≥ 10 mm	Wooden battens: Wood or non-combustible With or without horizontal joints.
P1c-AB-SW		100 g/m ² (wet) All colours		Vertical or horizontal orientation

3 Test reports and test results in support of this extended application report

3.1 Test reports

Table 3. Reports that form the basis of this extended application.

Name of laboratory	Name of sponsor	Test report reference no	Accredited test methods
RISE	Teknos A/S	O100352-147289	EN 13823:2020
RISE	Teknos A/S	O100352-147289-1	EN 13823:2020 and EN ISO 11925-2:2020
RISE	Teknos A/S	O100352-147289-17	EN 13823:2020
RISE	Teknos A/S	O100352-147289-12	EN 13823:2020
DBI	Teknos A/S	PHB10114A	EXAP report, EN 13823:2014+A1:2014, ISO 5660-1:2015

3.2 Test results

Table 4. Test results in accordance to EN 13823.

Parameter –	Test report references and test results			
Report number	O100352-147289-1	O100352-147289-1	O100352-147289-17	O100352-147289-12
Base coat, type and amount (g/m ²)	TEKNOSAFE FLAME GUARD 2457-10 250 g/m ² (wet)	TEKNOSAFE FLAME GUARD 2457-10 250 g/m ² (wet)	TEKNOSAFE FLAME GUARD 2457-10 250 g/m ² (wet)	TEKNOSAFE FLAME GUARD 2457-10 250 g/m ² (wet)
Top coat (g/m ²)	None	TEKNOSAFE FLAME PROTECT 2458-00” 100 g/m ² (wet)	TEKNOSAFE FLAME PROTECT 2458-00” 100 g/m ² (wet)	TEKNOSAFE FLAME PROTECT 2458-00” 100 g/m ² (wet)
FIGRA _{0,2MJ} (W/s)	24*	46	98	97
FIGRA _{0,4MJ} (W/s)	24*	46	98	36
LFS < edge	Compliant	Compliant	Compliant	Compliant
THR _{600s} , (MJ)	3.2*	4.1	2.8	3.5
SMOGRA, (m ² /s ²)	0.5*	0	4	7
TSP _{600s} , (m ²)	37*	29	45	36
Flaming droplets/particles	No	No	No	No

* Average value from 3 tests

Table 5. Test results of colour analysis accordance to EN 13823, from DBI EXAP report PHB10114A.

Colour	FIGRA _{0,2MJ} [W/s]	THR _{600s} [MJ]	SMOGRA [m ² /s ²]	TSP _{600s} [m ²]
Purple	43	4.2	0	46
Black	25	3.0	0	45
White	40	4.1	1	46
Red	32	3.7	1	47

4 Extended application results

The applications for which this extended application is applicable are described below.

Substrate: type, thickness, density and orientation

According to NB-CPR/SH02/19/832r2 clause 5.2.4 testing of a fire retardant surface coated wood product can be performed based on the rules for substrates according to EN 13238. The results are then applicable to all wood products with densities of at least 75% of the wood product used for the surface treatment at tested or greater thickness.

In addition it is stated that the test shall be combined with testing according to EN 13823 of the thinnest actual wood product, to support the full testing of the standard substrate.

It is also stated that the standard substrate shall have vertical and horizontal butt joints when tested according to EN 13823. Testing in this way covers for vertical or horizontal orientation in end use.

Substrate type and orientation

Since testing is performed on a standard substrate which is in accordance to EN 13986 “*Wood-based panels for use in construction*”, the coating system can be applied to a wood based panel that apply to this standard.

The system is also tested with vertical and horizontal butt joints in EN 13823. Thus the testing covers end use of vertical and horizontal joints as well as horizontal or vertical mounting.

A panel in accordance to EN 14915 was tested with vertical as well as horizontal mounting. The vertical as well as the horizontal mounted specimen support the classification in accordance to the standard substrate.

Thickness and density

Testing is performed on a plywood standard substrate mounted straight on to a second substrate of particle board. Both substrates are in accordance to EN 13238. Thus the rules for thickness and density in accordance to EN 13238 can be used regarding thickness and density.

Additional coatings

According to NB-CPR/SH02/19/832r2 clause 5.2.8 at least one single test in accordance to EN 13823 shall be performed to add additional coatings to a classification.

Table 4 shows that the additional top coat can be added to the fully tested base coat.

Mounting

According to NB-CPR/SH02/19/832r2 clause 5.2.7 tests with an air gap are equally valid for mounting without air gap for the same substrate.

The testing is performed with a non-ventilated air gap to an A1 mineral wool. Thus end use mounting is possible both for a straight on mounting or with an unventilated air gap to the same substrate.

Colour ranges

According to NB-CPR/SH02/19/832r2 clause 5.2.11 a worst case colour should be determined if a range of colours shall be included in the classification. Testing can be performed in accordance to the EGOLF recommendation 003-2013 where white, red and black shall be tested. In addition purple was also tested.

Table 5. shows the results from this testing and is taken from the DBI PHB10114A EXAP report. The results show that purple can be regarded as the worst case colour. The PHB10114A report also states that it is assumed that other percentages of purple also are worse than other colours with that volume percentage. The report also states that the colour is also independent to which type of fire retardant paint system it is used in.

RISE Research Institutes of Sweden AB **Department Fire Technology - Reaction to Fire Medium Scale Lab**

Performed by



Richard Johansson

Examined by



Per Thureson

Verifikat

Transaktion 09222115557466097318

Dokument

147289-14rev1 Teknos AS EXAP

Huvuddokument

6 sidor

Startades 2022-03-29 15:03:54 CEST (+0200) av Richard
Johansson (RJ)

Färdigställt 2022-03-29 15:10:49 CEST (+0200)

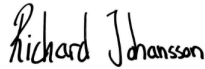
Signerande parter

Richard Johansson (RJ)

RISE Research Institutes of Sweden AB

Org. nr 556464-6874

richard.johansson@ri.se



Signerade 2022-03-29 15:09:05 CEST (+0200)

Per Thureson (PT)

RISE Research Institutes of Sweden AB

per.thureson@ri.se



Signerade 2022-03-29 15:10:49 CEST (+0200)

Detta verifikat är utfärdat av Scrive. Information i kursiv stil är säkert verifierad av Scrive. Se de dolda bilagorna för mer information/bevis om detta dokument. Använd en PDF-läsare som t ex Adobe Reader som kan visa dolda bilagor för att se bilagorna. Observera att om dokumentet skrivs ut kan inte integriteten i papperskopian bevisas enligt nedan och att en vanlig papperutskrift saknar innehållet i de dolda bilagorna. Den digitala signaturen (elektroniska förseglingen) säkerställer att integriteten av detta dokument, inklusive de dolda bilagorna, kan bevisas matematiskt och oberoende av Scrive. För er bekvämlighet tillhandahåller Scrive även en tjänst för att kontrollera dokumentets integritet automatiskt på: <https://scrive.com/verify>

