

Elmo Sweden AB  
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## **Ignitability of upholstered furniture according to IMO 2010 FTP Code part 8**

(1 appendix)

### **Introduction**

SP has by request of Elmo Sweden AB performed a fire test according to IMO 2010 FTP Code part 8. The purpose of the test is to form a basis for technical fire classification.

### **Product**

According to the client: Leather called “Elmobaltique” with nominal thickness 1.3 – 1.5 mm. The product is made of aniline chrome tanned leather from Scandinavian cattle hide.

The leather was tested together with standard non-treated polyurethane foam with nominal density 20 – 22 kg/m<sup>3</sup>. The foam was supplied by SP.

### **Manufacturer**

Elmo Sweden AB, Svenljunga, Sweden.

### **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 August 15, 2016 at SP Fire Research.

### **Test results**

The upholstery combination was tested with cigarette and match flame equivalent 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/or flaming combustion in the combination.

The test results are given in appendix 1.

The test results relate only to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

### **Criteria**

Section 3 in IMO 2010 FTP Code part 8, describing “Performance criteria” with regards to “Progressive smouldering” and “Flaming ignition”.

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## Assessment

The tested upholstered furniture combination meets the technical fire requirements according to IMO 2010 FTP Code part 8.

## Deviation from standard

The test was performed on a test rig according to EN 1021-1:2006. This test rig is identical to the test rig in IMO 2010 FTP Code part 8 except for an extra plate at the end of the outer parts of the back and seat. This helps the filling from slipping and improves the repeatability of the test standard. This deviation was considered as having no influence on the test results (except for the better).

The gas used in the gas flame test was butane. The standard specifies the use of propane (95% purity). The two gas species are however deemed to be equivalent and this deviation is assessed not to have an impact on the test results.

## SP Technical Research Institute of Sweden Safety - Fire Research, Fire Dynamics

Performed by

Examined by

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## Appendix

1 Test results – IMO 2010 FTP Code part 8

Appendix 1

## Test results – IMO 2010 FTP Code part 8

### Product

According to the client: Leather called “Elmobaltique” with nominal thickness 1.3 – 1.5 mm. The product is made of aniline chrome tanned leather from Scandinavian cattle hide.

The leather was tested together with standard non-treated polyurethane foam with nominal density 20 – 22 kg/m<sup>3</sup>. The foam was supplied by SP.

### Test specimen

The upholstered furniture had the dimensions 450 mm x 300 mm 75 mm and 450 mm x 150 mm 75 mm.

### Observations, ignition source cigarette

**Table 1. Observations during the cigarette tests.**

Test no.	1	2
The cigarette was applied, min:s	00:00	00:00
Cover ignited, min:s	_*	_*
Filling ignited, min:s	_*	_*
The cigarette died out, min:s	36:48	29:42
The test was finished, min:s	60:00	60:00

\* Ignition of the materials was not observed.

### Observations after the fire test

No progressive smouldering or flaming occurred within the 60 minute test time (non-ignition).

### Observations, ignition source small flame

**Table 2. Observations during the match flame tests.**

	Test no 1	Test no 2
The ignition source 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 ignition source was removed, min:s	00:20	00:20
After flame time, min:s	_*	_*
The test was finished, min:s	60:00	60:00

\* Ignition of the materials was not observed.

## Appendix 1

**Observations after the fire test**

No progressive smouldering occurred within the 60 minute test time and no burning with open flame occurred for more than 120 seconds after the removal of the ignition source.

**Measured material data of tested product (leather)**

Thickness: 1.6 – 1.8 mm.

Area weight: 960 g/m<sup>2</sup>.

**Smouldering cigarette source**

As stipulated in the standard the cigarette used has the following properties.

Length:	70 ± 4 mm
Diameter:	8 ± 0.5 mm
Mass:	0.95 ± 0.15 g
Smouldering rate:	11 ± 4.0 min/50 mm

**Flaming ignition source**

As stipulated in the standard the flame used has the following properties.

Gas: Butane

Fuel supply rate: 6.38 ± 0.25 g/h at 20°C

**Conditioning**

The tested product was conditioned for a minimum of 16 h at a temperature of (23 ± 2) °C and a relative humidity of (50 ± 5) %.

**Date of test**

August 17, 2016.