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## Ignitability of upholstered furniture according to EN 1021-1

(1 appendix)

### Introduction

SP has by request of Lammhults Möbel AB performed a fire test according to EN 1021-1. The purpose of the test is to form a basis for technical fire classification.

### Product

According to the client: furniture upholstery combination called “Cajal” consists of the following components:

Component	Material content	Manufacturer	Nominal data
Cover fabric “GAJA C2C”	100 % wool	Gabriel	380 g/m <sup>2</sup>
Foam “PurFlex”	PUR (hard foam) MDI-based PUR	Bramming Plast- Industri A/S	80 kg/m <sup>3</sup> 65 kg/m <sup>3</sup>
Shell	Plywood	-	2 900 g
Structure	Metal tubes	-	Ø 18 mm

### Sampling

The sample was delivered by the client. It is not known to SP Fire Research if the product received is representative of the mean production characteristics.

The sample was received on March 9, 2015 at SP Fire Research.

### Test results

The upholstery combination was tested with cigarette (EN 1021-1) as ignition source.

The ignition source was applied in a position along the junction between seat and back. Special care was taken to note any progressive smouldering and/or flaming combustion in the combination.

No progressive smouldering or flaming occurred within the 60 minute test time (non-ignition). The test results are given in appendix 1.

The test results relate only to the ignitability of the combination of upholstery composites under the particular conditions of the test; they are not intended as a means of assessing the potential fire hazard of the materials or products in use.

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**Criteria**

Section 3 in EN 1021-1, 2014 describing "Criteria of ignition" with regards to "Progressive smouldering ignition" (3.1) and "Flaming ignition" (3.2).

**Assessment**

The tested furniture upholstery combination called "Cajal" meets the technical fire requirements according to EN 1021-1.

**Deviation from standard**

A complete furniture was tested instead of using the test rig described by the standard.

**SP Technical Research Institute of Sweden****Fire Research - Fire Dynamics**

Performed by

Examined by

Anna Bergstrand

Per Thureson

**Appendix**

1. Test results

## Appendix 1

**Test results - EN 1021-1, 2014****Product**

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**Observations, EN 1021-1, ignition source cigarette****Table 1. Observations during the cigarette tests.**

Test no	1	2
The cigarette was applied in a position along the junction between seat and back, min:s	00:00	00:00
Cover ignited, min:s	-*	-*
Filling ignited, min:s	-*	-*
The cigarette died out, min:s	34:57	34:48
The test was finished, min:s	60:00	60:00

\* Ignition/Flaming ignition of the materials was not observed.

**Table 2. Test criteria and assessment, cigarette test.**

	Test no	
	1	2
<i>Smouldering criteria</i>	Yes/No	
Unsafe escalating combustion (3.1 a)	No	No
Test assembly consumed (3.1 b)	No	No
Smoulders to extremities (3.1 c)	No	No
Smoulders through thickness (3.1 c)	No	No
Smoulders more than 1 h (3.1 d)	No	No
In final examination, presence of progressive smouldering (3.1 e)	No	No
<i>Flaming criteria</i>		
Occurrence of flames (3.2)	No	No

## Appendix 1

### Measured data of tested product

Fabric:

Thickness 1.0 mm.

Area weight 380 – 390 g/m<sup>2</sup>.

### Pre treatment

According to the client, the cover material has not been chemically treated to reduce ignitability. The cover material has therefore not been subjected to the water soaking and drying procedure described in Annex D before testing.

### Conditioning

The tested product was conditioned for a minimum of 24 h at a temperature of  $(23 \pm 2)$  °C and a relative humidity of  $(50 \pm 5)$  %.

### Date of test

March 20, 2015.