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Test report no. 5214020719

Test assignment

Determination of the Fire code rating (BKZ) according to the Directive for Fire Police Prescriptions, Building Materials and Building Elements, Part B (Test Conditions), Edition 1988. Flammability tested in accordance with SN 198'898 (1987) and smoke density in accordance with the VKF (Association of Cantonal Fire Insurance).

Client
Sampling

Sahco GmbH, Kreuzburger Strasse 17-19, DE – 90471 Nürnberg
By the client

Test object

Balboa 600187

Client reference
Order date
Test object received
Tests performed
Number of pages
Attachments
Archival of material

Sarah Kemmerer
26 November 2018
5 December 2018
7 December 2018
6
no
The remaining test material will be archived for 1 year.

This report has a validity of five years, until 7 December 2023

401 – mha/knl // Kontroll-Visum: *knl*

Empa, Swiss Federal Laboratories for Materials Science and Technology,
Laboratory for Biomimetic Membranes and Textiles
St. Gallen, 7 December 2018

Expert

Zeller Pierrine



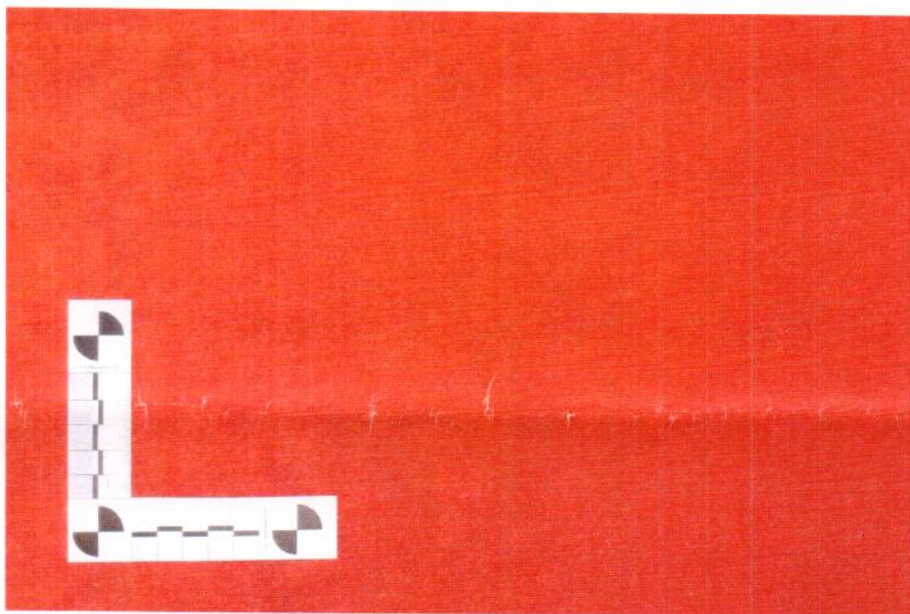
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Test sample (decl.)

Object	Balboa 600187
Usage	Upholstery
Material composition	100% Polyetser FR
Coating	-
Weight (g/m ²)	685 g/m ² (measured 708 g/m ²)
Thickness (mm)	3 mm
Colour	orange
Received material	3.0x1.4 m

Picture(s)



minor scale division in millimeters

Normative reference

- SNV 95150 (*withdrawn 1993-01-01*)

Determination of flammability in accordance with SN 198'898 (1987)

(*Withdrawn 1999-07-01*)

Test procedure

The conditioned samples are hung in a burning chamber. The lower edges of the samples are put into contact with a propane gas flame (40 ± 2 mm in length) for 3 s and 15 s. The burner is inclined by 30° relative to the vertical line. The damage length and the afterglow time are assessed for samples which do not ignite, for all samples the reaching of the peak of flame is documented. Also melting and drop off is documented, if the droplets are burning the ignition of the filter paper is noticed.

Test conditions

Acclimatization	≥ 24 h at (20 ± 2) °C / (65 ± 4) % RH	
Marker threads	cotton 50/3 dtex	
Propane	calorific value approx. 46 MJ/kg	
Air movement	(0.1 to 0.2) m/s	
Test room climate	23.0 °C / 34.0% RH	
Numbers of samples	20 (10 in the longitudinal and 10 in the transverse direction)	
Size of specimen	105 x 450 mm	
Weight	<u>mass per unit area (g/m²)</u>	<u>weights (g)</u>
	≤ 200	100
	201 - 500	250
	501 - 750	350
	> 750	450
Specimen	original state	

Deviation(s) from the standard

1. Samples were not pre-treated (laundered/drycleaned) prior to analysis.

Requirements according VKF

Determination of **flammability 5** is reached when at least **18 of the 20 samples** meet all of the below requirements.

Peak of flame	≤ 400 mm
Afterflame time max.	< 5 s
Afterglow time max.	≤ 300 s
Damaged length max.	≤ 150 mm

Result(s)

No.	Afterflame time [s]	Afterglow time [s]	Damage length [mm]	Peak of flame [>400mm]	Melt and / or drop off	Burning droplets	Ignition filter paper
Longitudinal: Ignition time 3 s							
1	3	-	16	no	melt	-	-
2	1	-	17	no	melt	-	-
3	1	-	18	no	melt	-	-
4	1	-	16	no	melt	-	-
5	1	-	13	no	melt	-	-
Longitudinal: Ignition time 15 s							
1	0	-	64	no	melt & drop off	no	-
2	-	-	63	no	melt & drop off	no	-
3	-	-	56	no	melt & drop off	no	-
4	0	-	59	no	melt & drop off	no	-
5	7	-	80	no	melt & drop off	no	-
Transverse: Ignition time 3 s							
1	1	-	19	no	melt	-	-
2	1	-	16	no	melt	-	-
3	1	-	13	no	melt	-	-
4	1	-	13	no	melt	-	-
5	1	-	15	no	melt	-	-
Transverse: Ignition time 15 s							
1	2	-	57	no	melt & drop off	no	-
2	6	-	69	no	melt & drop off	yes	no
3	-	-	60	no	melt & drop off	no	-
4	1	-	70	no	melt & drop off	no	-
5	3	-	74	no	melt & drop off	no	-

The tested article >> Balboa 600187 << fulfils the flammability 5 requirements of VKF.

Determination of the Smoke Density in accordance with VKF

Test procedure

Smoke density is determined by exposing the test sample (30 x 30 x 4 mm and/or least 2 g) to a defined flame in a standardized device with a controlled air flow until the sample has been completely burnt. In the course of this test, the maximum measurable light absorption of the generated smoke is determined by photometry.

Test conditions

Propane	pressure approx. 0.5 bar
Flame height	150 mm
Air influx	(6.0 till 6.5) l/s
Sample holder	bowl
Number of specimens	total 3 (up to 6)
Specimen size	30 x 30 mm
	2 g
Specimen	original state

Deviation(s) from the standard

1. 2 g (rather than a 4 mm thickness sample)
2. Washing stability of the specimens has not been determined.

Requirements

The smoke density is determined for three tests. Should the results not agree, up to six tests will be conducted and the maximum and minimum values excluded; the average of the results is used for the classification.

Classification

Criterion for the classification of light absorption

Classification	Maximum light Absorption
smoke generation 1 (strong smoke generation)	> 90%
smoke generation 2 (medium smoke generation)	> 50 - 90%
smoke generation 3 (slight smoke generation)	0 - 50%

Result(s)

	Sample 1	Sample 2	Sample 3	Sample 4	Average
Maximum light absorption (%)	80	77	74	-	77

Average light absorption: 77 % - smoke generation 2 (medium smoke generation)

Classification according to the Directive for Fire Police Prescriptions, Building Materials and Building Elements, Part B (Test Conditions), Edition 1988¹

Fire Protection Classification : 5.2

(Class 5.2 stands for "low combustible / medium smoke generation")²

* * * * *

¹ Association of Swiss Canton Fire Insurance Companies (VKF) / Bundesgasse 20 / CH-3001 Bern / Phone: +41 (0)31 320 22 22 / www.vkf.ch

² Specimen in original state / without pre-treatment tested