RI. SE

Fire test of wood panel 米 treated with SiOO:X WOOD PROTECTION



)* SiOO: X has been tested on these types of wood: Spruce, and Pine heartwood

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Fire test of Spruce facade panel, treated with SiOO:X

WOOD PROTECTION

Ignitability according to EN ISO 11925-2

REPORT

Issued by an Accredited Testing Laboratory

Contact person RISE Per Thureson Division Safety and Transport +46 10 516 50 83 per.thureson@ri.se

2022-01-03

Date

Reference 3 O100352-165071 Page 1 (2)

Sioo Woodprotection AB Von Utfallsgatan 20 415 05 GÖTEBORG

Fire test according to EN 13823 (SBI Method)

(4 appendices)

Introduction

RISE has by request of Sioo Woodprotection AB performed fire tests according to EN 13823:2020 (SBI method). The purpose of the tests is to form a basis for technical fire classification.

Products

According to the client:

Product called "SiOO:X Panel Color Wood Protection and SiOO:X Panel Color Surface Protection" for exterior use, consisting of following layers:

	Specie/Coating	Nominal thickness	Nominal density/area
		and width (mm)	weight
Layer 1	Spruce	19 x 145	400-600 kg/m ³
	_		
Layer 2	Binder	-	$0.150 \text{ kg/m}^2 \text{ (wet)}$
Layer 3	Potassium silicate	-	
			$0.310 - 0.320 \text{ kg/m}^2$ (wet)
Layer 4	Potassium silicate	-	

The fire retardant, Potassium silicate, can be applied by brushing or spraying. The coating has a "shark grey" color.

Product called "SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on Spruce" for exterior use, consisting of following layers:

	Specie/Coating	Nominal thickness and width (mm)	Nominal density/area weight
Layer 1	Spruce	19 x 145	400-600 kg/m ³
Layer 2	Binder	-	$0.090 \text{ kg/m}^2 \text{ (wet)}$
Layer 3	Potassium silicate	-	$0.310 - 0.320 \text{ kg/m}^2$ (wet)
Layer 4	Potassium silicate	-	

The fire retardant, Potassium silicate, can be applied by brushing or spraying. The coating is transparent.

RISE Research Institutes of Sweden AB

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2(2)

Manufacturer

Sioo Woodprotection AB, Göteborg, Sweden.

Sampling

The samples were delivered by the client. It is not known to RISE, Fire Technology if the products received are representative of the mean production characteristics.

The samples were received July 15 and August 30, 2021 at RISE, Fire Technology.

Test results

The test results are given in appendix 1-2 and photographs are shown in appendix 3. An explanation of the SBI-test parameters is given in appendix 4.

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

Note

The accreditation referred to is valid for EN 13823.

RISE Research Institutes of Sweden AB Department Fire Technology - Reaction to Fire Material Lab

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Ida Larsson

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Appendices

- 1-2 Test results, EN 13823
- 3 Photographs
- 4 Test parameter explanation, EN 13823

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Test results, EN 13823:2020

Product

According to the client:

Product called "SiOO:X Panel Color Wood Protection and SiOO:X Panel Color Surface Protection" for exterior use, consisting of following layers:

	Specie/Coating	Nominal thickness and width (mm)	Nominal density/area weight
Layer 1	Spruce	19 x 145	400-600 kg/m ³
Layer 2	Binder	-	0.150 kg/m ²
Layer 3	Potassium silicate	-	$0.310 - 0.320 \text{ kg/m}^2$
Layer 4	Potassium silicate	-	

The fire retardant, Potassium silicate, can be applied by brushing or spraying. The coating has a "shark grey" color.

Mounting

See photo 1 - 2, appendix 3.

The product was mounted according to EN 13823:2010+A1:2014, 5.2.2 a and e. The product was mounted vertically with an air-gap of 40 mm to a particle board by means of horizontal wooden battens. The product was mechanically fixed. The panels in accordance with EN 13823:2010+A1:2014, 4.4.11 were removed. Horizontal and vertical joint was used. The particle board fulfils the requirements given in EN 13238.

Test results

Test no	Test 1	Test 2	Test 3	Average
General information				
Test start, min:s	0:00	0:00	0:00	
Auxiliary burner ignited and adjusted, min:s	2:00	2:00	2:00	
Main burner ignited, min:s	5:00	5:00	5:00	
Main burner stopped, min:s	26:00	26:00	26:00	
Observations				
Flaming droplets or particles	No	No	No	
Burning droplets or particles, > 10 s	No	No	No	
Lateral flame spread until the edge, LFS	No	No	No	
Fire performance, see graph no 3 to 6				
$FIGRA_{0,2MJ}, W/s$	351	293	301	<u>315</u>
<i>FIGRA</i> _{0,4MJ} , W/s	351	285	301	<u>312</u>
$SMOGRA, m^2/s^2$	14	12	8,3	<u>11</u>
<i>THR</i> _{600s} , MJ	13	10	12	<u>12</u>
TSP_{600s} , m ²	50	39	46	<u>45</u>

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Observations made during the tests

None.

Method of smoke calculation

The smoke production rate, SPR, of the burner was calculated using data from the main (primary) burner according to EN 13823:2020

Graph of heat release rate (HRR_{av})



Graph 1 Heat release rate (burner excluded), 30 seconds running average value.



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Graph of smoke production rate (SPR_{av})



Graph 2 Smoke production rate (burner excluded), 60 seconds running average value.

Graph of total heat release (THR)



Graph 3 Total heat release (burner excluded).



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Graph of total smoke production (TSP)



Graph 4 Total smoke production (burner excluded).

Graph of FIre Growth RAte index (FIGRA)



Graph 5 Fire growth rate index.



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5 (5)

Graph of SMOke Growth RAte index (SMOGRA)



Graph 6 Smoke growth rate index.

Note

Graphs 5 and 6 show the time relationships of *FIGRA* and *SMOGRA* respectively without applying the threshold values, see EN 13823, paragraph A.5.3 and A.6.3. Therefore the reported single maximum values of *FIGRA*_{0,2MJ}, *FIGRA*_{0,4MJ} and *SMOGRA* may be smaller than shown in the graphs as the threshold values are applied in this case.

Measured data

Thickness 19 mm.

Area weight 6.6 kg/m².

Density 360 kg/m³.

Conditioning

According to EN 13238 and EN 13823:2020.

Temperature (23 ± 2) °C. Relative humidity (50 ± 5) %.

Date of test

November 19, 2021.

Constant mass: Mass 1: 1455 g Mass 2: 1454 g Time : 24 h

Test results, EN 13823:2020

Product

Product called "SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on Spruce", for exterior use", consisting of following layers:

	Specie/Coating	Nominal thickness	Nominal density/area
		and width (mm)	weight
Layer 1	Spruce	19 x 145	400-600 kg/m ³
Layer 2	Binder	-	0.090 kg/m ²
Layer 3	Potassium silicate	-	$0.310 - 0.320 \ \mathrm{kg/m^2}$
Layer 4	Potassium silicate	-	

The fire retardant, Potassium silicate, can be applied by brushing or spraying. The coating is transparent.

Mounting

See photo 1-2, appendix 3.

The product was mounted according to EN 13823:2010+A1:2014, 5.2.2 a and e. The product was mounted vertically with an air-gap of 40 mm to a particle board by means of horizontal wooden battens. The product was mechanically fixed. The panels in accordance with EN 13823:2010+A1:2014, 4.4.11 were removed. Horizontal and vertical joint was used. The particle board fulfils the requirements given in EN 13238.

Test results

Test no	Test 1
General information	
Test start, min:s	0:00
Auxiliary burner ignited and adjusted, min:s	2:00
Main burner ignited, min:s	5:00
Main burner stopped, min:s	26:00
Observations	
Flaming droplets or particles	No
Burning droplets or particles, > 10 s	No
Lateral flame spread until the edge, LFS	No
Fire performance, see graph no 3 to 6	
FIGRA _{0.2MJ} , W/s	326
FIGRA _{0.4MJ} , W/s	318
$SMOGRA, m^2/s^2$	15
THR_{600s} , MJ	13
TSP_{600s} , m ²	58

RI. SF

Appendix 2

Observations made during the tests

None.

Method of smoke calculation

The smoke production rate, SPR, of the burner was calculated using data from the main (primary) burner according to EN 13823:2020

Graph of heat release rate (HRR_{av})



Graph 1 Heat release rate (burner excluded), 30 seconds running average value.



3 (5)

Graph of smoke production rate (SPR_{av})



Graph 2 Smoke production rate (burner excluded), 60 seconds running average value.

Graph of total heat release (THR)

Graph 3 Total heat release (burner excluded).



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Graph of total smoke production (TSP)



Graph 4 Total smoke production (burner excluded).

Graph of FIre Growth RAte index (FIGRA)



Graph 5 Fire growth rate index.



```
Appendix 2
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Graph of SMOke Growth RAte index (SMOGRA)



Graph 6 Smoke growth rate index.

Note

Graphs 5 and 6 show the time relationships of *FIGRA* and *SMOGRA* respectively without applying the threshold values, see EN 13823, paragraph A.5.3 and A.6.3. Therefore the reported single maximum values of *FIGRA*_{0,2MJ}, *FIGRA*_{0,4MJ} and *SMOGRA* may be smaller than shown in the graphs as the threshold values are applied in this case.

Measured data

Thickness 19 mm.

Area weight 6.6 kg/m².

Density 360 kg/m³.

Conditioning

According to EN 13238 and EN 13823:2020.

Temperature (23 ± 2) °C. Relative humidity (50 ± 5) %.

Date of test

October 5, 2021.

Constant mass: Mass 1: 1455 g Mass 2: 1454 g Time : 24 h REPORT

RI. SE Page 1 (6)

Appendix 3

Photographs



Photo no 1

Prior to test

"SiOO:X Panel Colour shark gray"

The exposed surface of the long wing.



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Prior to test

"SiOO:X Panel Colour shark gray"

The vertical outer edge of the long wing at a height of 500 mm above the floor of the trolley.



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Photo no 3 After test

"SiOO:X Panel Colour shark gray"

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Photo no 4 After test

"SiOO:X Panel Colour shark gray"

Page 5 (6)



Photo no 5

"SiO

"SiOO:X Panel Colour shark gray"

Impact of flames in the burner corner.

After test



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Photo no 6 After test

"SiOO:X Panel Clear coat"

Test parameter explanation - EN 13823:2020 (SBI method)

Parameter	Explanation
Test start	Start of data collection.
End of test	26:00 (min:s) after test start.
HRR _{av} , maximum, kW	Peak Heat Release Rate of material between ignition of the main burner and end of test (burner heat output excluded), as a 30 seconds running average value.
SPR _{av} , maximum, m ² /s	Peak Smoke Production Rate of material between ignition of the main burner and end of test (burner heat output excluded), as a 60 seconds running average value.
<i>FIGRA</i> _{0,2MJ} , W/s	FIre Growth RAte index is defined as the maximum of the quotient $HRR_{av}(t)/(t-300s)$, multiplied by 1000. During 300 s \leq t \leq 1500 s, threshold value 3 kW and 0.2 MJ.
<i>FIGRA</i> _{0,4MJ} , W/s	FIre Growth RAte index is defined as the maximum of the quotient $HRR_{av}(t)/(t-300s)$, multiplied by 1000. During 300 s \leq t \leq 1500 s, threshold value 3 kW and 0.4 MJ.
<i>SMOGRA</i> , m ² /s ²	SMOke Growth RAte index is defined as the maximum of the quotient $SPR_{av}(t)/(t-300s)$, multiplied by 10 000. During 300 s \leq t \leq 1500 s, threshold value 0.1 m ² /s and 6 m ² .
<i>THR</i> _{600s} , MJ	Total heat release of the sample during 300 s \leq t \leq 900 s.
TSP_{600s}, m^2	Total smoke production of the sample during 300 s \leq t \leq 900 s.

Fire report of Spruce and Pine heartwood facade panel, treated with



Ignitability according to EN ISO 11925-2

REPORT

Issued by an Accredited Testing Laboratory

Contact person RISE Per Thureson Division Safety and Transport +46 10 516 50 83 per.thureson@ri.se

2022-01-03

Date

 Reference
 Page

 O100352-165071-1
 1 (2)

Sioo Woodprotection AB Von Utfallsgatan 20 415 05 GÖTEBORG

Ignitability according to EN ISO 11925-2

(2 appendices)

Introduction

RISE has by request of Sioo Woodprotection AB performed fire tests according to EN ISO 11925-2. The purpose of the tests are to form a basis for technical fire classification.

Products

According to the client:

Product called "SiOO:X Panel Color Wood Protection and SiOO:X Panel Color Surface Protection" for exterior use, consisting of following layers:

	Specie/Coating	Nominal thickness and width (mm)	Nominal density/area weight
Layer 1	Spruce	19 x 145	400-600 kg/m ³
Layer 2	Binder	-	0.150 kg/m ²
Layer 3	Potassium silicate	-	$0.310 - 0.320 \text{ kg/m}^2$
Layer 4	Potassium silicate	-	

The fire retardant, Potassium silicate, can be applied by brushing or spraying. The coating has a "shark grey" color.

Product called "SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on pine heartwood" for exterior use, consisting of following layers:

	Specie/Coating	Nominal thickness	Nominal density/area
		and width (mm)	weight
Layer 1	Pine heartwood	19 x 145	400-470 kg/m ³
Layer 2	Hydrophobic surface protection	-	0.150 kg/m ²
Layer 3	Potassium silicate	-	$0.310 - 0.320 \text{ kg/m}^2$
Layer 4	Potassium silicate	-	

The fire retardant, Potassium silicate, can be applied by brushing or spraying. The coating is transparent.

RISE Research Institutes of Sweden AB

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Manufacturer

Sioo Woodprotection AB, Göteborg, Sweden.

Sampling

The sample was delivered by the client. It is not known to RISE, Fire Technology if the products received are representative of the mean production characteristics.

The samples were received July 15 and August 30, 2021 at RISE, Fire Technology.

Test results

The products were tested with surface exposure and edge exposure.

The test results are given in appendix 1-2.

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

Note

The accreditation referred to is valid for EN ISO 11925-2.

RISE Research Institutes of Sweden AB Department Fire Technology - Reaction to Fire Material Lab

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Appendices

1-2 Test results, EN ISO 11925-2

Page

1 (2)

Test results - EN ISO 11925-2:2020

Product

According to the client:

Product called "SiOO:X Panel Color Wood Protection and SiOO:X Panel Color Surface Protection" for exterior use, consisting of following layers:

		8 9 9	
	Specie/Coating	Nominal thickness	Nominal density/area
		and width (mm)	weight
Layer 1	Spruce	19 x 145	400-600 kg/m ³
Layer 2	Binder	-	0.150 kg/m ²
Layer 3	Potassium silicate	-	
_			$0.310 - 0.320 \text{ kg/m}^2$
Layer 4	Potassium silicate	-	

The fire retardant, Potassium silicate, can be applied by brushing or spraying. The coating has a "shark grey" color.

Application

Edge exposure. Flame exposure time was 30 seconds.

Test results						
Test no	1	2	3	4	5	6
Direction	↑	↑	Ţ	\rightarrow	\rightarrow	\rightarrow
The sample ignited, s The flames reach 150 mm, s	22 _*	20 _*	14 _*	18 _*	22 _*	20 -*
Flaming droplets/particles	No	No	No	No	No	No
Time when filter paper ignited, s	-	-	-	-	-	-

*Flaming ceased before the flame tip reached 150 mm.

RI.

Page 2 (2)

Appendix 1

Application

Surface exposure. Flame exposure time was 30 seconds.

Test results						
Test no	1	2	3	4	5	6
Direction	↑	↑	↑	\rightarrow	\rightarrow	\rightarrow
The sample ignited, s	NI	NI	NI	NI	NI	NI
Flaming droplets/particles	- No	- No	- No	- No	- No	- No
Time when filter paper ignited, s	-	-	-	-	-	-

NI = No ignition.

Measured data

Thickness 19 mm.

Area weight 6.6 kg/m².

Density 360 kg/m³.

Conditioning

According to EN 13238:2010.

Temperature (23 \pm 2) °C.

Relative humidity (50 \pm 5) %.

Date of test

December 6, 2021.

Page

1(2)

Photographs

Test results - EN ISO 11925-2:2020 Product

Product called "SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on pine heartwood", consisting of following layers:

	Specie/Coating	Nominal thickness and width (mm)	Nominal density/area weight
Layer 1	Pine heartwood	19 x 145	400-470 kg/m ³
Layer 2	Hydrophobic surphase protection	-	0.150 kg/m ²
Layer 3	Potassium silicate	-	$0.310 - 0.320 \text{ kg/m}^2$
Layer 4	Potassium silicate	-	

The fire retardant, Potassium silicate, can be applied by brushing or spraying. The coating is transparent.

Application

Edge exposure. Flame exposure time was 30 seconds.

Test results

Test no	1	2	3	4	5	6
Direction	↑	↑	↑	\rightarrow	\rightarrow	\rightarrow
The sample ignited, s	22	21	21	22	18	23
Flaming droplets/particles	-* No	-* No	-* No	-* No	-* No	-* No
Time when filter paper ignited, s	-	-	-	-	-	-

*Flaming ceased before the flame tip reached 150 mm.

RI.

Page 2 (2)

Appendix 2

Application

Surface exposure. Flame exposure time was 30 seconds.

Test results						
Test no	1	2	3	4	5	6
Direction	↑	↑	Ţ	\rightarrow	\rightarrow	\rightarrow
The sample ignited, s The flames reach 150 mm, s Flaming droplets/particles Time when filter paper ignited, s	NI - No -	22 -* No -	NI - No -	NI - No -	NI - No -	NI - No -

NI = No ignition.

*Flaming ceased before the flame tip reached 150 mm.

Measured data

Thickness 18 mm.

Area weight 8.0 kg/m².

Density 440 kg/m³.

Conditioning

According to EN 13238:2010.

Temperature (23 ± 2) °C.

Relative humidity (50 \pm 5) %.

Date of test

December 6, 2021.

Fire test of Pine heartwood facade panel, treated with SiOO:X

WOOD PROTECTION

Fire test according to EN 13823 (SBI Method)

Issued by an Accredited Testing Laboratory

Contact person RISE Per Thureson Division Safety and Transport +46 10 516 50 83 per.thureson@ri.se

2022-01-03

Date

Reference Page O100352-165071-2

1(2)

Sioo Woodprotection AB Von Utfallsgatan 20 415 05 GÖTEBORG

Fire test according to EN 13823 (SBI Method)

(3 appendices)

Introduction

RISE has by request of Sioo Woodprotection AB performed a fire test according to EN 13823:2020 (SBI method). The purpose of the test is to form a basis for technical fire classification.

Products

According to the client:

Product called "SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on pine heartwood" for exterior use, consisting of following layers:

	Specie/Coating	Nominal thickness	Nominal density/area
		and width (mm)	weight
Layer 1	Pine heartwood	19 x 145	400-470 kg/m ³
Layer 2	Hydrophobic surface protection	-	$0.150 \text{ kg/m}^2 \text{ (wet)}$
Layer 3	Potassium silicate	-	$0.310 - 0.320 \text{ kg/m}^2$ (wet)
Layer 4	Potassium silicate	-	

The fire retardant, Potassium silicate, can be applied by brushing or spraying. The coating is transparent.

Manufacturer

Sioo Woodprotection AB, Göteborg, Sweden.

Sampling

The sample was delivered by the client. It is not known to RISE, Fire Technology if the product received is representative of the mean production characteristics.

The sample was received July 15, 2021 at RISE, Fire Technology.

Test results

The test results are given in appendix 1 and photographs are shown in appendix 2. An explanation of the SBI-test parameters is given in appendix 3.

RISE Research Institutes of Sweden AB

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Page 2 (2)

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

Note

The accreditation referred to is valid for EN 13823.

RISE Research Institutes of Sweden AB Department Fire Technology - Reaction to Fire Material Lab

Performed by

Examined by

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Per Thureson

Ida Larsson

Appendices

- 1 Test results, EN 13823
- 2 Photographs
- 3 Test parameter explanation, EN 13823

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Test results, EN 13823:2020

Product

According to the client:

Product called "SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on pine heartwood" for exterior use, consisting of following layers:

		, U	
	Specie/Coating	Nominal thickness	Nominal density/area
		and width (mm)	weight
Layer 1	Pine heartwood	19 x 145	400-470 kg/m ³
Layer 2	Hydrophobic surface	-	0.150 kg/m^2
	protection		
Layer 3	Potassium silicate	-	
			$0.310 - 0.320 \text{ kg/m}^2$
Layer 4	Potassium silicate	-	

The fire retardant, Potassium silicate, can be applied by brushing or spraying. The coating is transparent.

Mounting

See photo 1-2, appendix 2.

The product was mounted according to EN 13823:2010+A1:2014, 5.2.2 a and e. The product was mounted vertically with an air-gap of 40 mm to a particle board by means of horizontal wooden battens. The product was mechanically fixed. The panels in accordance with EN 13823:2010+A1:2014, 4.4.11 were removed. Horizontal and vertical joint was used. The particle board fulfils the requirements given in EN 13238.

Test results

Test no	Test 1	Test 2	Test 3	Average
General				
information	0:00	0:00	0:00	
Acestistary, buints rignited and adjusted, min:s	2:00	2:00	2:00	
Main burner ignited, min:s	5:00	5:00	5:00	
Main burner stopped, min:s	26:00	26:00	26:00	
Observations				
Flaming droplets or particles	No	No	No	
Burning droplets or particles, > 10 s	No	No	No	
Lateral flame spread until the edge, LFS	No	No	No	
Fire performance, see graph no 3 to				
6	455	398	378	<u>411</u>
<i>FIGRA</i> _{0,2MJ} , W/s	455	398	378	<u>411</u>
$SMOGRA, m^2/s^2$	14	11	13	<u>13</u>
<i>THR</i> _{600s} , MJ	20	16	15	<u>17</u>
TSP_{600s}, m^2	64	63	66	<u>64</u>

Observations made during the tests

None.

Method of smoke calculation

The smoke production rate, SPR, of the burner was calculated using data from the main (primary) burner according to EN 13823:2020

Graph of heat release rate (HRR_{av})



Graph 1 Heat release rate (burner excluded), 30 seconds running average value.



3 (5)

Graph of smoke production rate (SPR_{av})



Graph 2 Smoke production rate (burner excluded), 60 seconds running average value.

Graph of total heat release (THR)



Graph 3 Total heat release (burner excluded).

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Appendix 1
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Graph of total smoke production (TSP)

Graph 4 Total smoke production (burner excluded).

Graph of FIre Growth RAte index (FIGRA)



Graph 5 Fire growth rate index.

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Graph of SMOke Growth RAte index (SMOGRA)



Graph 6 Smoke growth rate index.

Note

Graphs 5 and 6 show the time relationships of *FIGRA* and *SMOGRA* respectively without applying the threshold values, see EN 13823, paragraph A.5.3 and A.6.3. Therefore the reported single maximum values of *FIGRA*_{0,2MJ}, *FIGRA*_{0,4MJ} and *SMOGRA* may be smaller than shown in the graphs as the threshold values are applied in this case.

Measured data

Thickness 18 mm.

Area weight 8.0 kg/m².

Density 440 kg/m³.

Conditioning

According to EN 13238 and EN 13823:2020.

Temperature (23 ± 2) °C. Relative humidity (50 ± 5) %.

Constant mass: Mass 1: 1668 g Mass 2: 1668 g Time : 24 h

Date of test

October 5 and November 16, 2021.

REPORT

RI. SE Page 1 (5)

Appendix 2

Photographs



Photo no 1

Prior to test

"SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on pine heartwood"

The exposed surface of the long wing.



Page 2 (5)



Photo no 2

Prior to test

"SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on pine heartwood"

The vertical outer edge of the long wing at a height of 500 mm above the floor of the trolley.





Page 3 (5)



Photo no 3

After test

"SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on pine heartwood"

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Appendix 2



Photo no 4 After test

"SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on pine heartwood"

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Photo no 5

After test

"SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on pine heartwood"

1(1)

Appendix 3

Test parameter explanation - EN 13823:2020 (SBI method)

Parameter	Explanation
Test start	Start of data collection.
End of test	26:00 (min:s) after test start.
HRR _{av} , maximum, kW	Peak Heat Release Rate of material between ignition of the main burner and end of test (burner heat output excluded), as a 30 seconds running average value.
SPR _{av} , maximum, m ² /s	Peak Smoke Production Rate of material between ignition of the main burner and end of test (burner heat output excluded), as a 60 seconds running average value.
<i>FIGRA</i> _{0,2MJ} , W/s	FIre Growth RAte index is defined as the maximum of the quotient $HRR_{av}(t)/(t-300s)$, multiplied by 1000. During 300 s \leq t \leq 1500 s, threshold value 3 kW and 0.2 MJ.
<i>FIGRA</i> _{0,4MJ} , W/s	FIre Growth RAte index is defined as the maximum of the quotient $HRR_{av}(t)/(t-300s)$, multiplied by 1000. During 300 s \leq t \leq 1500 s, threshold value 3 kW and 0.4 MJ.
<i>SMOGRA</i> , m ² /s ²	SMOke Growth RAte index is defined as the maximum of the quotient $SPR_{av}(t)/(t-300s)$, multiplied by 10 000. During 300 s \leq t \leq 1500 s, threshold value 0.1 m ² /s and 6 m ² .
THR _{600s} , MJ	Total heat release of the sample during 300 s \leq t \leq 900 s.
TSP_{600s}, m^2	Total smoke production of the sample during 300 s \leq t \leq 900 s.

This classification report defines the classification assigned to "SiOO:X Panel **Color Wood**" on Spruce

REPORT Issued by an Accredited Testing Laboratory

Contact person RISE Per Thureson Division Safety and Transport +46 10 516 50 83 per.thureson@ri.se

2022-01-03

Date

Reference Page 0100352-165071-4 1 (4)

Sioo Woodprotection AB Von Utfallsgatan 20 415 05 GÖTEBORG

Classification of reaction to fire in accordance with EN 13501-1

1 Introduction

This classification report defines the classification assigned to "SiOO:X Panel Color Wood Protection and SiOO:X Panel Color Surface Protection" in accordance with the procedure given in EN 13501-1:2018.

2 Details of classified product

2.1 General

The product "SiOO:X Panel Color Wood Protection and SiOO:X Panel Color Surface Protection" is defined as a wooden cladding for exterior use.

According to the owner of this classification report, this product complies with the European product specification EN 14915:2013 + A2:2020.

2.2 Product description

The product, "SiOO:X Panel Color Wood Protection and SiOO:X Panel Color Surface Protection" (as described by the sponsor), is fully described below or is fully described in the test reports provided in support of classification listed in Clause 3.1.

Product called "SiOO:X Panel Color Wood Protection and SiOO:X Panel Color Surface Protection" for exterior use, consisting of following layers:

	<u> </u>		
	Specie/Coating	Nominal thickness	Nominal density/area
		and width (mm)	weight
Layer 1	Spruce	19 x 145	400-600 kg/m ³
-	-		_
Layer 2	Binder	-	$0.150 \text{ kg/m}^2 \text{ (wet)}$
Layer 3	Potassium silicate	-	
			$0.310 - 0.320 \text{ kg/m}^2$ (wet)
Layer 4	Potassium silicate	-	

The fire retardant, Potassium silicate, can be applied by brushing or spraying. The coating has a "shark grey" color.

RISE Research Institutes of Sweden AB

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3 Reports and results in support of this classification

3.1 Test report

Name of laboratory	Name of sponsor	Test report reference no	Accredited test methods and date
RISE	Sioo Woodprotection AB	O100352- 165071	EN 13823:2020
RISE	Sioo Woodprotection AB	O100352- 165071-1	EN ISO 11925-2:2020

Table 1Test reports forming the basis for this classification.

3.2 Test results

The test results listed below show the worst case as found in the test programme performed and reported according to the table above.

Table 2	Test results showing the worst case as found in the test program performed.	
---------	---	--

Test method	Parameter	Number of tests	Results	
			Continuous parameter mean (m)	Compliance with parameters
EN ISO 11925-2		12		
Edge/Surface flame attack*				
30 s exposure	$Fs \le 150 \text{ mm}$		(-)	Compliant
Flaming droplets/particles	Ignition of filter paper		(-)	No ignition of filter paper
EN 13823		3		
	FIGRA _{0,2MJ} (W/s)		315	Compliant
	FIGRA _{0,4MJ} (W/s)		312	Compliant
	<i>LFS</i> < edge		(-)	Compliant
	<i>THR</i> _{600s} , (MJ)		12	Compliant
	SMOGRA, (m^2/s^2)		11	Compliant
	TSP_{600s} , (m ²)		45	Compliant
	Flaming droplets/particles		(-)	No flaming droplets/particles

* : as required to the end use application of the product

(-) : not applicable

3 (4)

4 Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with clause 11 and 15 of EN 13501-1:2018.

4.2 Classification

The product called "SiOO:X Panel Color Wood Protection and SiOO:X Panel Color Surface Protection" in relation to its reaction to fire behaviour is classified:

D

The additional classification in relation to smoke production is:

s1

The additional classification in relation to flaming particles/droplets is:

d0

The format of the reaction to fire classification for construction products excluding floorings and linear pipe thermal insulation product is:

Fire Behaviour		Smoke Production			Flaming Droplets	
D	-	s	1	,	d	0

Reaction to fire classification: *D-s1,d0*

4.3 Field of application:

This classification is valid for the following product parameters:

Product description, as specified in 2.2 in this report.

This classification is valid for the following end use conditions:

Substrates:

• Wood based substrates at least 10 mm thick and any end use substrate of Euroclasses A1 or A2-s1,d0 at least 6 mm thick, having a density \geq 510 kg/m³.

Fixings;

Vertical panels, mechanically fixed.

Joints;

• Horizontal and vertical joints.

Void:

• Horizontal wood scantlings creating a cavity ≥ 40 mm. The panels can also be mounted directly to the substrate.

The sample was delivered by the client. RISE, Fire Technology was not involved in the sampling procedure.

5 Limitations

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

RISE Research Institutes of Sweden AB Department Fire Technology - Reaction to Fire Material Lab

Performed by

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Page

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Ida Larsson

Examined by

This classification report defines the classification assigned to "SiOO:X Wood **Protection Industry and** SiOO:X Surface **Protection Panel** Industry on Spruce"

REPORT Issued by an Accredited Testing Laboratory

Contact person RISE Per Thureson Division Safety and Transport +46 10 516 50 83 per.thureson@ri.se

2022-01-03

Date

Reference Page 3 O100352-165071-5 1 (4)

> Sioo Woodprotection AB Von Utfallsgatan 20 415 05 GÖTEBORG

Classification of reaction to fire in accordance with EN 13501-1

1 Introduction

This classification report defines the classification assigned to "SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on Spruce" in accordance with the procedure given in EN 13501-1:2018.

2 Details of classified product

2.1 General

The product "SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on Spruce" is defined as a wooden cladding for exterior use.

According to the owner of this classification report, this product complies with the European product specification EN 14915:2013 + A2:2020.

2.2 Product description

The product, "SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on Spruce" (as described by the sponsor), is fully described below or is fully described in the test reports provided in support of classification listed in Clause 3.1.

Product called "SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on Spruce" for exterior use, consisting of following layers:

	Specie/Coating	Nominal thickness	Nominal density/area
		and width (mm)	weight
Layer 1	Spruce	19 x 145	$400-600 \text{ kg/m}^3$
	•		
Layer 2	Binder	-	$0.090 \text{ kg/m}^2 \text{ (wet)}$
Layer 3	Potassium silicate	-	
			$0.310 - 0.320 \text{ kg/m}^2$ (wet)
Layer 4	Potassium silicate	-	

The fire retardant, Potassium silicate, can be applied by brushing or spraying. The coating is transparent.

RISE Research Institutes of Sweden AB

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Name of laboratory	Name of sponsor	Test report reference no	Accredited test methods and date
RISE	Sioo Woodprotection AB	O100352- 165071	EN 13823:2020
RISE	Sioo Woodprotection AB	O100352- 165071-1	EN ISO 11925-2:2020

Table 1Test reports forming the basis for this classification.

3.2 Test results

The test results listed below show the worst case as found in the test programme performed and reported according to the table above.

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	I Col I Coulto	showing the		as iound m		grain periornica.
		0				

Test method	Parameter	Number of tests	Results	
			Continuous parameter mean (m)	Compliance with parameters
EN ISO 11925-2		12		
Edge/Surface flame attack*				
30 s exposure	$Fs \le 150 \text{ mm}$		(-)	Compliant
Flaming droplets/particles	Ignition of filter paper		(-)	No ignition of filter paper
EN 13823		4		
	FIGRA _{0,2MJ} (W/s)		315	Compliant
	FIGRA _{0,4MJ} (W/s)		312	Compliant
	<i>LFS</i> < edge		(-)	Compliant
	<i>THR</i> _{600s} , (MJ)		12	Compliant
	$SMOGRA$, (m^2/s^2)		11	Compliant
	TSP_{600s} , (m ²)		45**	Compliant
	Flaming droplets/particles		(-)	No flaming droplets/particles

* as required to the end use application of the product

** the single test on the clear coat version gives a TSP_{600s} , (m²) of 58.

(-) : not applicable

3 (4)

4 Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with clause 11 and 15 of EN 13501-1:2018.

4.2 Classification

The product called "SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on Spruce" in relation to its reaction to fire behaviour is classified:

D

The additional classification in relation to smoke production is:

s2

The additional classification in relation to flaming particles/droplets is:

d0

The format of the reaction to fire classification for construction products excluding floorings and linear pipe thermal insulation product is:

Fire Behaviour		Smoke Production			Flaming Droplets	
D	-	s	2	,	d	0

Reaction to fire classification: *D*-*s*2,*d*0

4.3 Field of application:

This classification is valid for the following product parameters:

Product description, as specified in 2.2 in this report.

This classification is valid for the following end use conditions:

Substrates:

• Wood based substrates at least 10 mm thick and any end use substrate of Euroclasses A1 or A2-s1,d0 at least 6 mm thick, having a density \geq 510 kg/m³.

Fixings;

• Vertical panels, mechanically fixed.

Joints;

• Horizontal and vertical joints.

Void:

• Horizontal wood scantlings creating a cavity ≥ 40 mm. The panels can also be mounted directly to the substrate.

The sample was delivered by the client. RISE, Fire Technology was not involved in the sampling procedure.

5 Limitations

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

RISE Research Institutes of Sweden AB Department Fire Technology - Reaction to Fire Material Lab Performed by Examined by

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Ida Larsson

This classification report defines the classification assigned to "SiOO:X Wood **Protection Industry and** SiOO:X Surface **Protection Panel Industry on pine** heartwood"

REPORT

Issued by an Accredited Testing Laboratory

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2022-01-03

Date

 Reference
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Sioo Woodprotection AB Von Utfallsgatan 20 415 05 GÖTEBORG

Classification of reaction to fire in accordance with EN 13501-1

1 Introduction

This classification report defines the classification assigned to "SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on pine heartwood" in accordance with the procedure given in EN 13501-1:2018.

2 Details of classified product

2.1 General

The product "SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on pine heartwood" is defined as a wooden cladding for exterior use.

According to the owner of this classification report, this product complies with the European product specification EN 14915:2013 + A2:2020.

2.2 Product description

The product, "SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on pine heartwood " (as described by the sponsor), is fully described below or is fully described in the test reports provided in support of classification listed in Clause 3.1.

Product called "SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on pine heartwood" for exterior use, consisting of following layers:

		· · · · · · · · · · · · · · · · · · ·	<u> </u>
	Specie/Coating	Nominal thickness	Nominal density/area
		and width (mm)	weight
Layer 1	Pine heartwood	19 x 145	400-470 kg/m ³
Layer 2	Hydrophobic surface protection	-	0.150 kg/m ² (wet)
Layer 3	Potassium silicate	-	$0.310 - 0.320 \text{ kg/m}^2$ (wet)
Layer 4	Potassium silicate	-	

The fire retardant, Potassium silicate, can be applied by brushing or spraying. The coating is transparent.

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3 Reports and results in support of this classification

3.1 Test report

Name of laboratory	Name of sponsor	Test report reference no	Accredited test methods and date
RISE	Sioo Woodprotection AB	O100352- 165071-2	EN 13823:2020
RISE	Sioo Woodprotection AB	O100352- 165071-1	EN ISO 11925-2:2020

Table 1Test reports forming the basis for this classification.

3.2 Test results

The test results listed below show the worst case as found in the test programme performed and reported according to the table above.

Table 2	Test results s	showing the	worst case	as found in	the test pro	ogram performed.
						8

Test method	Parameter	Number of tests	Results	
			Continuous parameter mean (m)	Compliance with parameters
EN ISO 11925-2		12		
Edge/Surface flame attack*				
30 s exposure	$Fs \le 150 \text{ mm}$		(-)	Compliant
Flaming droplets/particles	Ignition of filter paper		(-)	No ignition of filter paper
EN 13823		3		
	FIGRA _{0,2MJ} (W/s)		411	Compliant
	FIGRA _{0,4MJ} (W/s)		411	Compliant
	<i>LFS</i> < edge		(-)	Compliant
	<i>THR</i> _{600s} , (MJ)		17	Compliant
	SMOGRA, (m^2/s^2)		13	Compliant
	TSP_{600s} , (m ²)		64	Compliant
	Flaming droplets/particles		(-)	No flaming droplets/particles

* : as required to the end use application of the product

(-) : not applicable

3 (4)

4 Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with clause 11 and 15 of EN 13501-1:2018.

4.2 Classification

The product called "SiOO:X Wood Protection Industry and SiOO:X Surface Protection Panel Industry on pine heartwood" in relation to its reaction to fire behaviour is classified:

D

The additional classification in relation to smoke production is:

s2

The additional classification in relation to flaming particles/droplets is:

d0

The format of the reaction to fire classification for construction products excluding floorings and linear pipe thermal insulation product is:

Fire Behaviour		Smoke Production			Flaming Droplets	
D	-	s	2	,	d	0

Reaction to fire classification: *D*-*s*2,*d*0

4.3 Field of application:

This classification is valid for the following product parameters:

Product description, as specified in 2.2 in this report.

This classification is valid for the following end use conditions:

Substrates:

• Wood based substrates at least 10 mm thick and any end use substrate of Euroclasses A1 or A2-s1,d0 at least 6 mm thick, having a density $\geq 510 \text{ kg/m}^3$.

Fixings;

• Vertical panels, mechanically fixed.

Joints;

• Horizontal and vertical joints.

Void:

• Horizontal wood scantlings creating a cavity ≥ 40 mm. The panels can also be mounted directly to the substrate.

The sample was delivered by the client. RISE, Fire Technology was not involved in the sampling procedure.

5 Limitations

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

RISE Research Institutes of Sweden AB Department Fire Technology - Reaction to Fire Material Lab

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