

## MID-TERM REPORT

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NOTIFIED BODY	Notified body for the European Regulation of the Construction Products N° 305/2011 with number n° 1981.	
PAGES	The report consists of 10 pages consecutively numbered an annex of 1 page.	
TEST SPECIMEN	Type: WALLS AND CEILINGS COVERINGS Reference: "NATURA STONE"	
CONCERNING TO	UNE EN 13823:12+A1:2016 Reaction to fire tests for building products	
APPLICANT	DACKOR, INC 350 E. CROWN POINT RD. #1030 WINTER GARDEN, FL 34787	
DATE/S OF TEST	Reception of specimens: 27/07/2017 Beginning of tests: 03/08/2017 End of tests: 03/08/2017	

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## 1. TEST SAMPLE

### 1.1. Description and identification of the item tested. Inspection before the test

Sample corresponding to a sheet of natural slate, treated with flame retardant, glued with epoxy resin EPOTECH to a calcium fibrosilicate, all this according to information provided by the customer, and thus referred to as:

- “Natura Stone”  
(Ref. AIDIMME: 1707242-04)



Long wing detail sample

## 2. TEST METHOD

### 3.1. Sample mounting

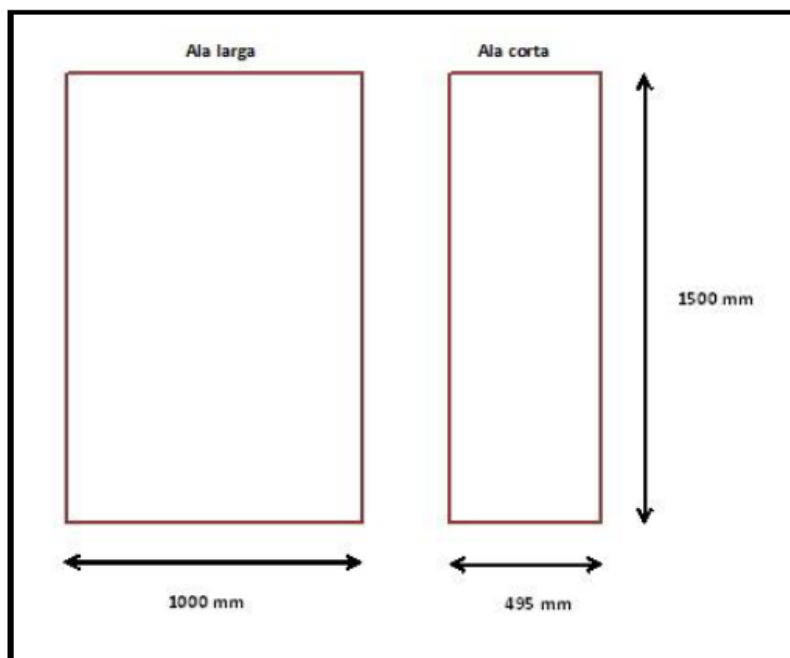
Sample mounting for SBI according to UNE-EN 13823:12

Assembly is done according to standard conditions according to the UNE-EN 13823:12.

The sample consists of two wings, called wing short and long wing, with the following dimensions: short wing (495x1500) mm long wing (1000 x1500) mm.

These two wings of the test material are arranged in upright position, forming a corner with a right angle, being exposed to the burner at the bottom.

The samples are mounted according to the figure according to the standard UNE-EN 13823:12.



### 3.2. Test description

#### Test method of burning behaviour by exposure to thermal attack caused by a single burning item

One sample is tested, formed from two wings (short wing and long wing), 495 mm x 1500 mm and 1000 mm x 1500 mm and corresponding thickness, forming a corner where a fire is caused in standard conditions.

The specimens are conditioned to 23°C ± 2°C and a relative humidity of 50% ± 5%, according to the standard UNE-EN 13238:11, either by a fixed period of time, either to constant weight.

The tests are performed in the equipment called SBI (Single Burning Item), which consists of a test chamber, a test apparatus (sample holder cart, burner, frame, hood, collector and ducting), and the smoke extraction system and team general measures.

The test principle is to have the two wings of the test material in a vertical position in right angle so that they are exposed to a burner located in the lower corner (main burner). The flames are obtained by combustion of propane gas, injected through a sand bed with an output power (30,7 ± 2,0) kW.

The behaviour of the sample is evaluated over a period of 20 minutes, determining performance parameters such as heat emission, smoke production, lateral spread of flame and drop inflamed particles.

A short time before the main burner ignition is used to quantify heat and smoke produced only by the burner, using an identical burner away from the sample and called auxiliary burner.

Measurements are taken either automatically or by visual observation. The extraction pipe is equipped with temperature sensors for measuring the attenuation of light, the molar fraction of oxygen and carbon dioxide, and the flow induced by the pressure difference in the canal. These amounts are recorded automatically and used to calculate the volume flow, the energy release (HRR) and smoke production rate (SPR).

The main visual observations are: lateral spread of flame and drop inflamed.

So, as the test results are determined / calculated:

- *FIGRA<sub>0,4MJ</sub> (W/s):* Maximum value of coefficient of heat release rate for the sample and at the moment is started, using a threshold THR (amount of heat evolved) of 0.4 MJ.
- *THR<sub>600s</sub> (MJ):* Total amount of heat released from the sample in the first 600 seconds of the start of exposure to the main burner.
- *SMOGRA (m<sub>2</sub>/s<sub>2</sub>):* Smoke production rate. Maximum value of the ratio of the speed of production of smoke by the sample and the time during which it is produced.
- *TSP<sub>600s</sub> (m<sub>2</sub>):* Total production smoke of the sample in the first 600 seconds of the start of exposure of main burner flames.
- *LSF<sub>edge</sub>:* Lateral flame spread along the long wing of the sample.
- Droplets or flamed particles with inflammation times higher or lower than 10 seconds.

### 3. TEST RESULTS

Test method of burning behaviour by exposure to thermal attack caused by a single burning item

- “Natura Stone”  
(Ref. AIDIMME: 1707242-04)

	SAMPLE 1	SAMPLE 2	SAMPLE 3
Test Date	03/08/2017		
<b>DEVICE SPECIFICATIONS AND CONDITIONS BEFORE TESTING</b>			
Flow profile kt (-)	0,979		
O2 calibration time delay (s)	10		
CO2 calibration time delay (s)	9		
Relative Humidity (%)	61		
Barometric pressure (Pa)	98809		
Light transmission (%)	100,47		
Oxygen molar percentage (%)	20,96		
CO2 molar percentage (%)	0,05		
Room temperature (°C)	22		
Test área temperature (°C)	24		
<b>RECORDED EVENTS</b>			
Sudden flames (Y/N)	Yes		
Smoke off hood extraction. (Y/N)	No		
Falling of parts of the sample (Y/N)	No		
Fixing failure (Y/N)	No		
Collapse of the sample (Y/N)	No		
Anticipated end of test (Y/N)	No		
<b>CONDITIONS AFTER TESTING</b>			
Light transmission (%)	91,38		
Oxygen molar percentage (%)	20,76		
CO2 molar percentage (%)	0,20		

VISUAL OBSERVATIONS			
LFS to the edge (Y/N)	No		
Flaming droplets / particles in flames =10 s (Y/N)	No		
Flaming droplets / particles in flames >10 s {Y/N}	No		
CALCULATIONS OF RESULTS			
FIGRA 0,2MJ (W/s)	106,65		
FIGRA 0,4MJ (W/s)	106,65		
THR600s (MJ)	3,53		
TSP600s (m²)	194,47		
SMOGRA (m²/s²)	45,97		
TEST DATA OBTAINED AFTER FIBROSILICATE TEST			
SPRav_burner (390-450 s) (KW)		n/a	
Desviación típica SPRav_quemador (390-450 s) (KW)		N/a	
CORRECTED CALCULATIONS			
Corrected parameter	SAMPLE 1	SAMPLE 2	SAMPLE 3
TSP600s (m²) CORRECTED	n/a		
SMOGRA (m²/s²) CORRECTED	n/a		

n/a : not applied

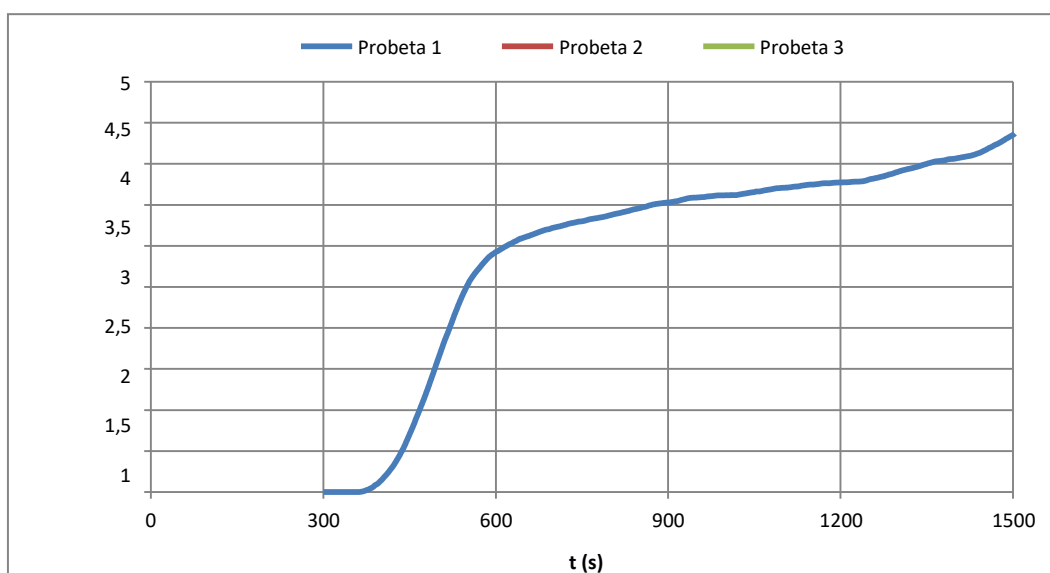
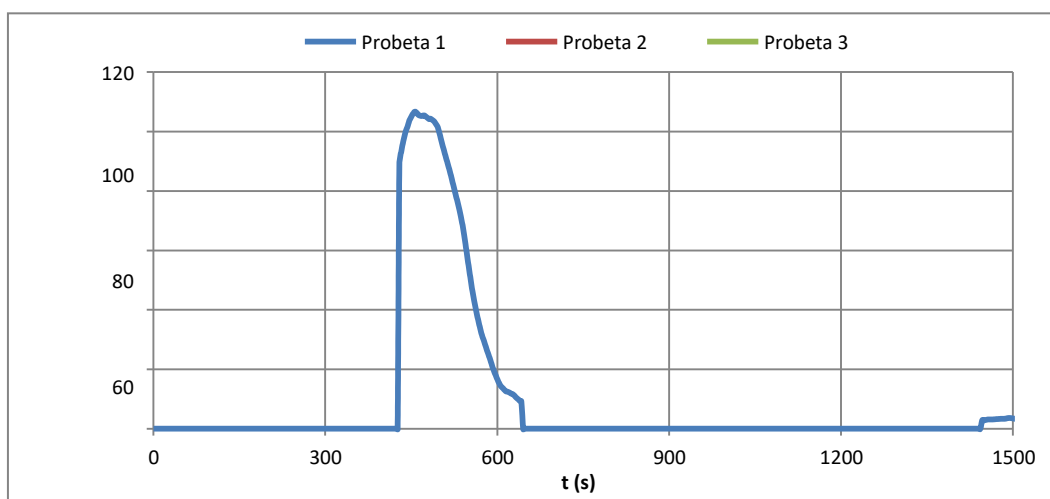
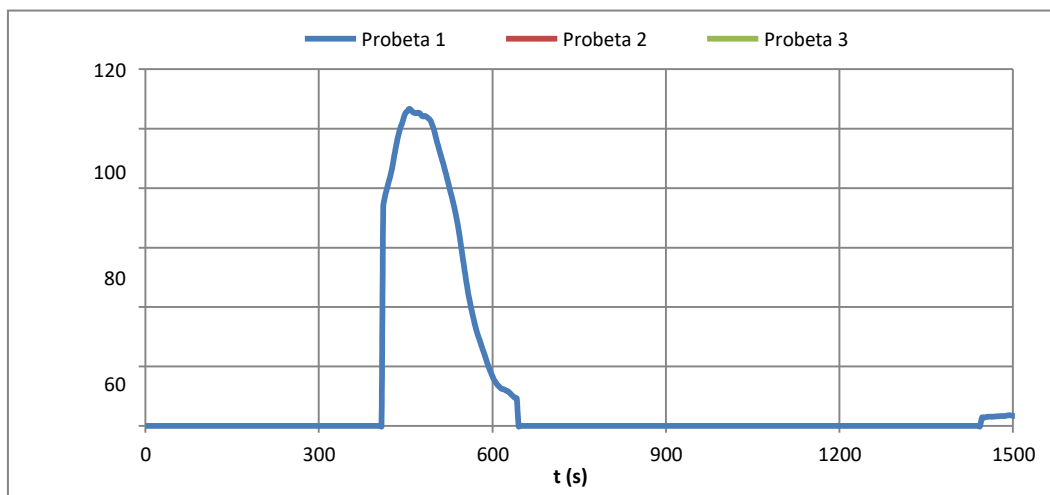
PARAMETER	AVERAGE VALUE
FIGRA 0,2MJ (W/s)	106,65
FIGRA 0,4MJ (W/s)	106,65
THR600s (MJ)	3,53
SMOGRA (m <sup>2</sup> /s <sup>2</sup> )	45,97
TSP600s (m <sup>2</sup> )	194,47
LFS (Y/N)	No
drops/particles flamed (Y/N)	No

**MID-TERM CLASSIFICATION****B-S2,d0**

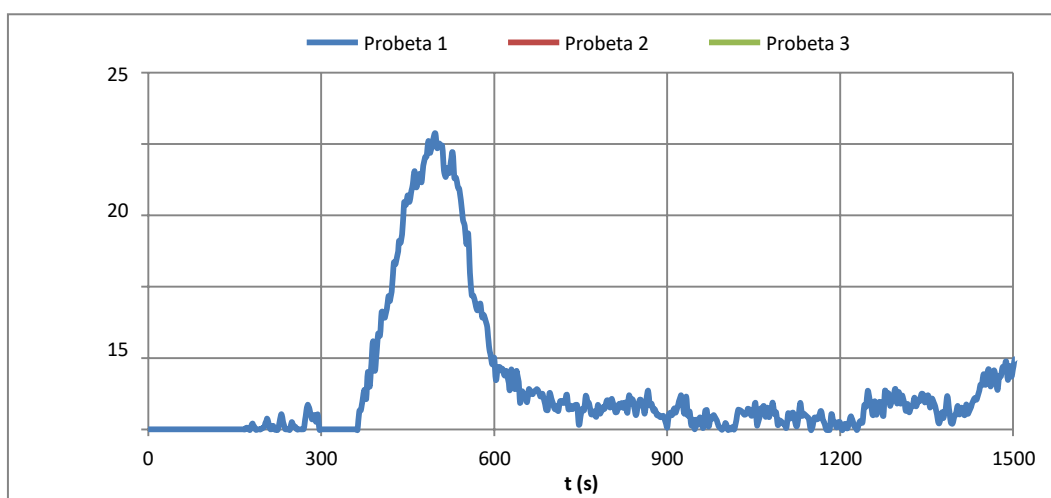
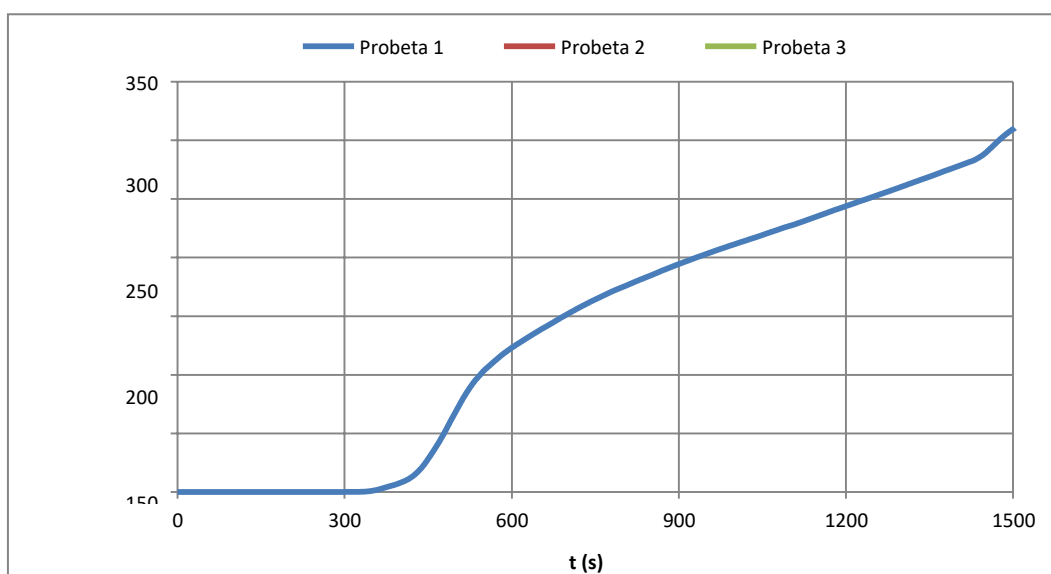
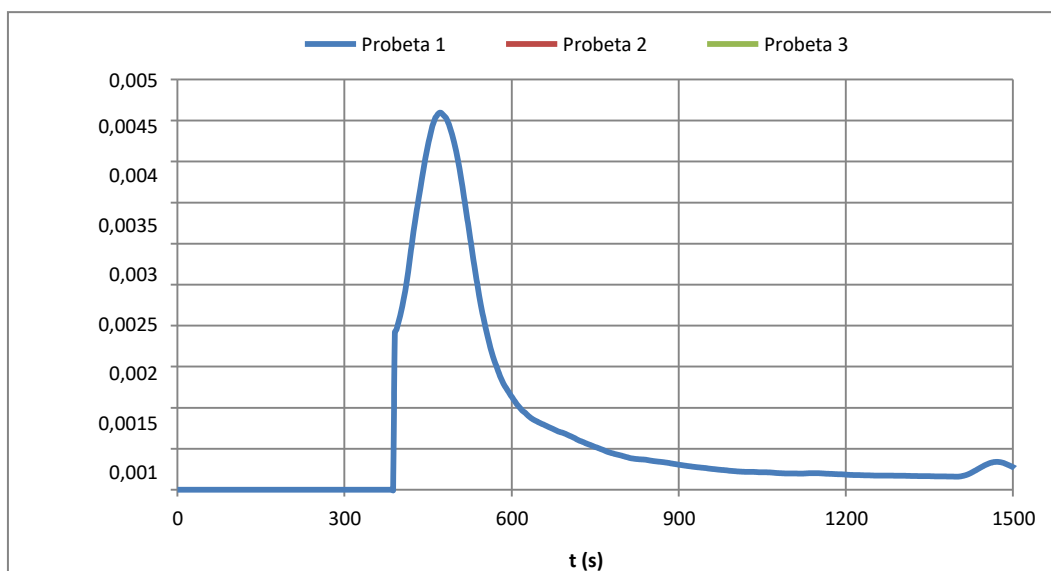
**This mid-term classification is only valid for preliminary assessment purposes.  
The EN 13501-1 classification is only valid when all the tests are completed.**

**4. GRAPHICAL REPRESENTATIONS**

- "NATURA STONE"  
(Ref. AIDIMME: 1707242-04)







## 5. PHOTOGRAPH AFTER TESTING

- “NATURA STONE” (Ref. AIDIMME: 1707242-04)



Sample detail after testing

**ANNEX****CLASSES OF BEHAVIOUR TO FIRE REACTION FOR CONSTRUCTION PRODUCTS EXCLUDING FLOOR COVERINGS ACCORDING TO STANDARD UNE EN 13501-1:07 +A1: 2010**

Class	Test method (s)	Classification criteria	Additional declaration required
<b>A1</b>	UNE-EN-ISO 1182:2011 <sup>(1)</sup> , and	$\Delta T \leq 30^{\circ}\text{C}$ ; and $\Delta m \leq 50\%$ ; and $t_f = 0$ (that is, no sustained flaming)	-
	UNE-EN-ISO 1716:2011	$\text{PCS} \leq 2,0 \text{ MJ,kg}^{-1}$ <sup>(1)</sup> ; and $\text{PCS} \leq 2,0 \text{ MJ,kg}^{-1}$ <sup>(2)</sup> (2a); and $\text{PCS} \leq 1,4 \text{ MJ,m}^{-2}$ <sup>(3)</sup> ; and $\text{PCS} \leq 2,0 \text{ MJ,kg}^{-1}$ <sup>(4)</sup>	-
<b>A2</b>	UNE-EN-ISO 1182:2011 <sup>(1)</sup> , or	$\Delta T \leq 50^{\circ}\text{C}$ ; and $\Delta m \leq 50\%$ ; and $t_f \leq 20\text{s}$	-
	UNE-EN-ISO 1716:2011; and	$\text{PCS} \leq 3,0 \text{ MJ,kg}^{-1}$ <sup>(1)</sup> ; and $\text{PCS} \leq 4,0 \text{ MJ,m}^{-2}$ <sup>(2)</sup> ; and $\text{PCS} \leq 4,0 \text{ MJ,m}^{-2}$ <sup>(3)</sup> ; and $\text{PCS} \leq 3,0 \text{ MJ,kg}^{-1}$ <sup>(4)</sup>	-
	UNE-EN-13823:2012 (SBI)	$\text{FIGRA} \leq 120 \text{ W,s}^{-1}$ ; and $\text{LFS} < \text{sample edge}$ ; and $\text{THR}_{600\text{s}} \leq 7,5 \text{ MJ}$	Smoke production <sup>(5)</sup> ; and Flamming Drops/particles <sup>(6)</sup>
<b>B</b>	UNE-EN 13823:2012 (SBI); and	$\text{FIGRA}_{0,2} \leq 120 \text{ W,s}^{-1}$ ; y $\text{LFS} < \text{sample edge}$ ; y $\text{THR}_{600\text{s}} \leq 7,5 \text{ MJ}$	Smoke production <sup>(5)</sup> ; and Flamming Drops/particles <sup>(6)</sup>
	UNE-EN-ISO 11925-2:2011 <sup>(8)</sup> : Exposure = 30s	$\text{Fs} \leq 150\text{mm}$ in 60s	
<b>C</b>	UNE-EN 13823:2012 (SBI); and	$\text{FIGRA}_{0,4} \leq 250 \text{ W,s}^{-1}$ ; and $\text{LFS} < \text{sample edge}$ ; and $\text{THR}_{600\text{s}} \leq 15 \text{ MJ}$	Smoke production <sup>(5)</sup> ; and Flamming Drops/particles <sup>(6)</sup>
	UNE-EN-ISO 11925-2:2011 <sup>(8)</sup> : Exposure = 30s	$\text{Fs} \leq 150\text{mm}$ in 60s	
<b>D</b>	UNE,EN 13823:2012 (SBI); and	$\text{FIGRA}_{0,4} \leq 750 \text{ W,s}^{-1}$	Smoke production <sup>(5)</sup> ; and Flamming Drops/particles <sup>(6)</sup>
	UNE-EN-ISO 11925-2:2011 <sup>(8)</sup> : Exposure = 30s	$\text{Fs} \leq 150\text{mm}$ in 60s	
<b>E</b>	UNE-EN-ISO 11925-2:2011 <sup>(8)</sup> : Exposure = 15s	$\text{Fs} \leq 150\text{mm}$ in 20s	Flamming Drops/particles <sup>(6)</sup>
<b>F</b>	UNE-EN-ISO 11925-2:2011 <sup>(8)</sup> : Exposure = 15s	$\text{Fs} > 150\text{mm}$ in 20s	Flamming Drops/particles <sup>(6)</sup>

(1) For homogeneous products and substantial components of non-homogeneous products

(2) For any non-substantial component of non-homogeneous products.

(2a) Alternatively, for any non-substantial component having an PCS 2.0 MJ/m<sup>2</sup>, as long as the product meets the following criteria UNE-EN 13823:2012 (SBI): FIGRA 20 W.s<sup>-1</sup>, y LFS< sample margin; and THR600s 4.0 MJ; and s1; and d0.

(3) For any internal non-substantial component of non-homogeneous product

(4) For the product as a whole

(5) s1= SMOGRA 30m2.s-2 and TSP600s 50m2 ; s2 = SMOGRA 180m2.s-2 and TSP600s 200m2;

s3 = neither s1 nor s2

(6) d0 = No Fleming droplets and particles in UNE-EN 13823:2012 (SBI) in 600s; d1 = No fleming droplets and particles for more than 10s in UNE-EN 13823:2012 (SBI) in 600s; d2 = neither d0 nor d1; the ignition of the paper in UNE-EN-ISO 11925-2:2011 determines a classification d2.

(7) Success = no ignition of the paper (without classification) ; Fail = ignition of the paper (d2 classification)

(8) Under conditions of surface flame attack and, if suitable for end conditions of product use, of edge flame attack.