

Ignitability of upholstered furniture according to EN 1021-1 and EN 1021-2

(1 appendix)

Introduction

RISE has by request of Elmo Sweden AB performed a fire test according to EN 1021-1 and EN 1021-2. The purpose of the test is to form a basis for technical fire classification.

This report replaces the previous SP report 4P06664, dated 2014-11-19. The editions of the standards have been corrected.

Product

According to the client the product consists of:

Product	Material content	Colour	Nominal thickness (mm)	Nominal area weight (g/m ²)
Elmosoft	Leather	Black	1.1 – 1.3	600 – 800

The product was tested together with standard CMHR foam, nominal density 35 kg/m³.

Sampling

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

The sample was received on October 2, 2014.

Test results

The upholstery combination was tested with cigarette (EN 1021-1) and match flame equivalent (EN 1021-2) as ignition sources.

The ignition sources were applied in a position along the junction between seat and back. Special care was taken to note any progressive smouldering and 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 and EN 1021-2, 2014 describing "Criteria of ignition" with regards to "Progressive smouldering ignition" (3.1) and "Flaming ignition" (3.2).

Assessment

The tested leather called "Elmosoft" meets the technical fire requirements according to EN 1021-1 and EN 1021-2.

RISE Research Institutes of Sweden AB **Safety - Fire Research Materials**

Performed by

Examined by

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Appendix

1 Test results

Appendix 1

Test results - EN 1021-1, 2014 and EN 1021-2, 2014

Product

According to the client the product consists of:

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Elmosoft	Leather	Black	1.1 – 1.3	600 – 800

The product was tested together with standard CMHR foam, nominal density 35 kg/m³.

Observations, EN 1021-1, ignition source cigarette

Table 1. Observations during the cigarette tests.

Test no	1	2	3
The cigarette was applied in a position along the junction between seat and back, min:s	00:00	00:00	00:00
Cover ignited, min:s	_*	_*	_*
Filling ignited, min:s	_*	_*	_*
The cigarette died out, min:s	_**	29:49	38:42
The test was finished, min:s	60:00	60:00	60:00

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

** The cigarette died out before it was fully consumed. Therefore a third cigarette was placed on the test specimen.

Table 2. Test criteria and assessment, cigarette test.

	Test no		
	1	2	3
<i>"Smouldering criteria"</i>	Yes/No		
Unsafe escalating combustion (3.1 a)	No	No	No
Test assembly consumed (3.1 b)	No	No	No
Smoulders to extremities (3.1 c)	No	No	No
Smoulders through thickness (3.1 c)	No	No	No
Smoulders more than 1 h (3.1 d)	No	No	No
In final examination, presence of active smouldering (3.1 e)	No	No	No
<i>"Flaming criteria"</i>			
Occurrence of flames (3.2)	No	No	No

Appendix 1

Observations, EN 1021-2, ignition source small flame

Table 3. Observations during the match flame tests.

Test no	1	2	3
The ignition source was applied in a position along the junction between seat and back, min:s	00:00	00:00	00:00
Cover ignited, min:s	-*	-*	-*
Filling ignited, min:s	-*	-*	-*
The ignition source was removed, min:s	00:15	00:15	00:15
The test was finished, min:s	60:00	60:00	60:00

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

Table 4. Test criteria and assessment, match flame test.

	Match flame equivalent		
	1	2	3
<i>"Smouldering criteria"</i>	Yes/No		
Unsafe escalating combustion (3.1 a)	No	No	No
Test assembly consumed (3.1 b)	No	No	No
Smoulders to extremities (3.1 c)	No	No	No
Smoulders through thickness (3.1 c)	No	No	No
Smoulders more than 1 h (3.1 d)	No	No	No
In the final examination, presence of active smouldering (3.1 e)	No	No	No
<i>"Flaming criteria"</i>			
Unsafe escalating combustion (3.2 a)	No	No	No
Test assembly consumed (3.2 b)	No	No	No
Flames to extremities (3.2 c)	No	No	No
Flames through thickness (3.1 c)	No	No	No
Flames longer than 120 s (3.2 d)	No	No	No

Appendix 1

Measured data of tested product

Material	Thickness (mm)	Area weight (g/m ²)
Elmosoft	1.4 – 1.8	770 – 870

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 and 29, 2014.