

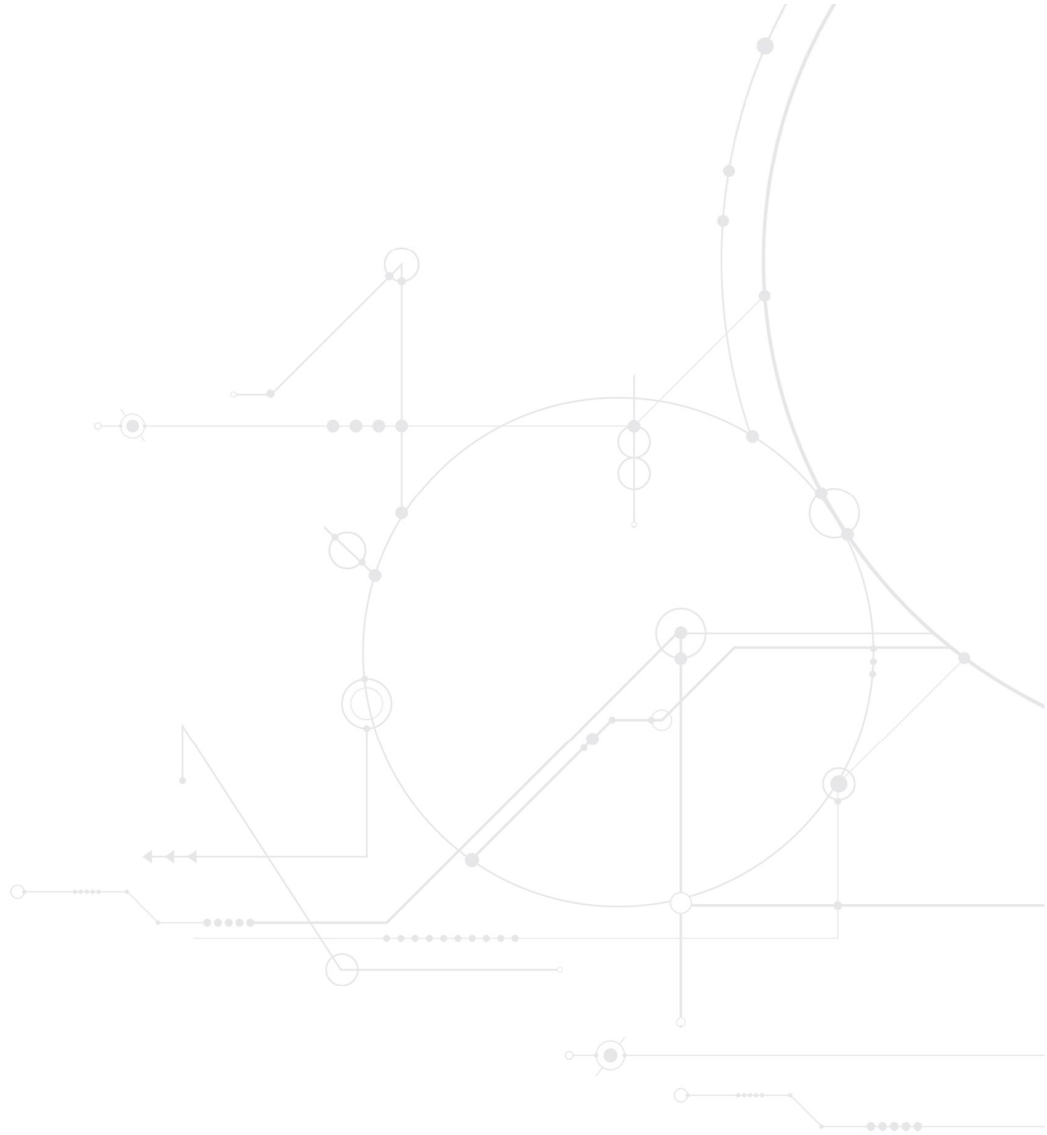
MAIS DE 30 ANOS  
A CONVERTER  
CONHECIMENTO  
EM VALOR

# Laboratório de Fumo e Fogo

## Reaction to Fire Tests

Test Report No. LFF.2020.233.02

SONAE – INDÚSTRIA DE REVESTIMENTOS, SA



The presented results refer exclusively to tested specimens.  
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## 0. DOCUMENT CONTROL AND IDENTIFICATION

### 0.1 DOCUMENT IDENTIFICATION

Project	---
Document Name	Test Report No. LFF.2020.233.02
Document File Name	---

### 0.2 VERSION CONTROL

Version	Edition	Revision	Date	Description	Approved by
1	1	0	2020-07-22	Original version	AM

### 0.3 AUTHOR(S)

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Name	Entity	Initials

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Name	Entity	Initials
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### 0.6 DISTRIBUTION LIST

Name	Entity	Initials
Laboratório de Fumo e Fogo	INEGI	LFF
	SONAE – INDÚSTRIA DE REVESTIMENTOS, SA	---

0.7 IDENTIFICATION

**Cliente** Sonae – Indústria de Revestimentos, SA

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

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

**Request Reference:** PE30200452\_2

**Request Date:** 2020-07-07

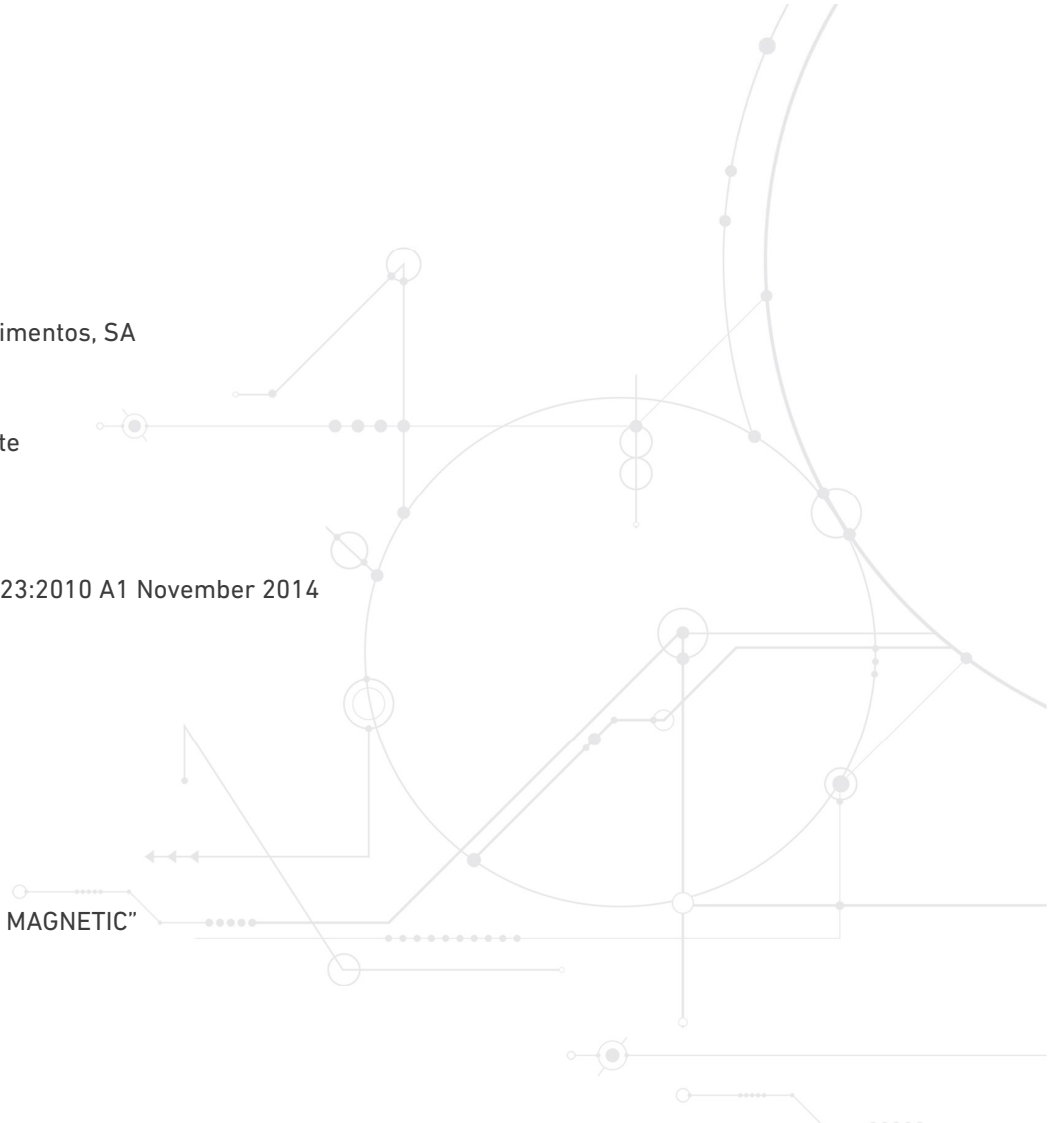
**Material Reference:** "Surforma HPL MAGNETIC"

**Reception Date:** 2020-07-14

**Test Date:** 2020-07-21

**Test Location:** LFF

**Report Date:** 2020-07-22



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## 1. SCOPE

This report refers to exploratory reaction to fire tests of the product with the reference "Surforma HPL MAGNETIC" and its potential classification according to EN 13501.

## 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 Novembre 2014

## 3. SPECIMENS

### 3.1 Dimension and conditioning

The specimens were supplied by the customer and had the following dimensions and masses:

Reference	Length (mm)	Width (mm)	Thickness (mm)	Mass (g)
LFF.2020.233.01	1503	1005	1.2	2818
LFF.2020.233.02	1505	500	1.2	1471

Prior to testing, the specimens were conditioned for a period of 144 hours at  $23 \pm 2$  °C and  $50 \pm 5$  % relative humidity, having met the constant mass criterion.

### 3.2 Mounting of specimens

Following customer request, specimens were mechanically fixed onto an inert substrate, in accordance with clause 5.2.2. c) of the standard EN 13823.

#### 4. RESULTS

The following facts, potentially relevant for the test results analysis, were observed during the test:

1. At 330 s of testing (30 s of flame incidence), surface bubbles were formed and burst.
2. At 430 s of testing the specimen is destroyed up to 100 cm high and 15 cm from the corner. Progressive slow propagation of the destruction

In accordance with the customer's instructions, only one specimen was submitted to testing, which are summarized in the following table.

Table 1. SBI test results.

Specimens	LFF.2020.233.01 and LFF.2020.233.02
FIGRA <sub>0,2 MJ</sub> (W/s)	165.7
FIGRA <sub>0,4 MJ</sub> (W/s)	68.6
THR <sub>600 s</sub> (MJ)	3.8
LFS (m)	No
FIRE BEHAVIOUR	C
SMOGRA (m <sup>2</sup> /s <sup>2</sup> ) (*)	61.1
TSP <sub>600s</sub> (m <sup>2</sup> ) (*)	85.5
SMOKE PRODUCTION	s2
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

All the information on this document regarding the product description has been supplied by the sponsor at no responsibility by INEGI's laboratory.

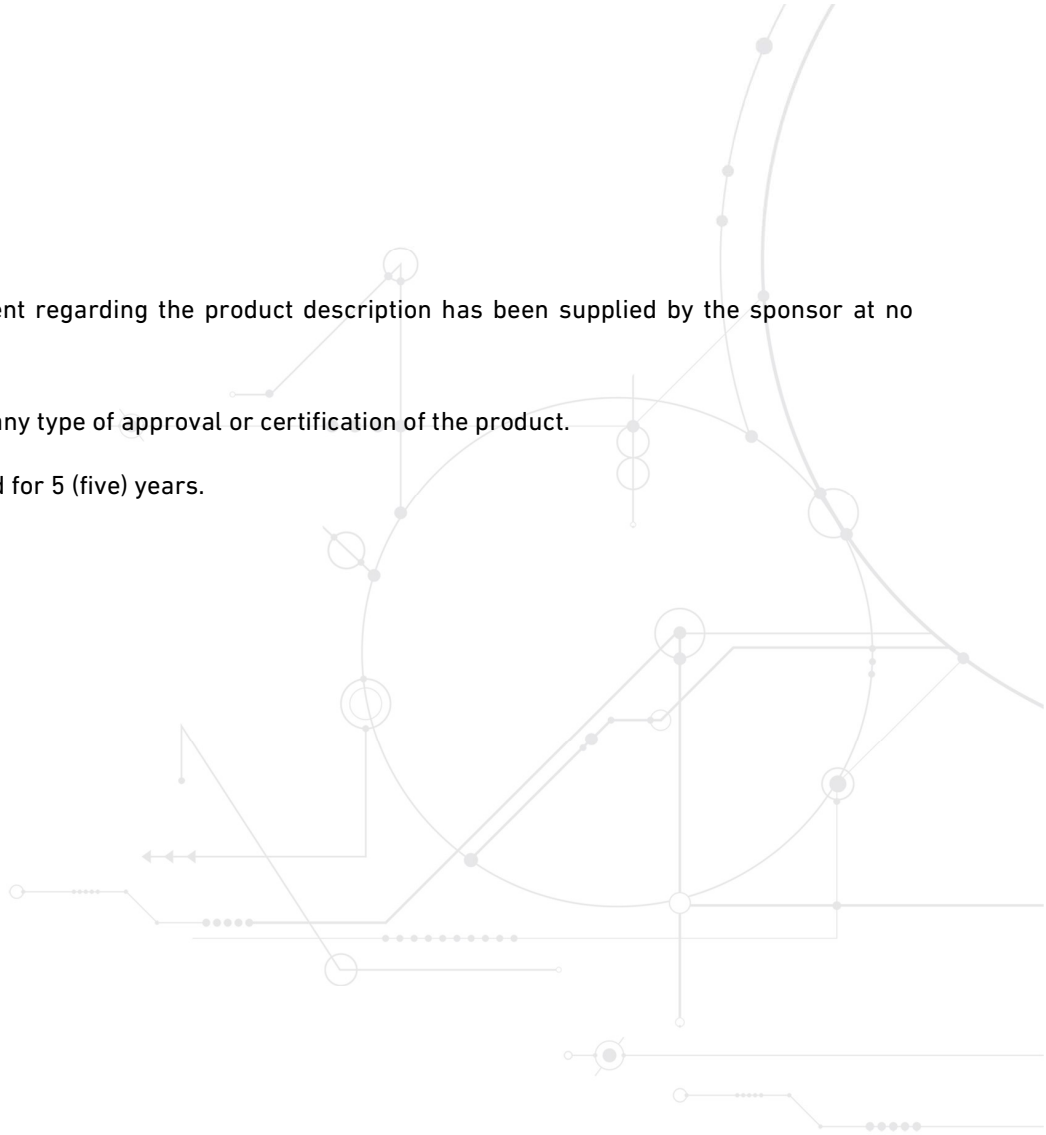
This document does not represent any type of approval or certification of the product.

This classification document is valid for 5 (five) years.

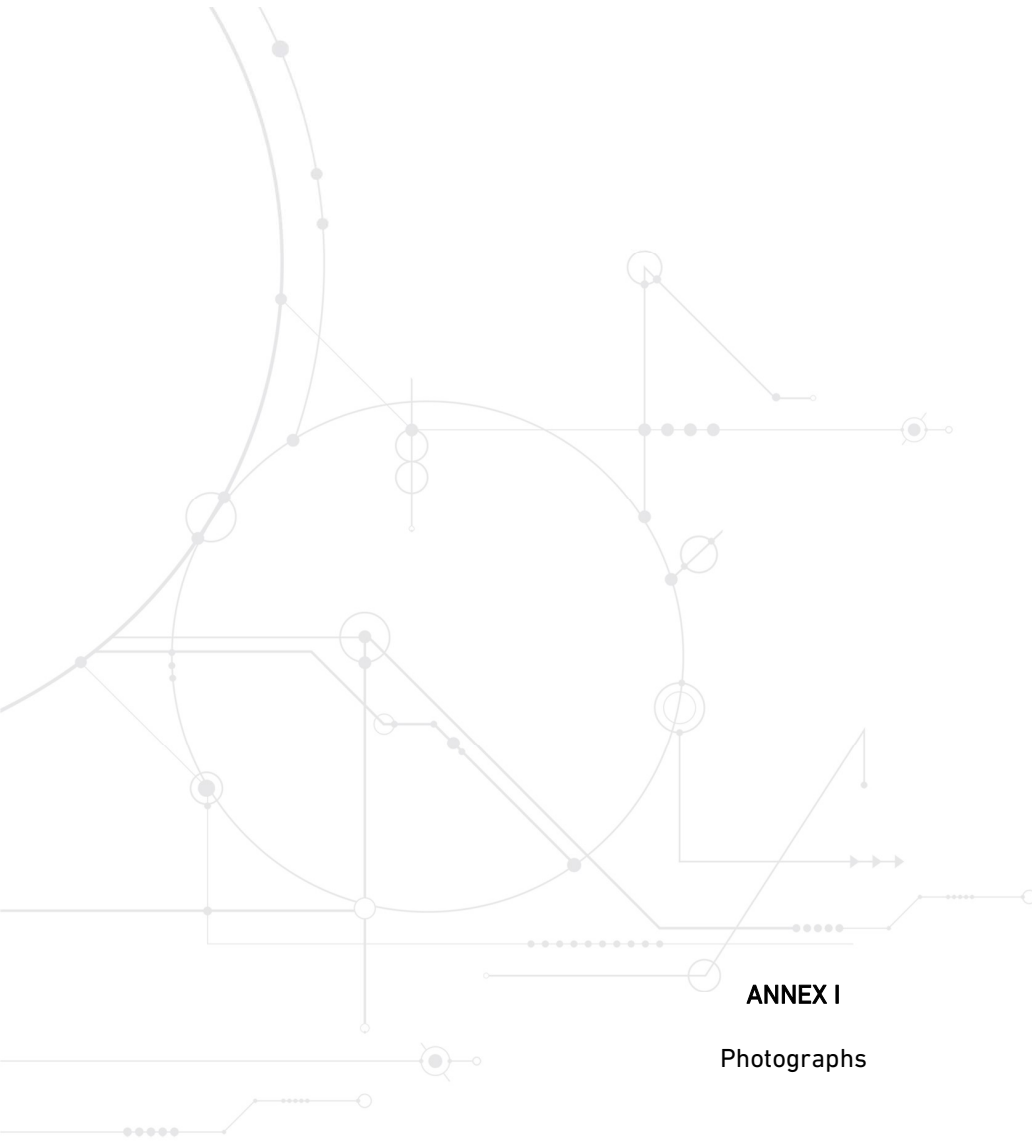
Porto, July 22nd, 2020



Anabela Martins  
Laboratory Technical Director







**ANNEX I**

**Photographs**



Figure 1 – Mounted specimen.

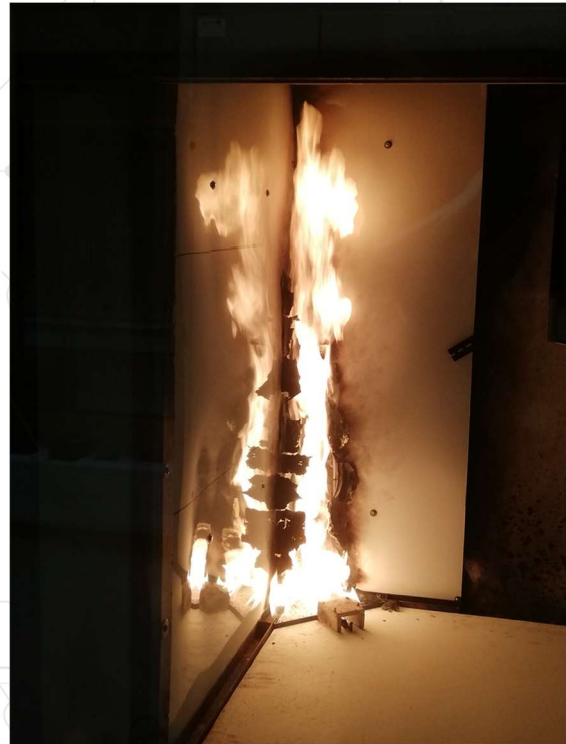
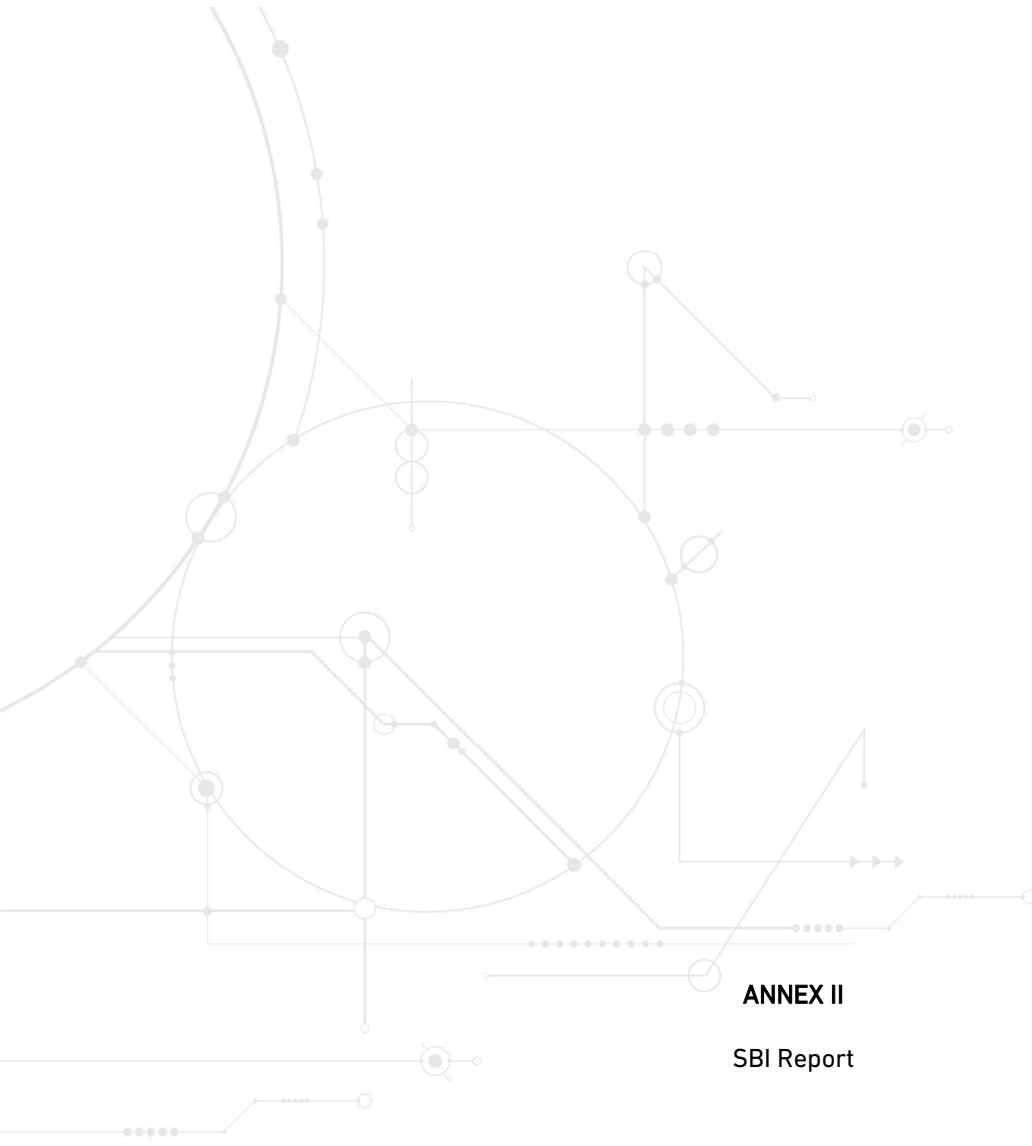


Figure 2 – SBI ongoing test.



**ANNEX II**

**SBI Report**

## SBI Test Report

Laboratory name INEGI - LFF  
 Operator Bruno Nogueira  
 Filename C:\SBICALC\DATA\20070001.RW1  
 Report identification LFF.2020.233  
 Product identification SURFORMA HPL MAGNETIC

Test		Pre-test conditions		Specimen conditioning	
Standard used	EN 13823:2010	Baseline duct temperature	296.63 K	Method	Constant mass
Date of test	21/07/2020	Ambient temperature	296.16 K	Time interval	168 hours
Date of report	21/07/2020	Ambient pressure	99.9 kPa	Mass 1	4292 g
E <sup>1</sup>	17.2 MJ/m <sup>3</sup>	Relative humidity	49%	Mass 2	4289 g
<b>Apparatus specifications</b>		<b>Baseline conditions</b>		Temperature	23°C
kt	0.88	Baseline ambient oxygen	20.646%	RH	50%
kp	1.08	Baseline oxygen	20.944%		
Duct diameter	0.315 m	Baseline carbon dioxide	0.0976%		
O2 calibration delay time	9 s	Baseline smoke	100.11%		
CO2 calibration delay time	12 s				

### Specimen information

Thickness	1.2 mm	Mounting method	5.2.2c) in EN 13823:2002
Density	1580 kg/m <sup>3</sup>	Joints	none
Surface mass/area	1.9 kg/m <sup>2</sup>	Fixed to substrate?	Yes
Specimen number	1	Fixing method	screw
Date of arrival	14/07/2020	Substrate	FIBROCIMENTO
		Manufacturer	SONAE INDUSTRIA DE REVESTIMENTOS SA
		Sponsor	SONAE INDUSTRIA DE REVESTIMENTOS SA

### Test validity criteria

#### Test drifts

	Initial	Final	Change
Oxygen	20.944%	20.774%	0.170%
CO2	0.098%	0.099%	0.001%
Smoke	100.11%	99.94%	0.002

Exposure time 1254 s

#### Synchronisation details

Duct temp. dropped by 2.5 K from baseline of 318.23 K at 303 s  
 Oxygen rose by 0.05% from baseline of 20.646% at 303 s  
 CO2 dropped by 0.02% from baseline of 0.329% at 303 s

#### Burner details

Auxiliary Burner HRR	30.508 kW
Auxiliary Burner HRR std. dev.	0.564 kW
Burner CO2/O2 ratio	0.774
Auxiliary Burner SPR	0.031 m <sup>2</sup> /s
Auxiliary Burner SPR std. dev.	0.006 m <sup>2</sup> /s
Burner response time	9 s

#### Other checks

Minimum duct flow	0.531 m <sup>3</sup> /s
Maximum duct flow	0.619 m <sup>3</sup> /s
No T/C failure	

### Classification results

FIGRA(0.2)	165.7 W/s at 348 s
FIGRA(0.4)	68.6 W/s at 384 s
THR(600)	3.8 MJ
SMOGRA	61.1 m <sup>2</sup> /s <sup>2</sup> at 357 s
TSP(600)	85.5 m <sup>2</sup>

### Classification observations

LFS to edge?	No
FDP flaming <= 10s?	No
FDP flaming > 10s?	No

### Potential classification

Class	C
Smoke production	s2
Flaming droplets/particles	d0

**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

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.

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## SBI Test Report

Laboratory name INEGI - LFF  
Operator Bruno Nogueira  
Filename C:\SBICALC\DATA\20070001.RW1  
Report identification LFF.2020.233  
Product identification SURFORMA HPL MAGNETIC

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### Alternative smoke results

Smoke test filename C:\SBICALC\SMOKE\20072101.RW1  
Main burner SPR 0.053 m<sup>2</sup>/s  
Main burner SPR std. dev. 0.006 m<sup>2</sup>/s

### Alternative classification results

SMOGRA 57.1 m<sup>2</sup>/s<sup>2</sup> at 357 s  
TSP(600) 72.5 m<sup>2</sup>  
Smoke production class s2

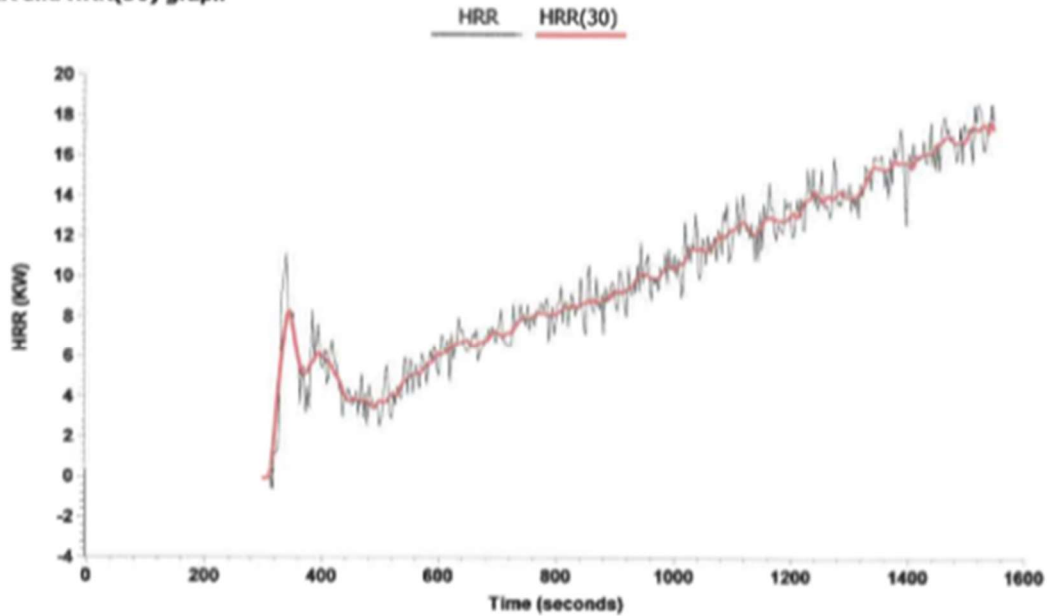
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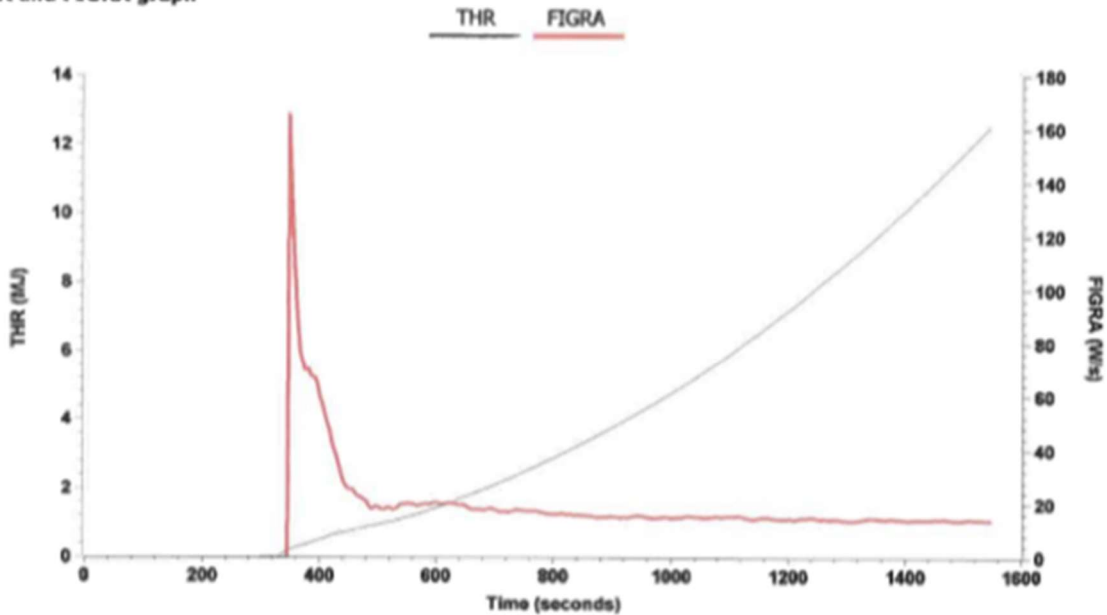
## SBI Test Report

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 Product identification SURFORMA HPL MAGNETIC

### HRR and HRR(30) graph



### THR and FIGRA graph

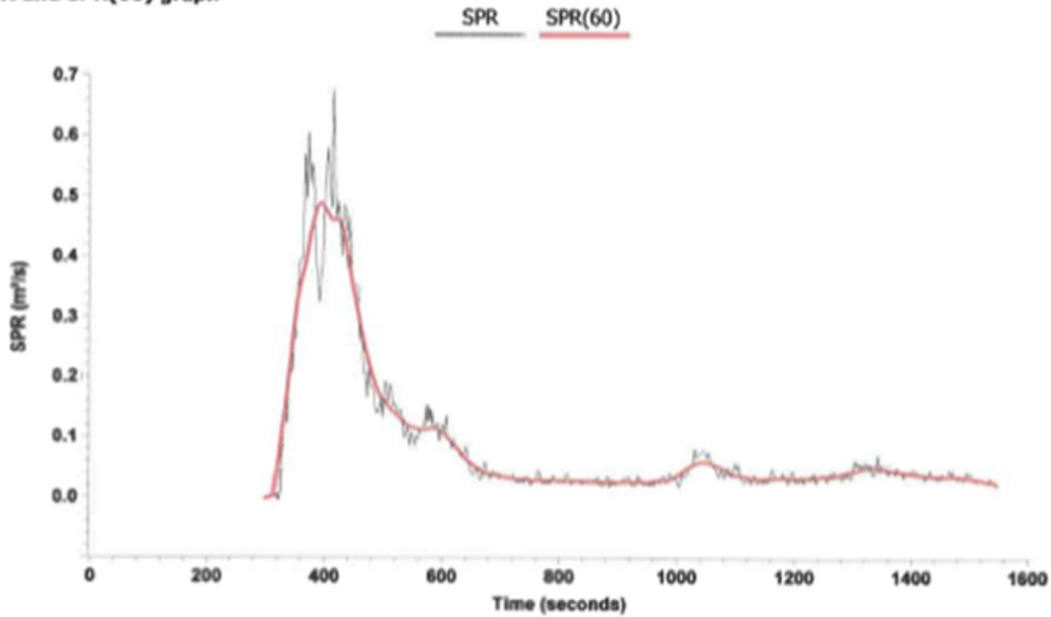


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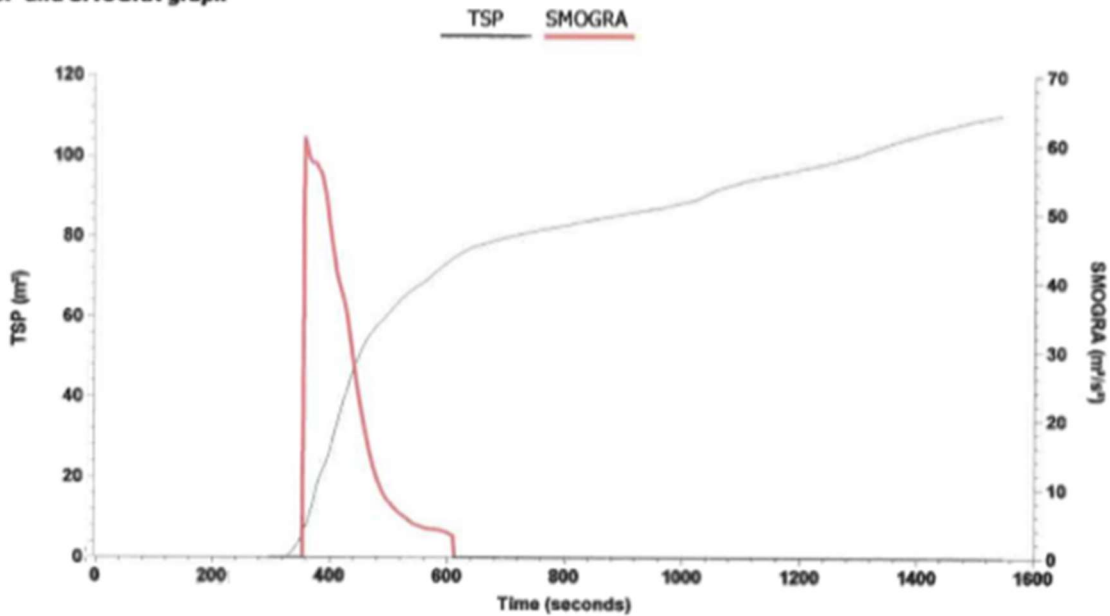
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 Operator Bruno Nogueira  
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 Report identification LFF.2020.233  
 Product identification SURFORMA HPL MAGNETIC

**SPR and SPR(60) graph**



**TSP and SMOGRA graph**

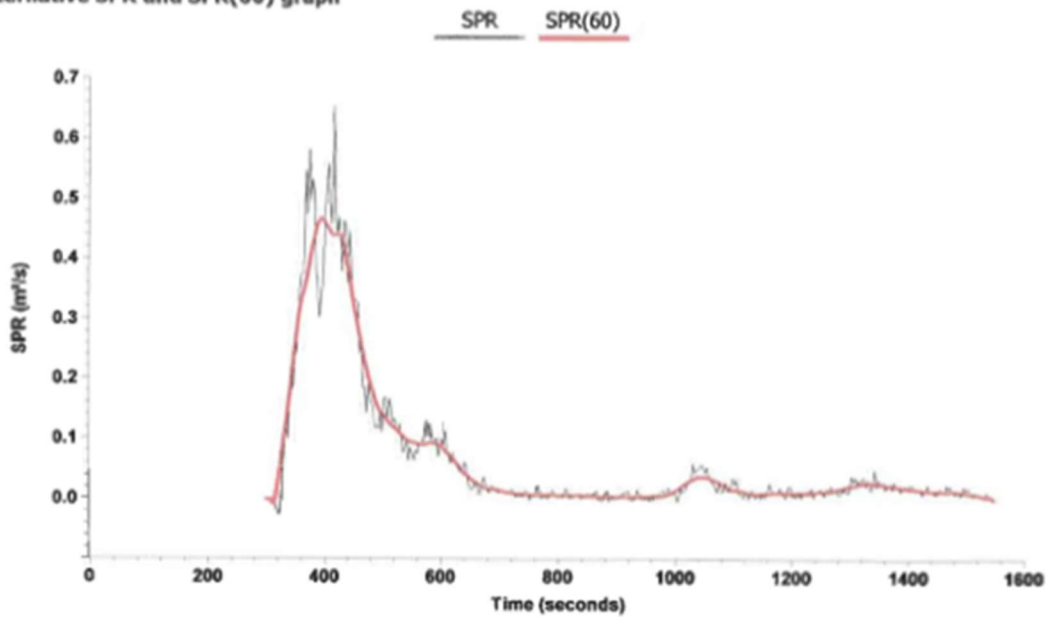


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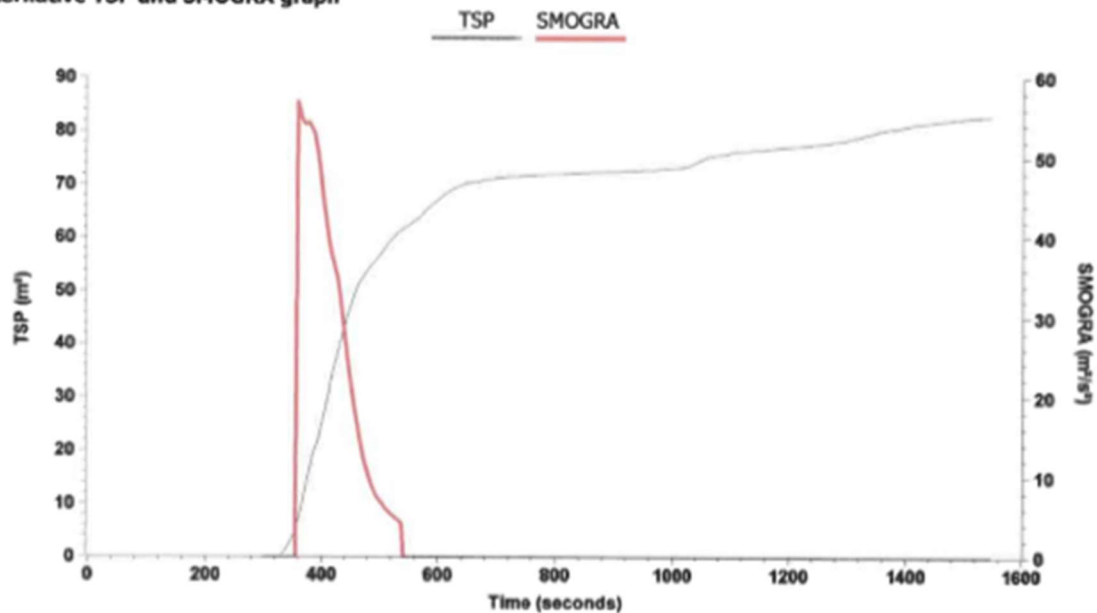
## SBI Test Report

Laboratory name INEGI - LFF  
 Operator Bruno Nogueira  
 Filename C:\SBICALC\DATA\20070001.RW1  
 Report identification LFF.2020.233  
 Product identification SURFORMA HPL MAGNETIC

### Alternative SPR and SPR(60) graph



### Alternative TSP and SMOGRA graph



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.





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