

INSTITUTO DE CIÊNCIA E INOVAÇÃO EM ENGENHARIA MECÂNICA E ENGENHARIA INDUSTRIAL

Laboratório de Fumo e Fogo

FIRE REACTION TESTS

SONAE – INDÚSTRIA DE REVESTIMENTOS, S.A.

TEST REPORT Nr LFF.2019.054.02



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0 Document Control and Identification

0.1 Document Identification

Project	---
Document Name	Test Report Nr LFF.2019.054.02
Document File Name	---

0.2 Version Control

Version	Edition	Revision	Date	Description	Approved by
1	1	0	2019-04-10	Original version	JMG

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Name	Initials
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0.6 Distribution list

Name	Initials	Entity
Laboratório de Fumo e Fogo	LFF	INEGI
---	---	Sonae – Indústria de Revestimentos, S.A.



0.7 Identification

Client: Sonae – Indústria de Revestimentos, S.A.

Address: Lugar do Espido – Via Norte
4470-177 Maia

Request: Tests according to standard EN 13823:2010 A1 November 2014

Request Reference: PE30190306

Request Date: 2019-03-22

Material Reference: Surforma HPL Ultrasmooth (0.8 mm)

Reception Date: 2019-03-15

Test Date: 2019-04-01

Report Date: 2019-04-10



1 - Introduction

This report refers to exploratory fire reaction tests and the potential classification of a material with the reference "Surforma HPL UltrasMOOTH (0.8 mm)".

2 - Methodology

Test	Test procedure
Reaction to fire tests for building products. Building products exposed to the thermal attack by a single burning item.	EN 13823:2010 A1 November 2014

3 - Specimens

3.1 - Dimension and conditioning

The specimens were prepared by the client, having the following dimensions:

Reference	Length (mm)	Width (mm)	Thickness (mm)	Mass (g)
LFF.2019.054.01	1503	1002	0.8	1500
LFF.2019.054.02	1500	501	0.8	750

Prior to testing, the specimens were conditioned for a period of 370 hours at 23 ± 2 °C and 50 ± 5 % relative humidity, having met the constant mass criterion.

3.2 - Mounting of specimen

Specimens were tested free standing according (according to 5.2.2.a of the norm EN 13823).

4 - Results

Specimens	LFF.2019.054.01 and LFF.2019.054.02
FIGRA _{0,2 MJ} (W/s)	6414.4
FIGRA _{0,4 MJ} (W/s)	6414.4
THR _{600 s} (MJ)	31.9
LFS (m)	Yes
FIRE BEHAVIOUR	E
SMOGRA (m ² /s ²) (*)	63.7
TSP _{600s} (m ²) (*)	36.9
SMOKE PRODUCTION	s2
FLAMING DROPLETS/PARTICLES	Yes
FLAMING DROPLETS	d2

FIGRA: Fire growth rate THR: Total heat release LFS: Lateral flame spread (*) : With smoke correction
SMOGRA: Smoke growth rate TSP: Total smoke production TNR: Threshold not reached


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.

5 – Limitations

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

This document is valid for 5 (five) years.

Porto, April 10, 2019



José Mesquita Guimarães
Laboratory Technical Director



ANNEX 1

Photographs

A



Figure 1 – View of mounting.



Figure 2 – SBI test.



ANNEX 2
SBI Test Report

SBI Test Report

Laboratory name INEGI - LFF
 Operator Bruno Nogueira
 Filename C:\SBICALC\DATA\19040001.RW1
 Report identification LFF.2019.054
 Product identification SURFORMA HPL ULTRASMMOOTH 0.8 MM

Test	Pre-test conditions	Specimen conditioning
Standard used EN 13823:2010	Baseline duct temperature 295.37 K	Method Constant mass
Date of test 01/04/2019	Ambient temperature 295.38 K	Time interval 374 hours
Date of report 01/04/2019	Ambient pressure 100.326 kPa	Mass 1 2250 g
E ¹ 17.2 MJ/m ²	Relative humidity 51%	Mass 2 2250 g
		Temperature 23°C
		RH 50%
Apparatus specifications	Baseline conditions	
lt 0.823	Baseline ambient oxygen 20.662%	
lp 1.06	Baseline oxygen 20.948%	
Duct diameter 0.315 m	Baseline carbon dioxide 0.0923%	
O2 calibration delay time 11 s	Baseline smoke 100.02%	
CO2 calibration delay time 13 s		

Specimen information			
Thickness 0.8 mm	Mounting method 5.2.2a) in EN 13823:2002		
Density 1250 kg/m ³	Joints none		
Surface mass/area 1 kg/m ²	Fixed to substrate? No		
Specimen number 1	Fixing method N/A		
Date of arrival 15/03/2019	Substrate none		
	Manufacturer SONAE INDÚSTRIA DE REVESTIMENTOS SA		
	Sponsor SONAE INDÚSTRIA DE REVESTIMENTOS SA		

Test validity criteria

Test drifts				Burner details	
	Initial	Final	Change		
Oxygen	20.948%	20.913%	0.036%	Burner HRR	27.283 kW
CO2	0.092%	0.112%	0.019%	Burner HRR std. dev.	0.552 kW
Smoke	100.02%	99.12%	0.009	Burner CO2/O2 ratio	0.804
				Burner SPR	0.027 m ² /s
Exposure time 294 s				Burner SPR std. dev.	0.003 m ² /s
				Burner response time	9 s
Synchronisation details				Other checks	
Duct temp. dropped by 2.5 K from baseline of 320.60 K at 303 s				Minimum duct flow	0.283 m ³ /s
Oxygen rose by 0.05% from baseline of 20.641% at 300 s				Maximum duct flow	0.548 m ³ /s
CO2 dropped by 0.02% from baseline of 0.339% at 300 s				Possible T/C3 failure	

Classification results		Classification observations		Potential classification	
FIGRA(0.2)	6414.4 W/s at 348 s	LFS to edge?	Yes	Class	E
FIGRA(0.4)	6414.4 W/s at 348 s	FDP flaming <= 10s?	No	Smoke production	s2
THR(600)	31.9 MJ	FDP flaming > 10s?	Yes	Flaming droplets/particles	d2
SMOGRA	63.7 m ³ /s ² at 345 s				
TSP(600)	36.9 m ³				

Recorded events Surface flashes? Yes; Falling specimen parts? Yes; Smoke not entering hood? No; Mutual fixing of backing board failed? No; Distortion/collapse of specimen? Yes

Pre-test comments

After-test comments Aos 320 s, início da combustão da camada superficial. Aos 410 s, libertação de fragmentos inflamados. Aos 487 s, colapso total do provete. aos 515 s, combustão completa do provete em consequência de forte e rápida propagação lateral e vertical da chama.

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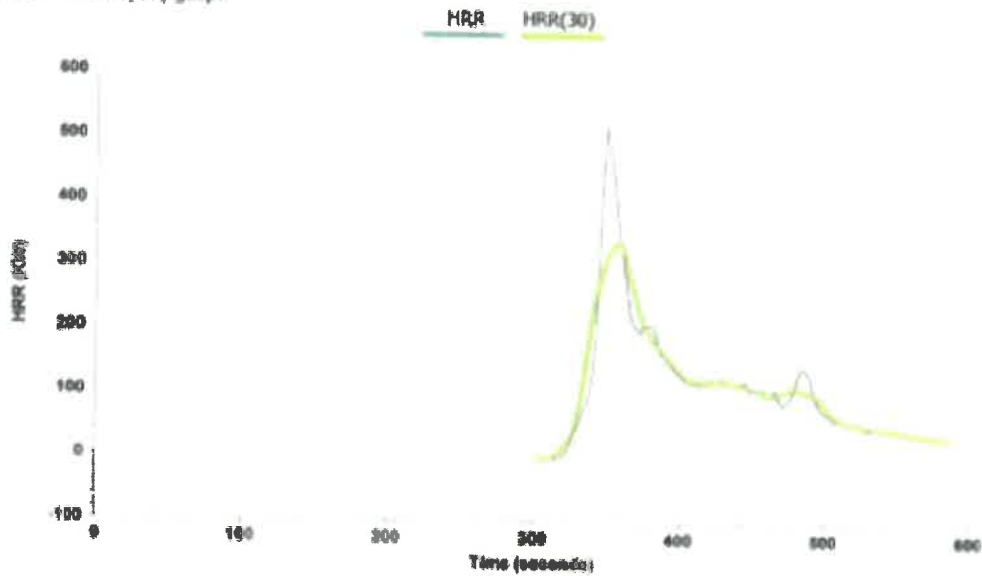
Report produced with the Fire Testing Technology SBICalc software

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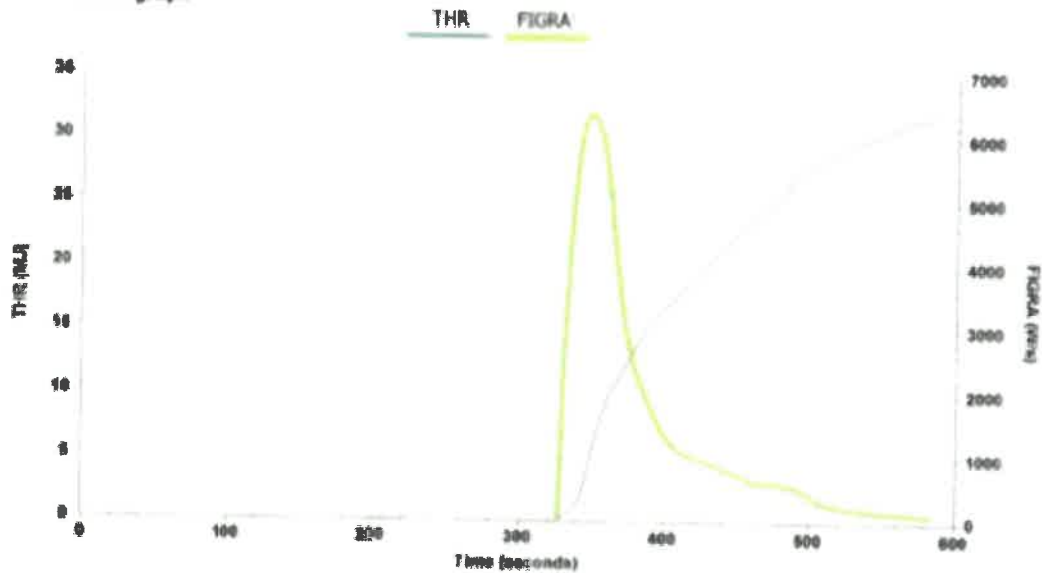
SBI Test Report

Laboratory name: INEGI - LFF
Operator: Bruno Nogueira
Filename: C:\SBICALC\DATA\19040001_RWI
Report Identification: LFF.2019.054
Product Identification: SURFORMA HPL ULTRASMMOOTH 0.8 MM

HRR and HRR(30) graph



THR and FIGRA graph

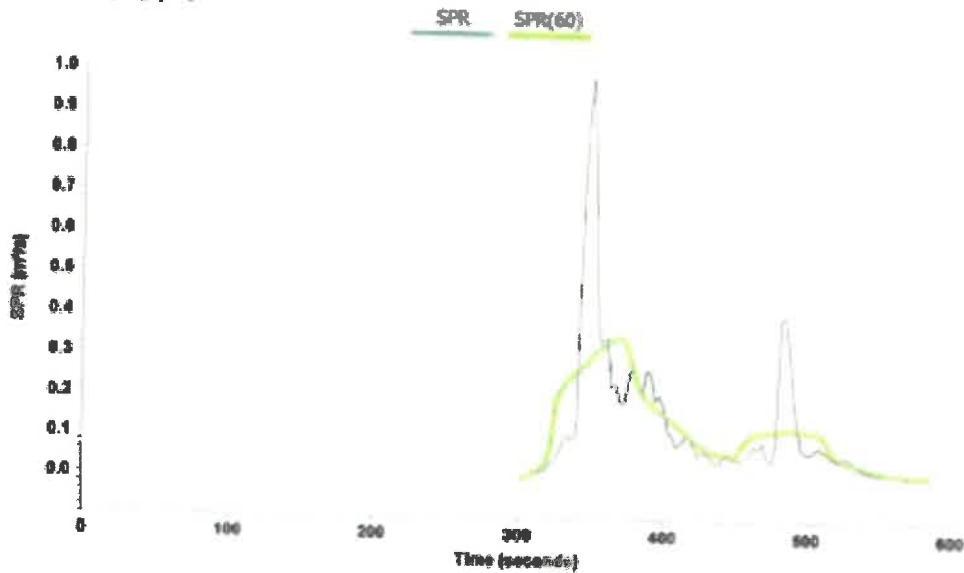


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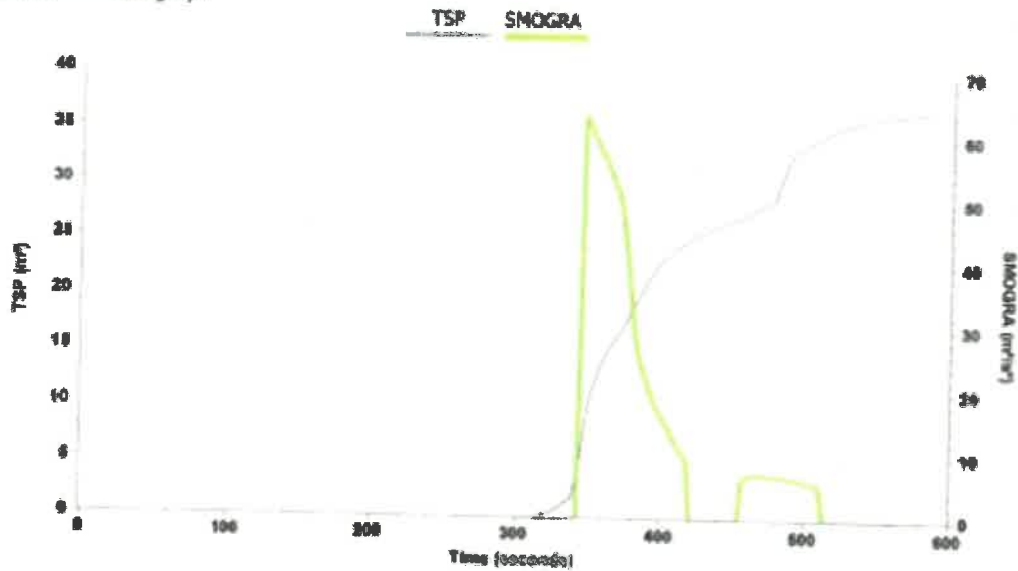
SBI Test Report

Laboratory name INEGI - LFF
Operator Bruno Nogueira
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Report identification LFF.2019.054
Product identification SURFORMA MPL ULTRASMMOOTH 0.8 MM

SPR and SPR(60) graph



TSP and SMOGRA graph






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