

Ordering Number: 1910090-  
01 Order Form: 21904821

**test report no . 221.I.1910.1007.EN.01**

**AT THE REQUEST OF:**

**COMPANY: VONDOM, S.L.U.**  
**RESPONSIBLE: D. MARC PERIS**  
**ADDRESS: AV DE VALENCIA, 3**  
**POPULATION: 46891 -PALOMAR (VALENCIA)**  
**PHONE: 96 239 84 86**  
**CIF: B -98.195.746**

**REFERENCE TO:**

**SAMPLES: POLYURETHANE FOAM TEST TUBES**  
**ESSAYS: VARIOUS**

**DATE OF RECEIPT OF M UESTRAS: 08/10 /2019**  
**ENSA START DATE YOS: 10/10 /2019**  
**ENSA END DATE YOS: 15/10 /2019**

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**THE PRESENT REPORT CONSTITUTES OF 4 PAGES**  
**NUMBERED CONSECUTIVELY .**

The test sample object of this report will remain at **ME** for a period of three months from the date of issuance of this report. Once this period has elapsed, it will be destroyed, therefore any claim must be carried out within these limits.

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## 1. DESCRIPTION E IDENTIFICATION FROM THE SAMPLE TESTED SAMPLE. PRE-TEST INSPECTION

White flexible polyurethane foam test tubes, identified by the customer as injected in mold or preform.

Sample referenced in AIDIMME as 1910090-01.

## 2. ORIGIN OF THE SAMPLE

Samples supplied by the customer.

## 3. REQUESTED TEST

- Bulk density
- Indentation hardness (penetration resistance)
- Tensile strength
- Remaining deformation
- Resilience
- Compression

## 4. ADAPTATION OF THE TEST TO STANDARD

The test methods performed are in accordance with the following standards:

Bulk density	UNE EN ISO 845:2010
Detection hardness	UNE EN ISO 2439:2009
Tensile strain	UNE EN ISO 1798:2008 Remaining
Resilience	UNE EN ISO 1856:2001/A1:2007 EN ISO 8307:2008
Compression	UNE EN ISO 3386-1:1998

## 5. TEST METHOD

### BULK DENSITY

The dimensions of 100mm x 100mm x 100mm specimens are measured with an accuracy of 1% and then weighed with a sensitivity of  $\pm 0.1$ mg, calculating the bulk density in  $\text{kg/m}^3$ .

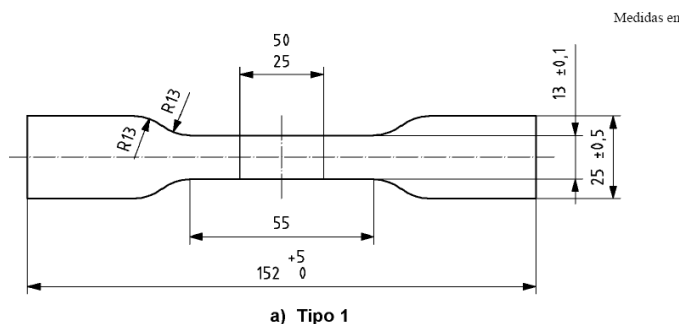
### HARDNESS

Samples of approximately 380mm x 380mm x 50mm, are compressed in a Universal Testing Machine at a speed of 100 mm/min, using two surfaces, one lower and the other upper. The lower one is a flat plate 505 mm on a side, perforated with 5 mm diameter holes 20 mm apart, and the upper one is a circle 203 mm in diameter.

The force necessary to compress the foam to 25% of its thickness to 40% of its thickness and to 65% is recorded, according to procedures A and B described in the standard, calculating the hardness index of indentation at 40% obtained according to method A and the ratio between the hardness of indentation at 65% and at 25% obtained according to method B.

**R ESISTANCE TO TRACTION**

On die-cut specimens with the shape shown in the figure, a tensile stress is exerted at a speed of 500 mm/min, recording the breaking force and calculating the breaking load as MPa.



The elongation of the specimen at the moment of breakage is also recorded, and the result is expressed as a percentage of the initial length.

**REMAINING DEFORMATION**

Specimens of 50mm x 50mm x 25mm, having measured the thickness to an approximation of ±0.02mm, are compressed by means of two flat plates to 75% of their thickness and the assembly thus formed is maintained for 22 hours at 70°C.

After this time, the foam is allowed to recover for 30 minutes and the thickness is measured again, calculating the remaining deformation as the percentage change in thickness with respect to the initial thickness.

**R ESILIENCE**

Specimens of 100mm x 100mm x 50mm are compressed to 75% of their initial thickness, twice, at a rate of 3 mm/min and allowed to stand for a period of (10 ± 5) minutes. A steel ball of (16.0 ± 0.5) g and (16.0 ± 0.5) mm diameter is dropped from a height of (500.0 ± 0.5) mm and the rebound height is measured.

Resilience is determined as the median of the rebound values of three specimens, expressed as a percentage of the initial height.

**R ESISTANCE TO COMP RESSION**

Samples of 100mm x 100mm and thickness of 50mm, are compressed four times, at 70% of their thickness in a Universal Testing Machine at a speed of 100mm/min, by means of two plates of a dimension greater than that of the test specimen.

In the last compression, the graph obtained is recorded, calculating the force exerted at 40% deformation in Newton, calculating the stress/strain characteristic in compression at 40% compression in KPa by means of the formula:

$$CV_{40} = \frac{1000F_{40}}{A}$$

where,

$CV_{40}$  is the value of compressive stress at 40% compression.

$F_{40}$  is the force, in Newton, recorded in the fourth load cycle for 40% compression.

$A$  is the surface area of the specimen, in square millimeters.

## 6. OB RESULTS RESULTS

FEATURE	RESULTS
Bulk density (kg/m ) <sup>3</sup>	52,8 (0,4) <sup>1)</sup>
Hardness index by indentation at 40%.	198
Indentation hardness (N): at 25% penetration at 65% penetration 65%/25% factor	148 389 2,6
Tensile strength (MPa) Elongation at break (%)	0,14 (0,01) 183 (12)
Remaining deformation (%) (50%, 72h, 23°C)	3,5
Resilience (%)	51
Compressive strength at 40% (KPa)	4,6 (0,16)

1) Standard deviation obtained.

The result(s) of the present test(s) only concern(s) the tested object(s).

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Date: October 21, 2019



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## CLASSIFICATION REPORT



NUMBER	251.X.1910.056.EN.01	Work sheet: 21904939
DATE OF ISSUE	October 23 <sup>rd</sup> , 2019	
TEST SPECIMEN	Sample corresponding to injected polyurethane foam in mold or preform with a density between 40-65 kg/m <sup>3</sup> , all this according to the information provided by the customer, and labelled by himself as: Reference: "PROYECTO MOBILIARIO PARA EXTERIOR DE ESPUMA DE POLIURETANO"	
TESTS	UNE-EN 1021-1:15 and UNE-EN 1021-2:15. ASSESSMENT OF THE IGNITABILITY OF UPHOLSTERED FURNITURE.	
APPLICANT	VONDOM, S.L.U. AV. DE VALENCIA, 3 46891 PALOMAR (VALENCIA) – SPAIN	
OBTAINED RESULTS	According to the test results included on the report with reference 251.I.1910.056.ES.01 (date of issue: October 23 <sup>rd</sup> , 2019), the sample previously described and referenced by the client as "PROYECTO MOBILIARIO PARA EXTERIOR DE ESPUMA DE POLIURETANO", shows <b>NO IGNITION</b> when exposed to sources of ignition of a cigarette and flame equivalent to a match, in the test that determine the ignitability of upholstered furniture, according to the standards UNE EN 1021-1:15 and UNE EN 1021-2:15.	
AUTHORIZED SIGNATORY	  Signed.: Mr. Stephane García-Malpartida Head of Section - Fire Laboratory	

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The result of this/these certificate only refers to the object/s tested in AIDIMME

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## CLASSIFICATION REPORT

NUMBER	251.V.1910.056.EN.01	Work sheet: 21904939
DATE OF ISSUE	October 23 <sup>rd</sup> , 2019	
TEST SPECIMEN	Sample corresponding to injected polyurethane foam in mold or preform with a density between 40-65 kg/m <sup>3</sup> , all this according to the information provided by the customer, and labelled by himself as: Reference: "PROYECTO MOBILIARIO PARA EXTERIOR DE ESPUMA DE POLIURETANO"	
TESTS	FLAMMABILITY TESTING FOR UPHOLSTERED FURNITURE ACCORDING TO RESOLUTION IMO FTP CODE 2010 – ANNEX 1 – PART 8 (MARITIME FIRE SAFETY STANDARDS)	
APPLICANT	VONDOM, S.L.U. AV. DE VALENCIA, 3 46891 PALOMAR (VALENCIA) - SPAIN	
OBTAINED RESULTS	According to the test results included on the report with reference 251.I.1910.056.ES.01 (data of issue: October 23 <sup>rd</sup> , 2019), the sample previously described and referenced by the client as "PROYECTO MOBILIARIO PARA EXTERIOR DE ESPUMA DE POLIURETANO", shows no ignition, and therefore <b>PASS RESULT</b> , when exposed to sources of ignition of a cigarette and flame equivalent to a match, under the test conditions specified in the report.	

AUTHORIZED SIGNATORY


Signed.: Mr. Stephane García Malpartida  
Head of Section - Fire Laboratory

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## CLASSIFICATION REPORT

NUMBER	251.W.1910.056.EN.01	Work sheet: 21904939
DATE OF ISSUE	October 23 <sup>rd</sup> , 2019	
TEST SPECIMEN	Sample corresponding injected polyurethane foam in mold or preform with a density between 40-65 kg/m <sup>3</sup> , all this according to the information provided by the customer, and labelled by himself as: Reference: "PROYECTO MOBILIARIO PARA EXTERIOR DE ESPUMA DE POLIURETANO"	
TESTS	UNI 9175:2010 – REACTION TO FIRE OF UPHOLSTERED PRODUCTS BY APPLYING A SMALL FLAME	
APPLICANT	VONDOM, S.L.U. AV. DE VALENCIA, 3 46891 PALOMAR (VALENCIA) - SPAIN	
OBTAINED RESULTS	According to the test results included on the report with reference 251.I.1910.056.ES.01 (data of issue: October 23 <sup>rd</sup> , 2019), the sample previously described and referenced by the client as "PROYECTO MOBILIARIO PARA EXTERIOR DE ESPUMA DE POLIURETANO" is classified according to the standard UNI 9175:2010 as <b>CLASSE 2 IM</b> .	

AUTHORIZED SIGNATORY


Signed.: Mr. Stephane García Malpartida  
Head of Section - Fire Laboratory

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**AIDIMME, METAL-PROCESSING, FURNITURE, WOOD AND PACKAGING  
TECHNOLOGY INSTITUTE**

NOTIFIES:

That the company **VONDOM, S.L.**, has carried out the tests for the evaluation of the flammability of upholstered furniture according to the standards UNE EN 1021-1: 15 and UNE EN 1021-2: 15 for the following products referenced in AIDIMME as:

- 1910149-01. "Proyecto mobiliario para exterior de espuma de poliuretano"

According to tests included in report with reference 251.I.1910.056.ES.01 (date of issue: October 23<sup>rd</sup>, 2019), the samples mentioned above, present **NO IGNITION** against the sources of ignition of a cigarette and a flame equivalent to a match in the tests that determine the flammability of upholstered furniture, according to UNE EN 1021-1: 15 and UNE EN 1021-2: 15 standards.

According to section 0.3 "Method of use" of British Standard BS 5852: 06, the flammability of cigarettes described in EN 1021-1 is equivalent to "ignition source 0", as well as the match flammability described in The EN 1021-2 is equivalent to the "ignition source 1". Therefore, the results contained in the report mentioned above are equivalent.

And for the record and the appropriate effects, where appropriate, the present document is signed, in Paterna, on October thirtieth of two thousand and nineteen. (10/30/2019).


Signed: Mr. Stephane García Malpartida  
Head of Fire Lab. AIDIMME