

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.2019.051.02



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## 0 Document Control and Identification

### 0.1 Document Identification

Project	---
Document Name	Test Report Nr LFF.2019.051.02
Document File Name	---

### 0.2 Version Control

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

### 0.3 Author(s)

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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 Metálico (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 Metálico (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.2019.051.01	1502	1002	0.8	1550
LFF.2019.051.02	1500	501	0.8	870

Prior to testing, the specimens were conditioned for a period of 375 hours at  $23 \pm 2$  °C and  $50 \pm 5$  % 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.2019.051.01 and LFF.2019.051.02
FIGRA <sub>0,2 MJ</sub> (W/s)	453.5
FIGRA <sub>0,4 MJ</sub> (W/s)	453.5
THR <sub>600 s</sub> (MJ)	9.2
LFS (m)	No
FIRE BEHAVIOUR	D
SMOGRA (m <sup>2</sup> /s <sup>2</sup> ) (*)	9.0
TSP <sub>600s</sub> (m <sup>2</sup> ) (*)	27.5
SMOKE PRODUCTION	s1
FLAMING DROPLETS/PARTICLES	No
FLAMING DROPLETS	d0

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

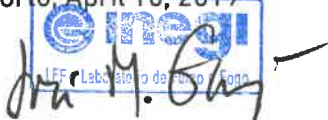
The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

## 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



INEGI  
LFF - Laboratório de Fumo e Fogo

José Mesquita Guimarães  
Laboratory Technical Director

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## ANNEX 1

### Photographs

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Figure 1 – View of mounting.





**ANNEX 2**  
**SBI Test Report**

## SBI Test Report

Laboratory name INEGI - LFF  
 Operator Bruno Nogueira  
 Filename C:\SBI\CALC\DATA\19040002.RW1  
 Report identification LFF.2019.051  
 Product identification SURFORMA HPL METÁLICO 0.8 MM

Test	Pre-test conditions	Specimen conditioning
Standard used EN 13823:2010	Baseline duct temperature 296.40 K	Method Constant mass
Date of test 01/04/2019	Ambient temperature 295.35 K	Time interval 376 hours
Date of report 01/04/2019	Ambient pressure 100.357 kPa	Mass 1 2420 g
E' 17.2 MJ/m <sup>2</sup>	Relative humidity 51%	Mass 2 2420 g
		Temperature 23 °C
		RH 50%
Apparatus specifications	Baseline conditions	
Id 0.823	Baseline ambient oxygen 20.647%	
Ip 1.08	Baseline oxygen 20.952%	
Duct diameter 0.315 m	Baseline carbon dioxide 0.0972%	
O2 calibration delay time 11 s	Baseline smoke 99.93%	
CO2 calibration delay time 13 s		

Specimen information	
Thickness 0.8 mm	Mounting method 5.2.2a) in EN 13823:2002
Density 1344 kg/m <sup>3</sup>	Joints none
Surface mass/area 1.08 kg/m <sup>2</sup>	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

	Initial	Final	Change
Oxygen	20.952%	20.931%	0.021%
CO2	0.097%	0.112%	0.015%
Smoke	99.93%	99.32%	0.006

Exposure time 594 s

#### Synchronisation details

Duct temp. dropped by 2.5 K from baseline of 321.35 K at 303 s  
 Oxygen rose by 0.05% from baseline of 20.646% at 300 s  
 CO2 dropped by 0.02% from baseline of 0.341% at 300 s

#### Burner details

Burner HRR	27.264 kW
Burner HRR std. dev.	0.738 kW
Burner CO2/O2 ratio	0.797
Burner SPR	0.030 m <sup>3</sup> /s
Burner SPR std. dev.	0.005 m <sup>3</sup> /s
Burner response time	9 s

#### Other checks

Minimum duct flow	0.462 m <sup>3</sup> /s
Maximum duct flow	0.557 m <sup>3</sup> /s
No T/C failure	

Classification results	Classification observations	Potential classification
FIGRA(D.2) 453.5 W/s at 381 s	LFS to edge? No	Class <b>D</b>
FIGRA(D.4) 453.5 W/s at 381 s	FDP flaming <= 10s? Yes	Smoke production s1
THR(600) 9.2 MJ	FDP flaming > 10s? No	Flaming droplets/particles d1
SMOCRA 9.0 m <sup>3</sup> /s <sup>2</sup> at 417 s		
TSP(600) 27.5 m <sup>3</sup>		

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

#### Pre-test comments

**After-test comments** Aos 545 s, queda de fragmentos não inflamados

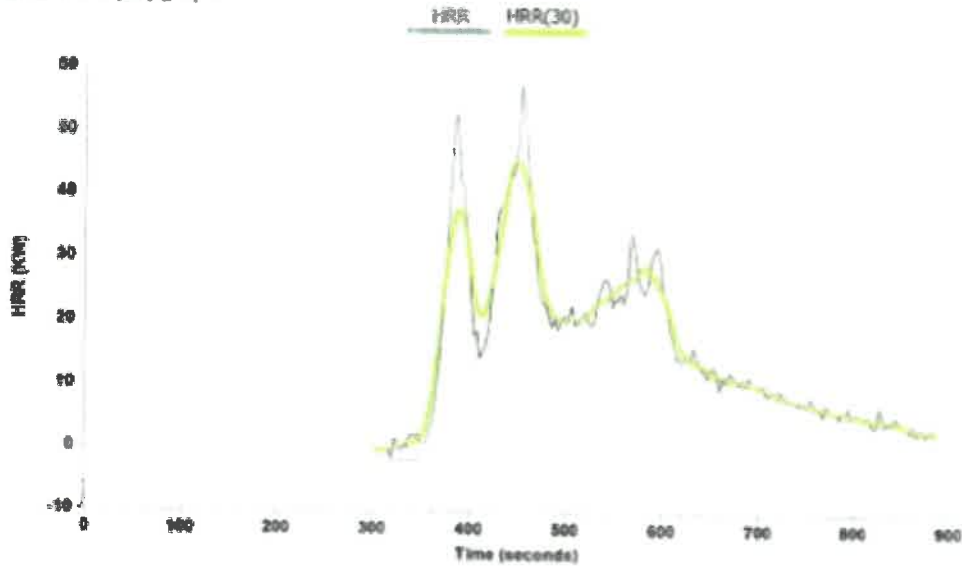
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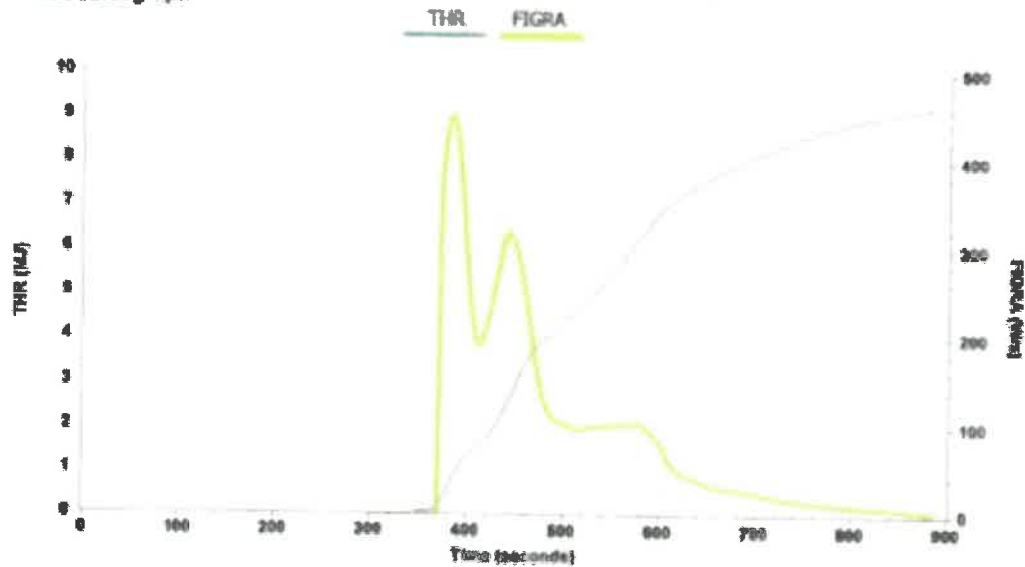
## SBI Test Report

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Operator Bruno Nogueira  
Filename C:\SBICALC\DATA\19040002.RW1  
Report identification LFF.2019.051  
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HRR and HRR(30) graph



THR and FIGRA graph

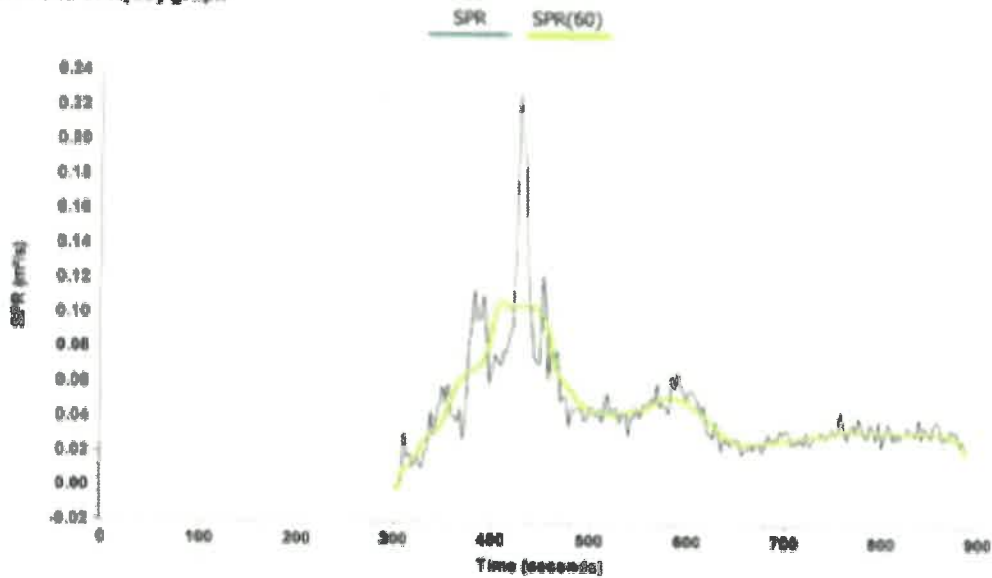


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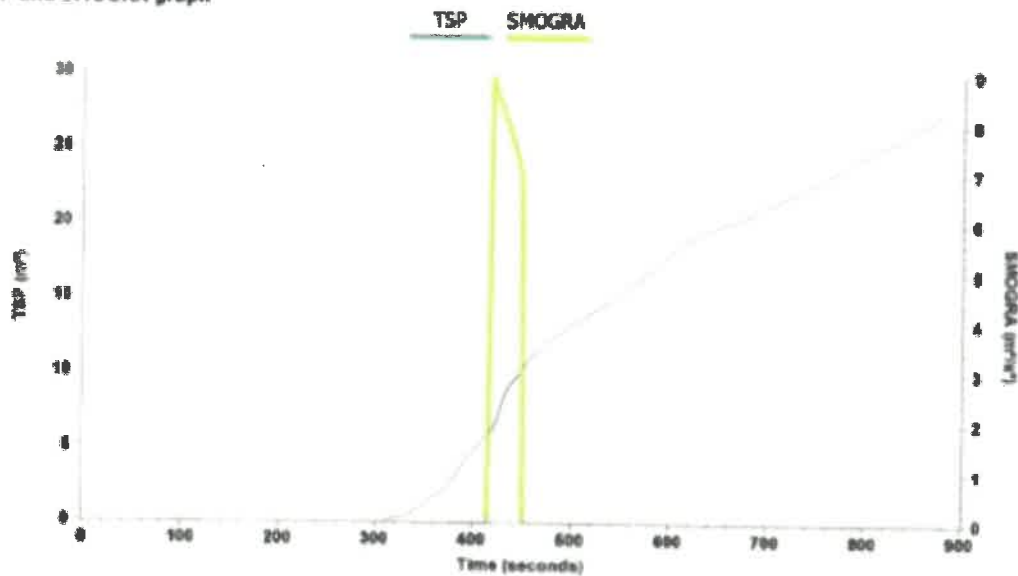
## SBI Test Report

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Operator Bruno Nogueira  
Filename C:\SBI\CALC\DATA\19040002 RW1  
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### SPR and SPR(60) graph



### TSP and SMOGRA graph






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