

## Ignitability of upholstered furniture according to IMO 2010 FTP Code part 8

(1 appendix)

### Introduction

RISE 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

Leather called "COAST". According to the client the product consists of:

Raw material:	European cattle
Hide size	Approx. 5.0 m <sup>2</sup>
Type of Tanning:	Chrome tanning
Type of Dyeing:	Dyed through
Type of Finish:	Pigmented
Nominal thickness:	1.1 – 1.3 mm

### Manufacturer

Elmo Sweden, Svenjunga, Sweden.

### Sampling

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

The sample was received on June 26, 2019 at RISE Safety – 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 or flaming combustion in the combination.

The test results are given in appendix 1.

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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”.

### **Assessment**

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

### **Note**

“COAST” were tested in combination with standard polyurethane foam with a density of 22 kg/m<sup>3</sup>.

### **Deviation from standard**

The test was performed on a test rig according to EN 1021-1:2014. 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.

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

Performed by

Examined by

Henrik Fredriksson

Ida Larsson

### **Appendix**

1. Test results

Appendix 1

**Test results – IMO 2010 FTP Code part 8**

**Product**

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**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	26:37	05:37**
The test was finished, min:s	60:00	60:00

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

\*\* The cigarette self-extinguished before burning its full length.

**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	-*	-*

## Appendix 1

The ignition source was removed, min:s	00:20	00:20
The test was finished, min:s	60:00	60:00

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

**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.

**Smouldering cigarette source**

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

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

**Flaming ignition source**

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

Gas: Butane

Fuel supply rate:  $6.38 \pm 0.25$  g/h at 20°C

**Conditioning**

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

**Date of test**

July 8, 2019.