PEUTZ

Laboratory for Fire Safety

Reaction to fire testing in accordance with EN_13823:2020+A1:2022 of Verosol SilverScreen 202/205

Test report

Report number YC 2174-4E-RA-001 dated 19 June 2023

Laboratory for Fire Safety

Reaction to fire testing in accordance with EN_13823:2020+A1:2022 of Verosol SilverScreen 202/205

Test report

Client	Kvadrat High Performance Textiles B.V. Kiefte 18 7151 HZ Eibergen The Netherlands
Issued by	Peutz bv Lindenlaan 41 NL-6584 AC Molenhoek PO Box 66 NL-6585 ZH Mook The Netherlands
Notified body no.	NB 2264
Product	**Verosol SilverScreen 202/205**
Report number	YC 2174-4E-RA-001
Date	19 June 2023
Reference	NvD/DDe//YC 2174-4E-RA-001
Representative	ing. N.F. van Dijk
Author	BSc D.M. Dechering 085 8228 697 d.dechering@peutz.nl

This report including 3 appendices consists of 19 pages and may only be used or reproduced in its entirety.

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1 Introduction

On behalf of Kvadrat High Performance Textiles B.V. an investigation was performed with respect to the reaction to fire properties of Verosol SilverScreen 202/205.
The investigation was performed in the Peutz Laboratory for Fire safety, Klopsteen 4a, NL-5443 PW Haps, in accordance with EN 13823:2020+A1:2022 ('Single Burning Item-test'), further referenced as EN 13823.

This report provides a description of the construction tested, the method of mounting in the test apparatus, the method used and the test results.

TESTEN
RvA L 505

For this type of measurements the Laboratory for Fire safety has been accredited by the Dutch "Raad voor Accreditatie" (RvA).

The RvA is member of EA MLA (**EA MLA**: **E**uropean **A**ccreditation Organisation **M**ulti**L**ateral **A**greement: http://www.european-accreditation.org).

EA: "Certificates and reports issued by bodies accredited by MLA and MRA members are considered to have the same degree of credibility, and are accepted in MLA and MRA countries."

2 Product description

2.1 General

The information in this chapter is based on information provided by the client.

The product investigated is Verosol SilverScreen 202/205, hereinafter also called 'the product'. The intended application is for use as blinds for interior application.
The materials to be tested were delivered on the date specified in table 2.1. On arrival the material was verified and marked by Peutz.
The measured values (MV) are determined outside the scope of accreditation.

2.2 Harmonised product standard

According to the client there was no harmonised European product standard published at the time the tests were conducted and this report was drawn up.

2.3 Product identification

The most important parameters for identifying the product are summarized in Tables 2.1 and 2.2.

t2.1 General information of product to be tested

Product	**Verosol SilverScreen 202/205**	
Date of delivery	3 February 2023	
Commercial name	Verosol SilverScreen 202/205	
Produced by	Kvadrat High Performance Textiles B.V. Kiefte 18 7151 HZ Eibergen The Netherlands	
Identification	batchnr.	EB01 Black (011) – B041405 EB03 Bronze (013) – B040266 ED02 Beige (032) - B041452
	date of manufacture	December 2022 – January 2023
Sampling	date	27 January 2023
	sampling by	R. Kuipers Kvadrat High Performance Textiles B.V.

Peutz was not involved in the selection of the test specimen (or of its materials). The laboratory cannot make any declaration about the representativeness of the provided specimen and the samples made available. The results apply to the sample as received.

t2.2 Additional information of product to be tested

Product	**Verosol SilverScreen 202/205**	
	Nominal value	**Measured value**
Description	Glassfibre – PVC fabric with a metallic backside	
Composition	64% PVC / 36% Glass	
Thickness	0.49 mm	0.42 mm
Surface weight	400 g/m^2	403 g/m^2
Fire retardent additive	0 % - 5 % Sb_2O_3	
Colour	EB01 Black (011) – RAL 9011	
	EB03 Bronze (013) – RAL 8014	
	ED02 Beige (032) – RAL 9001	

The values mentioned are the nominal values as given by the client, unless otherwise stated (MV, measured value).

2.4 Conditioning of test specimen

Prior to the tests, the material or the specimens were stored for 4 weeks in a climate room with the environmental conditions as specified in EN 13238:2010.

Conditioning took place from 2 February 2023 until the test date.

2.5 Test specimen

According to the client there was no harmonised European product standard published at the time the tests were conducted and this report was drawn. The construction of the test specimens and the mounting in the test apparatus are therefore based entirely on EN 13823.

The test specimen were supplied as a whole.
The test specimen were sized by the laboratory on the day of testing. See Table 2.3 for a description of the test specimen.

t2.3 Description of test specimen

Product	
Substrate	No substrate was used.
Mounting	Mounted (stretching) against a metal frame. Warp direction was mounted upwards and the coloured side was mounted towards the fire.
Joints	No joints/seams were present.
Cavity	Behind the test specimen a ventilated cavity was present, depth 80 mm.
Product standard	At the time of testing the client was not aware of the existence of a harmonised product standard.

3 Test results

3.1 Results of measurements

In total 5 tests were performed.
The environmental conditions and test results are summarised in the tables 3.1 and 3.2 below. For additional visual observations on the behaviour of the test specimen please refer to Chapter 3.2. For any comments and/or deviations from the standard, please refer to Chapter 3.3.
Photographs of the samples are presented in Appendix 2.
Detailed information regarding the testing and the results of the tests are given in Appendix 3.

t3.1 Environmental conditions immediately prior to the test

		Test 1 ED02 - beige	Test 2 EB03 - bronze	Test 3 EB01 - black	Test 4 EB03 - bronze	Test 5 EB03 - bronze
Test date		11/04/2023	11/04/2023	11/04/2023	11/04/2023	11/04/2023
Temperature	[°C]	17.8	17.5	18.0	18.3	18.8
Relative humidity	[%]	47.0	47.1	44.6	41.9	41.2
Air pressure	[Pa]	100964	100980	100994	101020	101007

t3.2 Test results EN 13823

Parameter		Test 1 ED02 - beige	Test 2 EB03 - bronze	Test 3 EB01 - black	Test 4 EB03 - bronze	Test 5 EB03 - bronze	Classification parameter
$FIGRA_{0,2MJ}$	[W/s]	(213)	347	(275)	348	340	345
$FIGRA_{0,4MJ}$	[W/s]	(0)	0	(0)	0	0	0
THR_{600s}	[MJ]	(0.6)	0.5	(0.6)	0.6	0.6	0.6
SMOGRA	[m^2/s^2]	(1111)	1713	(1647)	1695	1674	1694
TSP_{600s}	[m^2]	(96)	94	(92)	94	90	93
LFS reaching egde	[Y/N]	N	N	N	N	N	N
FDP ≤ 10 s	[Y/N]	N	N	N	N	N	N
FDP > 10 s	[Y/N]	N	N	N	N	N	N

(value)	not used to determine classification parameter
FIGRA	maximum value of the quotient of heat release specimen and time, with a threshold of 0.2 MJ respectively 0.4 MJ
THR_{600s}	total heat release from the specimen during the first 600 s of exposure to the flames of the main burner
SMOGRA	maximum of the quotient of smoke production rate from the specimen and the time of its occurrence
TSP_{600s}	total smoke production from the specimen during the first 600 s of exposure to the flame of the main burner
LFS	lateral flame spread over the long wing
FDP	burning droplets or particles outside the burner area that remain burning

3.2 Observations of the behaviour of the test specimen

There were no additional events as mentioned in EN 13823, clause 8.3.6.

3.3 Remarks

During the test the following deviation from the test standard occured: the specimen is mounted stretched on a metal frame as described in EN 14716, Annex A. This is because the specimen needed to be free hanging and would not stand by itselves.

In view of the results obtained, we do not anticipate this to be of any influence on a potential classification.

The product is available in multiple colours. In accordance with EGOLF Recommendation EGR 003-2016 – Selection of colours for covering a range, 18/10/2016, the colour range is reviewed and the investigation was carried out on the colours white, black and bronze. The decisive colour for classification of reaction to fire performance is bronze.

4 Finally

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.

Information regarding the accuracy of the method can be found in EN 13823, Annex B.

Mook,

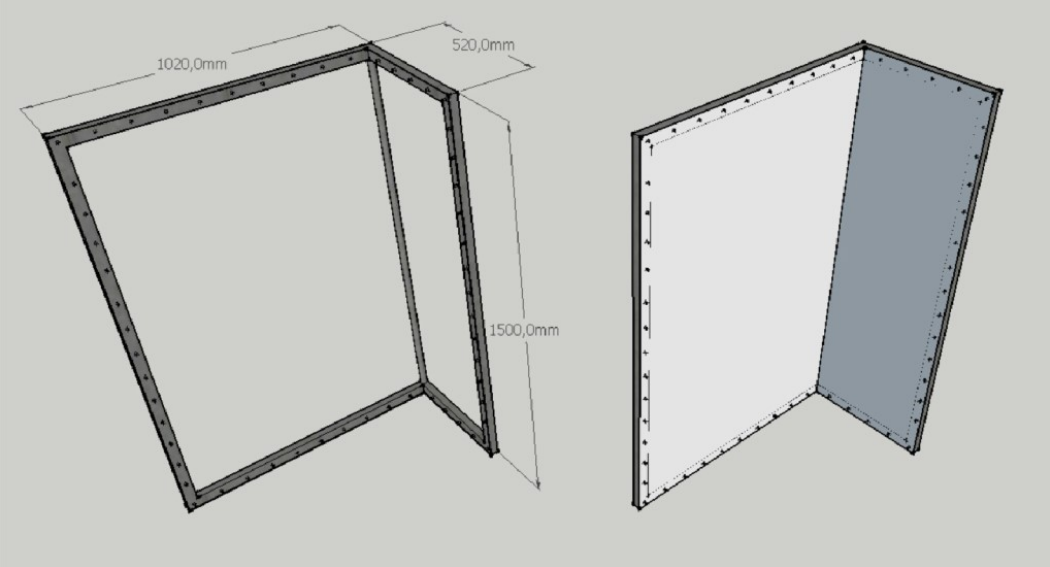
H.H.A. Leenders, BSc.
Head of Laboratory for Fire Safety

D.J. den Boer, BSc.
Management

This report contains 9 pages and 3 appendices:

Appendix 1 Sketch test specimen	(1 page)
Appendix 2 Photographs	(5 pages)
Appendix 3 Test results	(15 pages)

Appendix 1
Test specimen



Frame and frame with specimen according to EN 14716

Colour range:

ED01 Wit	ED02 Beige	ED03 Lichtgrijs	EB02 Donkergrijs
EB01 Zwart	ED04 Donkerbeige	EB03 Brons	EC02 Staalgrijs

Appendix 2
Photographs

Test specimen 01: ED02 - Beige
Long wing before testing

Test specimen 01: ED02 - Beige
Long wing outer edge before testing

Test specimen 01: ED02 - Beige
Long wing after testing

Test specimen 01: ED02 - Beige
Long wing outer edge after testing

Appendix 2
Photographs

Test specimen 02: EB03 – Bronze
Long wing before testing

Test specimen 02: EB03 – Bronze
Long wing outer edge before testing

Test specimen 02: EB03 – Bronze
Long wing after testing

Test specimen 02: EB03 – Bronze
Long wing outer edge after testing

Appendix 2
Photographs

Test specimen 03: EB01 – Black
Long wing before testing

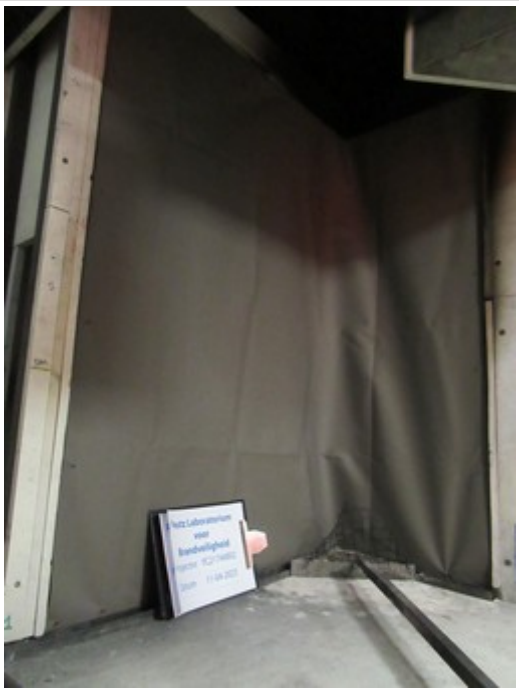
Test specimen 03: EB01 – Black
Long wing outer edge before testing

Test specimen 03: EB01 – Black
Long wing after testing

Test specimen 03: EB01 – Black
Long wing outer edge after testing

Appendix 2
Photographs

Test specimen 04: EB03 - Bronze
Long wing before testing



Test specimen 04: EB03 - Bronze
Long wing outer edge before testing

Test specimen 04: EB03 - Bronze
Long wing after testing

Test specimen 04: EB03 - Bronze
Long wing outer edge after testing

Appendix 2
Photographs

Test specimen 05: EB03 - Bronze
Long wing before testing

Test specimen 05: EB03 - Bronze
Long wing outer edge before testing

Test specimen 05: EB03 - Bronze
Long wing after testing

Test specimen 05: EB03 - Bronze
Long wing outer edge after testing

Laboratory for Fire Safety
EN 13823 - SBI - Test results

program version v4.21 03-01-23 JM

Project data

Project no:	YC2174_20230411#A01
Print date:	11-4-2023 14:17:14
Test date:	11-04-2023
Technician:	RBu

Measured data read from file(s):
YC2174_20230411#A01.txt
20230411.spr

Description of product and mounting

Identification sample:	YC2174_20230411#A01
Test specimen no.:	#A01
Substrate:	
Mounting:	EN 14351-2 Component
Seams/joints:	

Description of specimen tested

Silver Screen 202/205 ED02
WBeige

Recorded events during the test

Surface flash:	N
Falling of parts of the specimen:	N
Smoke not entering the hood:	N
Mutual fixing of backing boards fails:	N
Conditions justify early termination:	N
Distortion or collapse of the specimen:	N
Any other additional events:	None

Visual observations during the test

Lateral flame spread till edge of specimen:	N
Flaming droplets/particles <= 10 s:	N
Flaming droplets/particles > 10 s:	N

Other events

Early termination of test:	N
Closing gas supply at time:	1557 s
Heat release too high:	N
i.e. HRR > 350 kW or HRR_30 > 280 kW	
Temperature too high:	N
i.e. Tms > 400 'C or Tms_30 > 300 'C	
Burner heavily disturbed:	N
Failure of test apparatus:	N

Results

Figra 02:	212,58 W/s	at:	333 s
Figra 04:	0,00 W/s	at:	0 s
THR600:	0,59 MJ		
Smogra:	1110,93 m2/s2	at:	315 s
TSP600:	95,70 m2		

Laboratory for Fire Safety
EN 13823 - SBI - Heat release

program version v4.21 03-01-23 JM

Project data

Project no:	YC2174_20230411#A01
Print date:	11-4-2023 14:17:14
Test date:	11-04-2023
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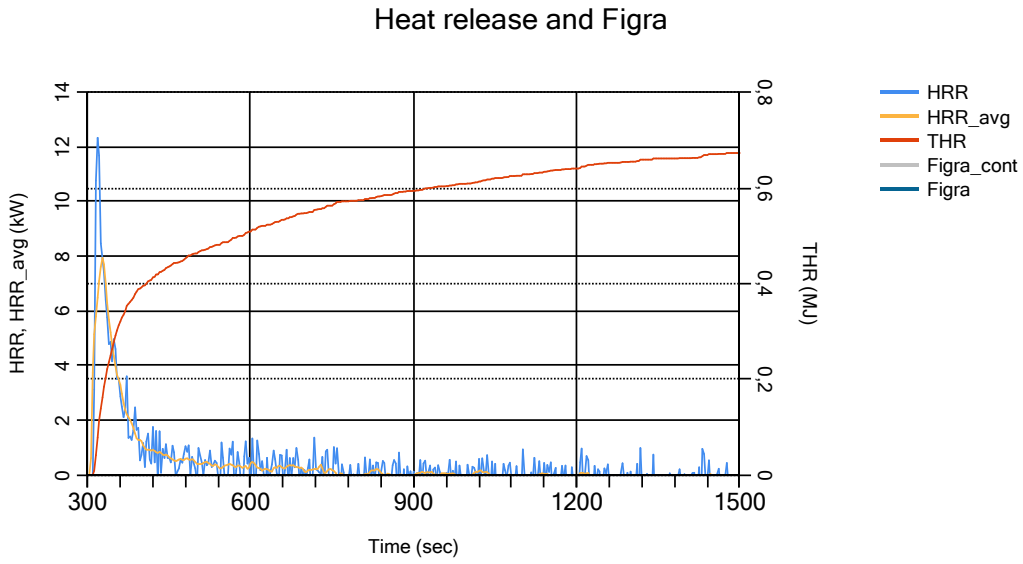

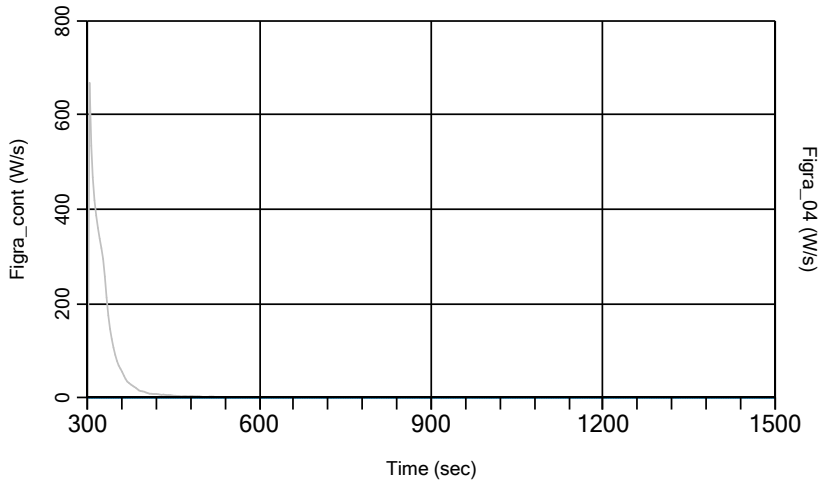

Laboratory for Fire Safety
EN 13823 - SBI - Smoke production

program version v4.21 03-01-23 JM

Project data

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Technician: RBu

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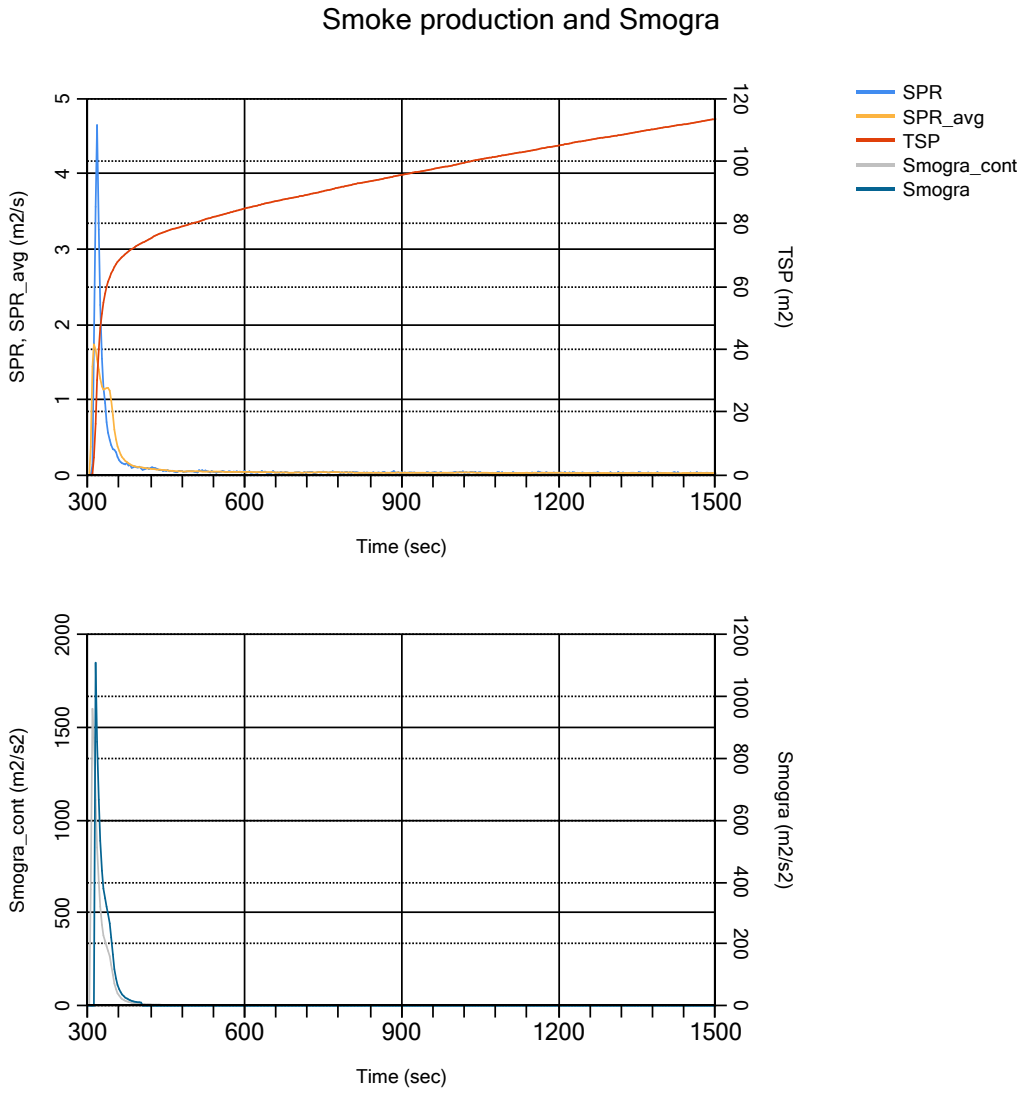
20230411.spr



Laboratory for Fire Safety
EN 13823 - SBI - Test results

program version v4.21 03-01-23 JM

Project data

Project no:	YC2174_20230411#B01
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Test date:	11-04-2023
Technician:	RBu

Measured data read from file(s):
YC2174_20230411#B01.txt
20230411.spr

Description of product and mounting

Identification sample:	YC2174_20230411#B01
Test specimen no.:	#B01
Substrate:	
Mounting:	
Seams/joints:	

Description of specimen tested

SilverScreen 202/205 EB03
Bronze

Recorded events during the test

Surface flash:	N
Falling of parts of the specimen:	N
Smoke not entering the hood:	N
Mutual fixing of backing boards fails:	N
Conditions justify early termination:	N
Distortion or collapse of the specimen:	N
Any other additional events:	None

Visual observations during the test

Lateral flame spread till edge of specimen:	N
Flaming droplets/particles <= 10 s:	N
Flaming droplets/particles > 10 s:	N

Other events

Early termination of test:	N
Closing gas supply at time:	1557 s
Heat release too high:	N
i.e. HRR > 350 kW or HRR_30 > 280 kW	
Temperature too high:	N
i.e. Tms > 400 'C or Tms_30 > 300 'C	
Burner heavily disturbed:	N
Failure of test apparatus:	N

Results

Figra 02:	347,16 W/s	at:	327 s
Figra 04:	0,00 W/s	at:	0 s
THR600:	0,53 MJ		
Smogra:	1712,62 m2/s2	at:	312 s
TSP600:	94,30 m2		

Laboratory for Fire Safety
EN 13823 - SBI - Heat release

program version v4.21 03-01-23 JM

Project data

Project no: YC2174_20230411#B01
Print date: 11-4-2023 14:29:36
Test date: 11-04-2023
Technician: RBu

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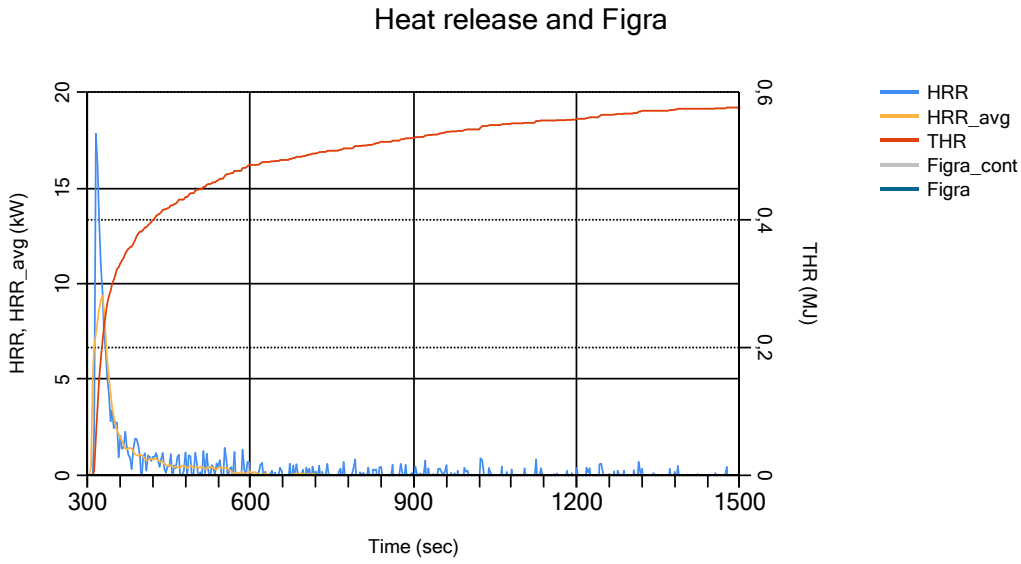

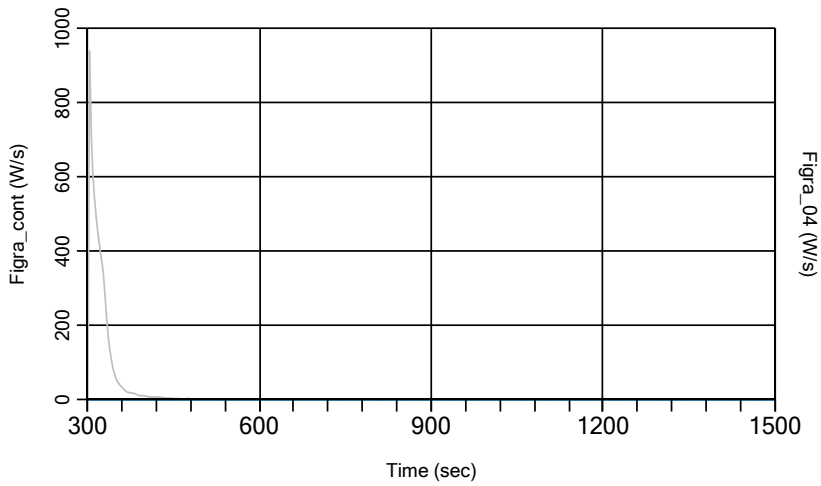

Laboratory for Fire Safety
EN 13823 - SBI - Smoke production

program version v4.21 03-01-23 JM

Project data

Project no:	YC2174_20230411#B01
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Test date:	11-04-2023
Technician:	RBu

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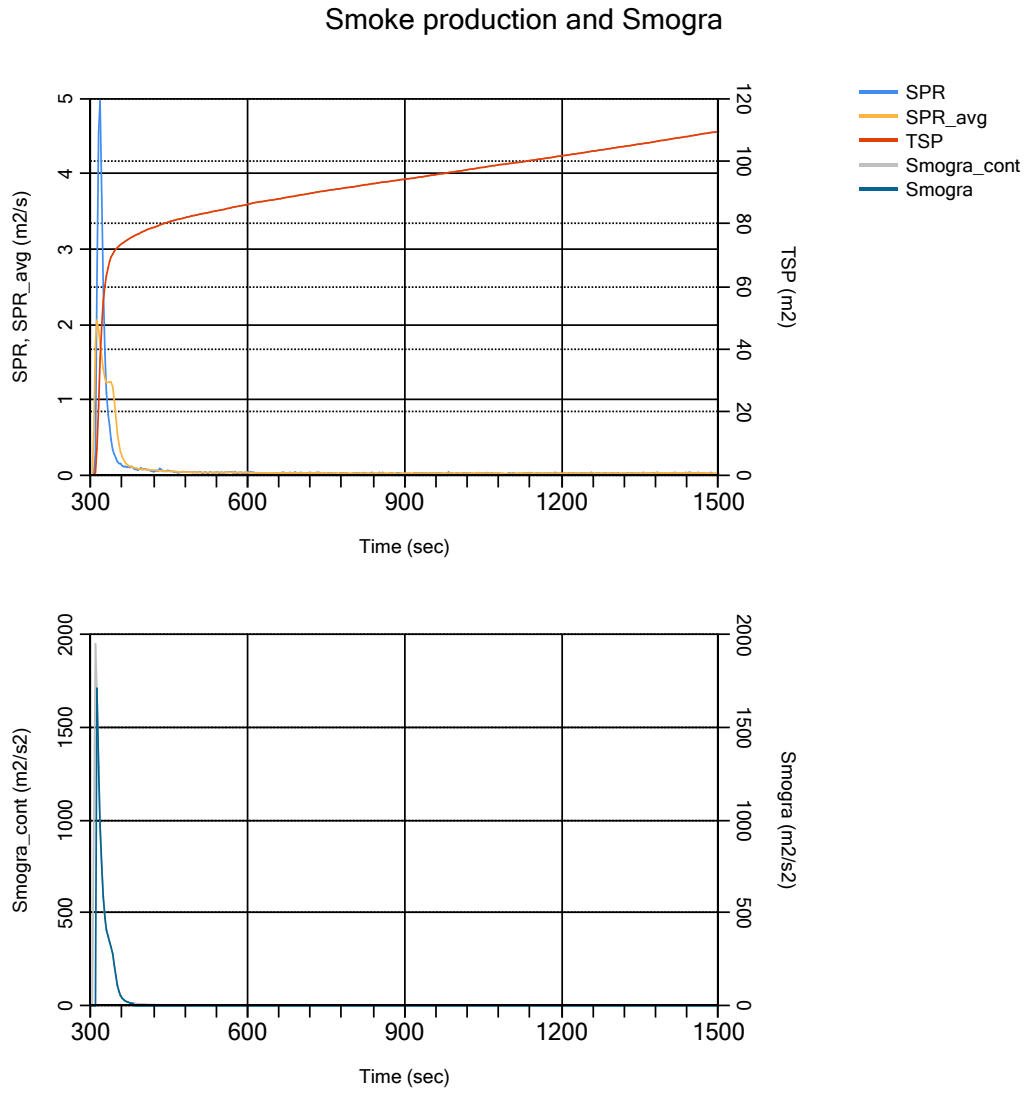
20230411.spr



Laboratory for Fire Safety
EN 13823 - SBI - Test results

program version v4.21 03-01-23 JM

Project data

Project no:	YC2174_20230411#C01
Print date:	11-4-2023 14:21:47
Test date:	11-04-2023
Technician:	RBu

Measured data read from file(s):
YC2174_20230411#C01.txt
20230411.spr

Description of product and mounting

Identification sample:	YC2174_20230411#C01
Test specimen no.:	#C01
Substrate:	
Mounting:	
Seams/joints:	

Description of specimen tested

SilverScreen 202/205 EB01
Black

Recorded events during the test

Surface flash:	N
Falling of parts of the specimen:	N
Smoke not entering the hood:	N
Mutual fixing of backing boards fails:	N
Conditions justify early termination:	N
Distortion or collapse of the specimen:	N
Any other additional events:	None

Visual observations during the test

Lateral flame spread till edge of specimen:	N
Flaming droplets/particles <= 10 s:	N
Flaming droplets/particles > 10 s:	N

Other events

Early termination of test:	N
Closing gas supply at time:	1557 s
Heat release too high:	N
i.e. HRR > 350 kW or HRR_30 > 280 kW	
Temperature too high:	N
i.e. Tms > 400 'C or Tms_30 > 300 'C	
Burner heavily disturbed:	N
Failure of test apparatus:	N

Results

Figra 02:	274,96 W/s	at:	330 s
Figra 04:	0,00 W/s	at:	0 s
THR600:	0,56 MJ		
Smogra:	1646,58 m2/s2	at:	312 s
TSP600:	92,21 m2		

Laboratory for Fire Safety
EN 13823 - SBI - Heat release

program version v4.21 03-01-23 JM

Project data

Project no:	YC2174_20230411#C01
Print date:	11-4-2023 14:21:47
Test date:	11-04-2023
Technician:	RBu

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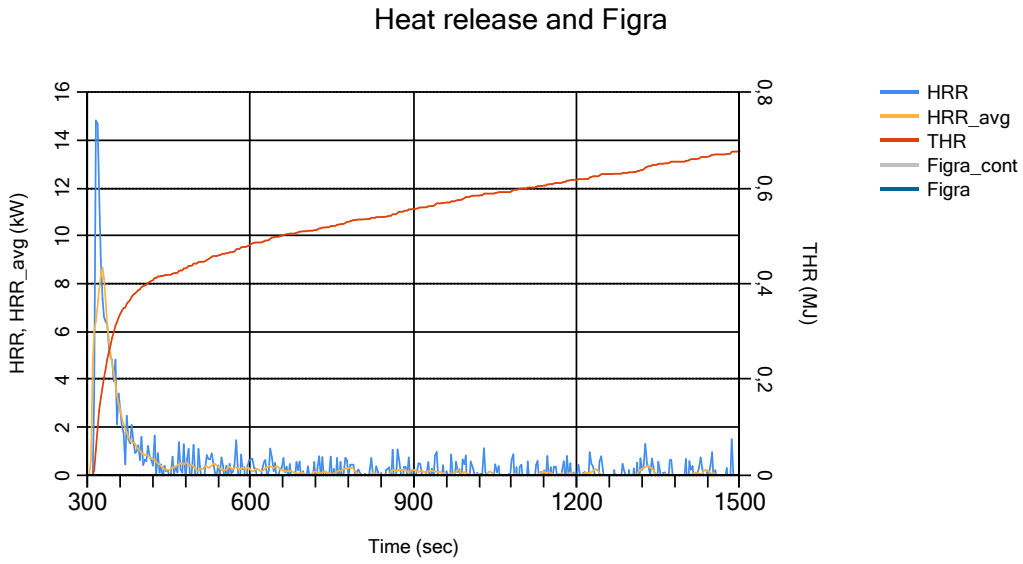

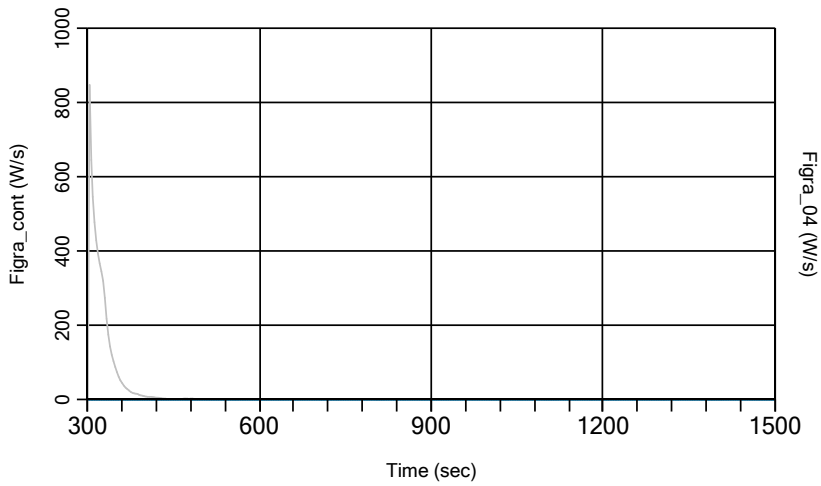

Laboratory for Fire Safety
EN 13823 - SBI - Smoke production

program version v4.21 03-01-23 JM

Project data

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Print date:	11-4-2023 14:21:48
Test date:	11-04-2023
Technician:	RBu

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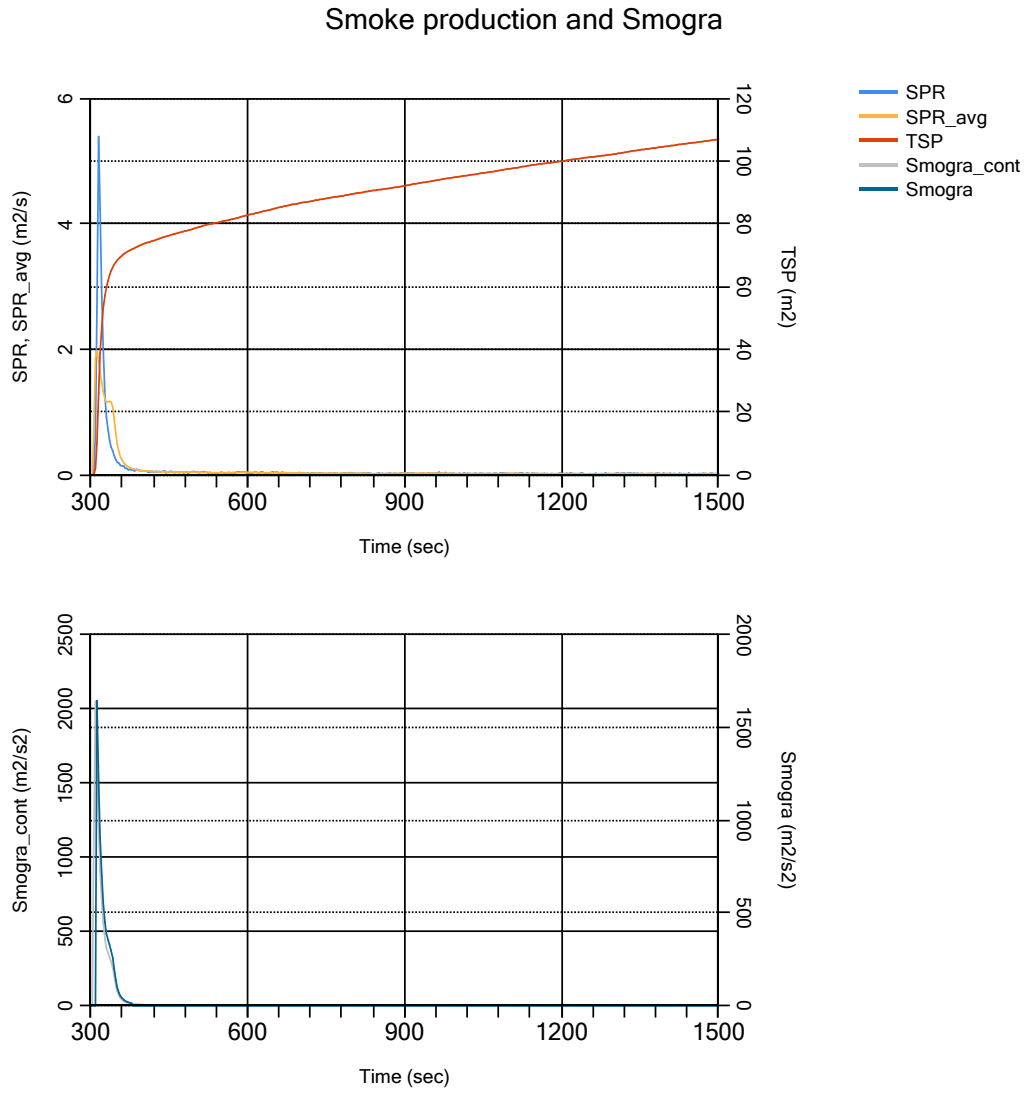
20230411.spr



Laboratory for Fire Safety
EN 13823 - SBI - Test results

program version v4.21 03-01-23 JM

Project data

Project no:	YC2174_20230411#B02
Print date:	11-4-2023 15:31:02
Test date:	11-04-2023
Technician:	RBu

Measured data read from file(s):
YC2174_20230411#B02.txt
20230411.spr

Description of product and mounting

Identification sample:	YC2174_20230411#B02
Test specimen no.:	#B02
Substrate:	
Mounting:	
Seams/joints:	

Description of specimen tested

SilverScreen 202/205 EB03
Bronze 02

Recorded events during the test

Surface flash:	N
Falling of parts of the specimen:	N
Smoke not entering the hood:	N
Mutual fixing of backing boards fails:	N
Conditions justify early termination:	N
Distortion or collapse of the specimen:	N
Any other additional events:	None

Visual observations during the test

Lateral flame spread till edge of specimen:	N
Flaming droplets/particles <= 10 s:	N
Flaming droplets/particles > 10 s:	N

Other events

Early termination of test:	N
Closing gas supply at time:	1557 s
Heat release too high:	N
i.e. HRR > 350 kW or HRR_30 > 280 kW	
Temperature too high:	N
i.e. Tms > 400 'C or Tms_30 > 300 'C	
Burner heavily disturbed:	N
Failure of test apparatus:	N

Results

Figra 02:	348,26 W/s	at:	327 s
Figra 04:	0,00 W/s	at:	0 s
THR600:	0,59 MJ		
Smogra:	1695,11 m2/s2	at:	312 s
TSP600:	93,80 m2		

Laboratory for Fire Safety
EN 13823 - SBI - Heat release

program version v4.21 03-01-23 JM

Project data

Project no:	YC2174_20230411#B02
Print date:	11-4-2023 15:31:02
Test date:	11-04-2023
Technician:	RBu

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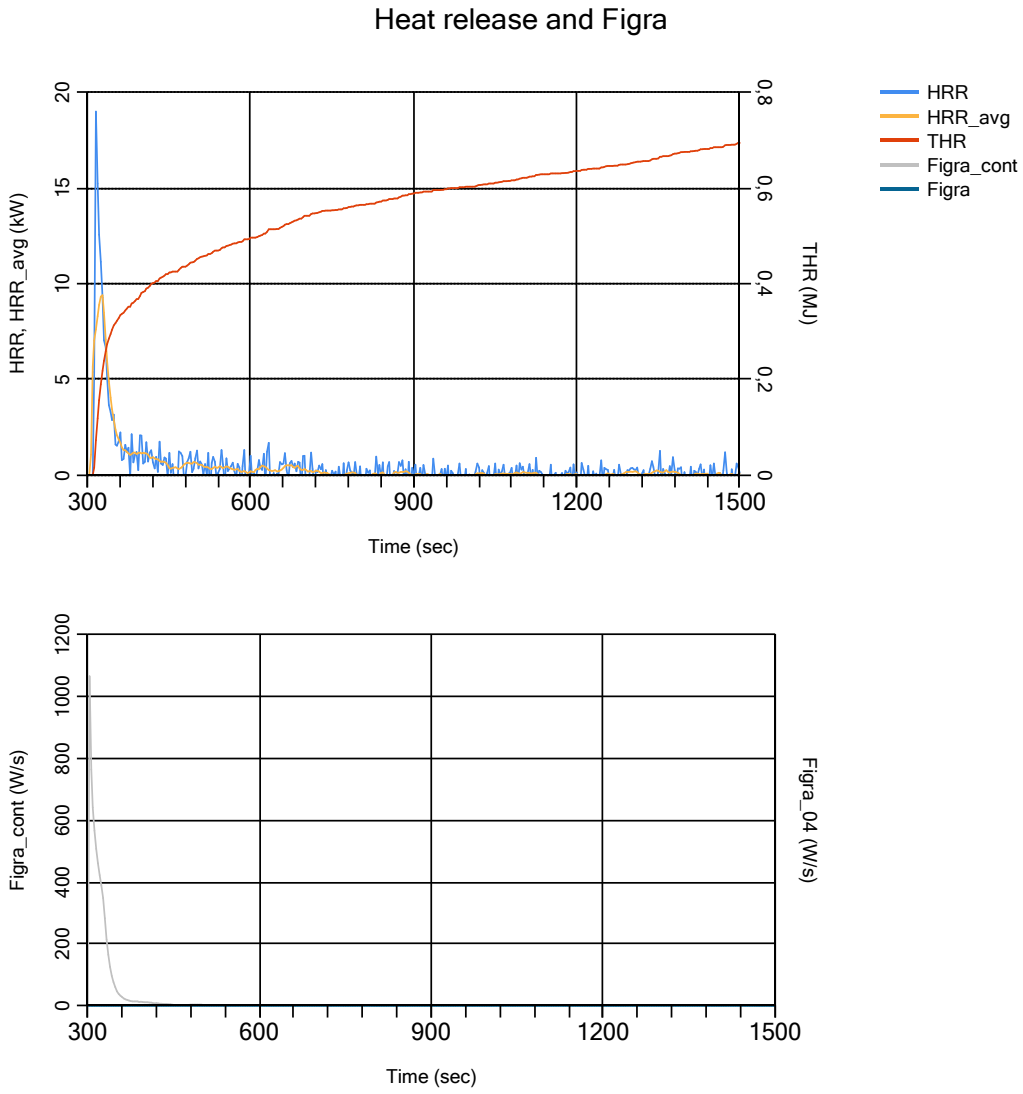
20230411.spr



Laboratory for Fire Safety
EN 13823 - SBI - Smoke production

program version v4.21 03-01-23 JM

Project data

Project no:	YC2174_20230411#B02
Print date:	11-4-2023 15:31:03
Test date:	11-04-2023
Technician:	RBu

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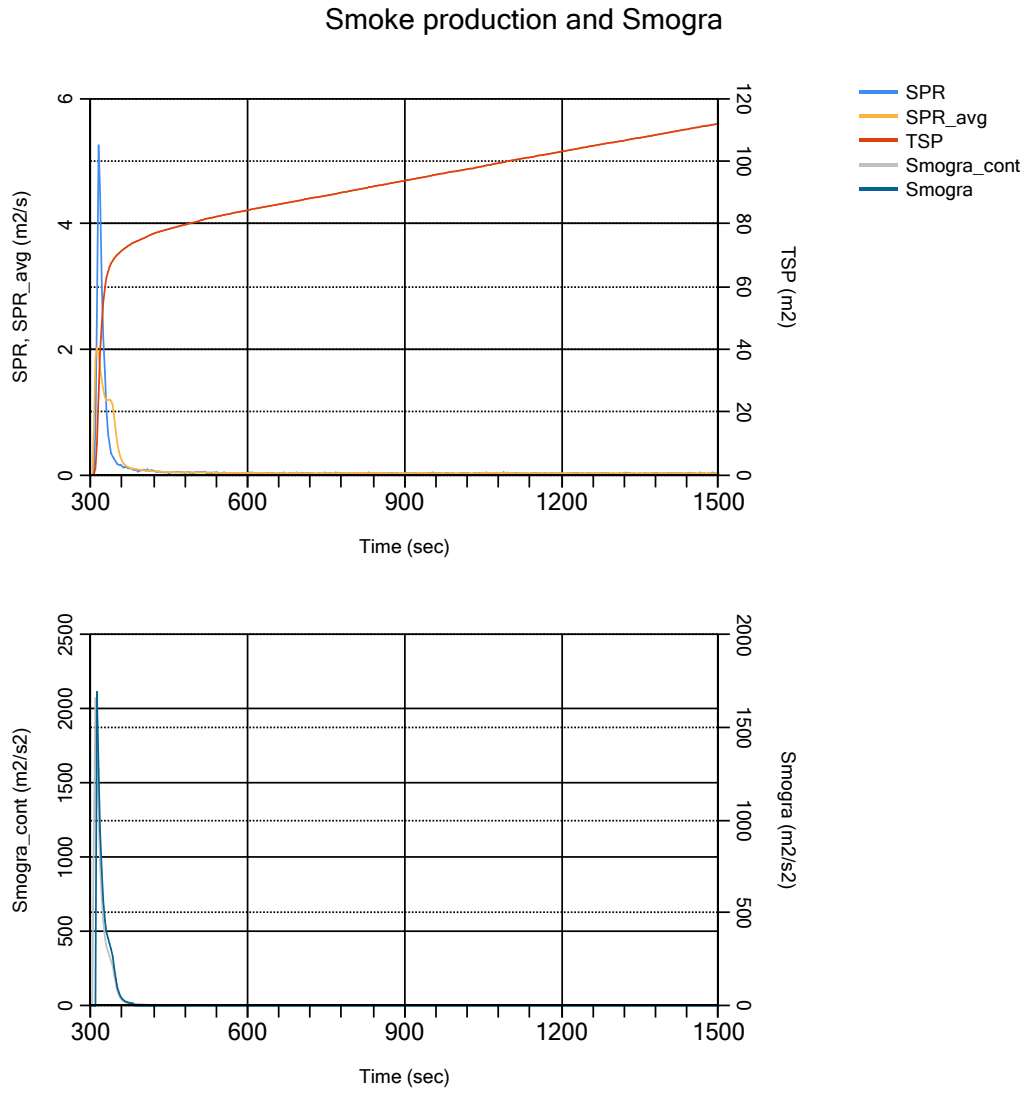
20230411.spr



Laboratory for Fire Safety
EN 13823 - SBI - Test results

program version v4.21 03-01-23 JM

Project data

Project no:	YC2174_20230411#B03
Print date:	9-5-2023 12:04:56
Test date:	11-04-2023
Technician:	RBu

Measured data read from file(s):
YC2174_20230411#B03.txt
20230411.spr

Description of product and mounting

Identification sample:	YC2174_20230411#B03
Test specimen no.:	#B03
Substrate:	
Mounting:	
Seams/joints:	

Description of specimen tested

SilverScreen 202/205 EB03
Bronze 03

Recorded events during the test

Surface flash:	N
Falling of parts of the specimen:	N
Smoke not entering the hood:	N
Mutual fixing of backing boards fails:	N
Conditions justify early termination:	N
Distortion or collapse of the specimen:	N
Any other additional events:	None

Visual observations during the test

Lateral flame spread till edge of specimen:	N
Flaming droplets/particles <= 10 s:	N
Flaming droplets/particles > 10 s:	N

Other events

Early termination of test:	N
Closing gas supply at time:	1557 s
Heat release too high:	N
i.e. HRR > 350 kW or HRR_30 > 280 kW	
Temperature too high:	N
i.e. Tms > 400 'C or Tms_30 > 300 'C	
Burner heavily disturbed:	N
Failure of test apparatus:	N

Results

Figra 02:	339,77 W/s	at:	327 s
Figra 04:	0,00 W/s	at:	0 s
THR600:	0,64 MJ		
Smogra:	1673,55 m2/s2	at:	312 s
TSP600:	90,45 m2		

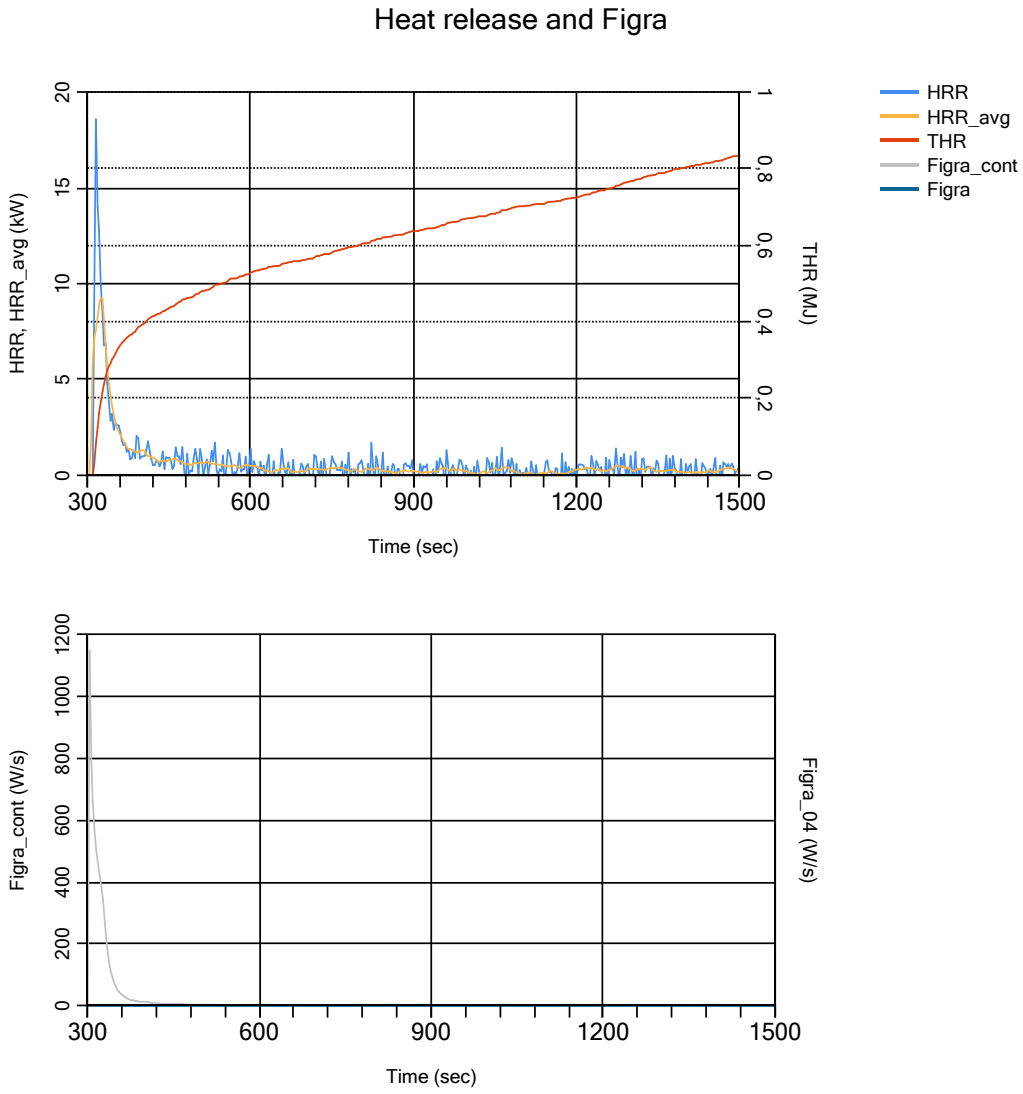
Laboratory for Fire Safety
EN 13823 - SBI - Heat release

program version v4.21 03-01-23 JM

Project data

Project no:	YC2174_20230411#B03
Print date:	9-5-2023 12:04:56
Test date:	11-04-2023
Technician:	RBu

Measured data read from file(s):
YC2174_20230411#B03.txt
20230411.spr



Laboratory for Fire Safety
EN 13823 - SBI - Smoke production

program version v4.21 03-01-23 JM

Project data

Project no: YC2174_20230411#B03
Print date: 9-5-2023 12:04:57
Test date: 11-04-2023
Technician: RBu

Measured data read from file(s):
YC2174_20230411#B03.txt
20230411.spr