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SWEDAC ACKREDITERING 1002 ISO/IEC 17025

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Ignitability of upholstered furniture according to EN 1021-1

(2 appendices)

Introduction

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

Product

Furniture upholstery combination called "CAMPUS". According to the client the product consists of:

- Cover material called "Gaja", consisting of 100% wool with nominal area weight 530 g/m^2.
- Filling material consisting of polyurethane foam (back).
- Filling material consisting of latex foam (seat).

A more detailed material specification (version 2), dated 2008-05-08, has been provided by the client but is not given in this report.

Manufacturer

Finished furniture: Lammhults Möbel AB, Lammhult, Sweden.

Sampling

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

The sample was received on September 29, 2011 at SP Fire Technology.

Test results

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

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

No progressive smouldering and/or flaming occurred within the 60 minute test time (non-ignition). The test results are given in appendix 1-2.

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.

Criteria

Section 3 in EN 1021-1, 2006 describing "Criteria of ignition" with regards to "Progressive smouldering ignition" (3.1) and "Flaming ignition" (3.2).

Deviation from standard

A complete seat and back of a chair were delivered by the client so it was not possible to use the test rig according to the standard. The deviations are described more in appendix 1-2.

Assessment

The tested furniture upholstery combinations called "CAMPUS" meet the technical fire requirements according to EN 1021-1.

SP Technical Research Institute of Sweden
Fire Technology - Fire Dynamics

Performed by

Ida Larsson

Examined by

Per Thureson

Appendices

1 Test results – seat
2 Test results - back

Appendix 1

Test results - EN 1021-1, 2006

Product

Furniture upholstery combination called "CAMPUS". According to the client the product consists of:

- Cover material called "Gaja", consisting of 100% wool with nominal area weight 530 g/m^2.
- Filling material consisting of polyurethane foam (back).
- Filling material consisting of latex foam (seat).

A more detailed material specification (version 2), dated 2008-05-08, has been provided by the client but is not given in this report.

The seat part of the upholstery combination was tested. The ignition sources was applied in a position along the junction between seat and seat. Special care was taken to note any progressive smouldering or flaming combustion in the combination.

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	29:07	36:26
Flames in the cover died out, min:s	-	-
Flames in the filling died out, min:s	-	-
The flames were extinguished, min:s	-	-
The test was finished, min:s	60:00	60:00

* Ignition of the materials was not observed.

Deviation from standard

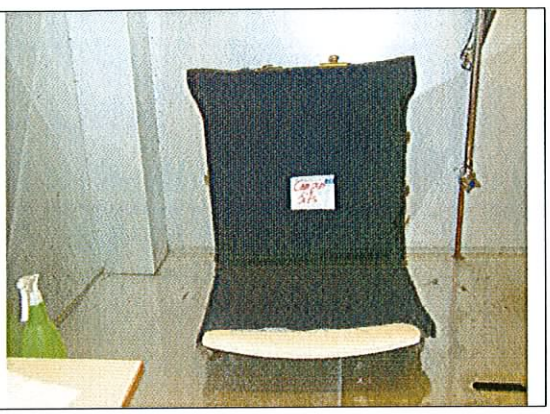
The test rig in EN 1021-1 was not used. The larger BS 5852-rig was used instead and the seat and back was located as in the photo to be able to put cigarettes in a position along the junction between seat and back (seat).	

Table 2. Test criteria and assessment, cigarette test.

	Test no	
	1	2
"Smouldering criteria"	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 active smouldering (3.1 e)	No	No
"Flaming criteria"		
Occurrence of flames (3.2)	No	No

Pre treatment

The cover material has 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 ± 2) °C and a relative humidity of (50 ± 5) %.

Date of test

October 28, 2011.

Appendix 2

Test results - EN 1021-1, 2006

Product

Furniture upholstery combination called "CAMPUS". According to the client the product consists of:

- Cover material called "Gaja", consisting of 100% wool with nominal area weight 530 g/m^2.
- Filling material consisting of polyurethane foam (back).
- Filling material consisting of latex foam (seat).

A more detailed material specification (version 2), dated 2008-05-08, has been provided by the client but is not given in this report.

The back part of the upholstery combination was tested. The ignition sources was applied in a position along the junction between back and back. Special care was taken to note any progressive smouldering or flaming combustion in the combination.

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	23:35	19:56
Flames in the cover died out, min:s	-	-
Flames in the filling died out, min:s	-	-
The flames were extinguished, min:s	-	-
The test was finished, min:s	60:00	60:00

* Ignition of the materials was not observed.

Application

The test rig in EN 1021-1 was used. Since the back was curved it was cut in half and the two parts were then located as in the photo to be able to put cigarettes in a position along the junction between back and seat (back).	

Table 2. Test criteria and assessment, cigarette test.

	Test no	
	1	2
"Smouldering criteria"	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 active smouldering (3.1 e)	No	No
"Flaming criteria"		
Occurrence of flames (3.2)	No	No

Pre treatment

The cover material has 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 ± 2) °C and a relative humidity of (50 ± 5) %.

Date of test

October 28, 2011.