Report number: J2011-303637-001B

Jarven Health Care
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Sweden

Hengelo (ov), 7 Jul. 11

Test specimen:	Specimen:	Colour:	Client reference number:
	B.	Rouse	MAGMA MATRAS densiteit 35kg/m^3

Examination:	Testnumber:	Testname:
	1.	FIRE TESTS ACCORDING TO BS EN 597-1:1995 ASSESSMENT OF THE IGNITABILITY OF MATTRESSES AND UPHOLSTERED BED BASES (Part 1: Ignition source: smouldering cigarette)
	2.	FIRE TESTS ACCORDING TO BS EN 597-2:1995 ASSESSMENT OF THE IGNITABILITY OF MATTRESSES AND UPHOLSTERED BED BASES (Part 2: Ignition source: match flame equivalent)
	3.	FIRE TESTS ACCORDING TO BS6807: 2006 (Methods of test for assessment of the ignitability of mattresses, upholstered divans and upholstered bed bases with flaming types of primary and secondary sources of ignition).

Results See following pages

Laboratory Quality Control

Check this report of 8 sep. 11 on authenticity. Page: 1 / 6

Textile Lab, Generatorstraat 26, 7556RC Hengelo (ov), The Netherlands, Tel: +31(0)74-2491005, Fax: +31 (0)74-2593934
e-mail: info@textilelab.nl, VAT nr.: 8100.03.983.B.01 BIC: SNSBNL2A IBAN: NL62SNSB0907446167 Bank account: SNS 90.74.46.167

Test : **1. Fire tests according to BS EN 597-1 : 1995**
Assessment of the ignitability of mattresses and upholstered bed bases (part 1: Ignition source: smouldering cigarette).

Norm : BS EN 597-1 : 1995

Procedure

The sample of Rouse Magma Matras, was tested after being conditioned for 16 hours in an atmosphere having a temperature of 23 ± 2°C and a relative humidity of 50 ± 5%, in accordance with the above standard using the specified cigarette placed in the positions stated in Para, 9.2.1.

Criteria Of Ignition

Progressive smouldering ignition.

a) Any test specimen that displays escalating combustion behaviour so that it is unsafe to continue the test and active extinction is necessary;
b) Any test specimen that smoulders until it is essentially consumed within the test duration;
c) Any test specimen that smoulders to its full thickness, within the duration of the test;
d) Any test specimen that smoulders for more than one hour;
e) Any test specimen that, on final examination, shows evidence of charring other than discolouration more than 50 mm in any horizontal direction from the nearest point of the original position of the source.

Results

The following test results relate only to the ignitability of the combination of materials under the particular conditions of test, they are not intended as a means of assessing the full potential fire hazard of the item in use. They also only relate to the materials tested.

Ignitability Performance

Top Surface = Non-ignition

Results Test 1 Specimen	**B.**	
Smouldering criteria	**Test 1**	**Test 2**
Unsafe escalating combustion	No	No
Test assembly consumed	No	No
Smoulders through thickness	No	No
Smoulders more than 1 hour	No	No
More than 50mm from source	No	No
Flaming criteria		
Occurrence of flames	No	No

Comments
A non-ignition designation indicates that the sample met the performance requirements.

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Test : **2. Fire tests according to BS EN 597-1 : 1995**
Assessment of the ignitability of mattresses and upholstered bed bases (part 2: Ignition source: match flame equivalent).

Norm : BS EN 597-2 : 1995

Procedure

The sample of Rouse Magma Matras, was tested after being conditioned for 16 hours in an atmosphere having a temperature of 23 ± 2℃ and a relative humidity of 50 ± 5% in accordance with the above standard using the specified flame placed in the positions stated in Para, 9.2.1.

Criteria Of Ignition

Progressive smouldering & flaming ignition.

a) Any test specimen that displays escalating combustion behaviour so that it is unsafe to continue the test and active extinction is necessary;
b) Any test specimen that smoulders until it is essentially consumed within the test duration;
c) Any test specimen that smoulders to its full thickness, within the duration of the test;
d) Any test specimen that smoulders for more than one hour;
e) Any test specimen that, on final examination, shows evidence of charring other than discolouration more than 50 mm in any horizontal direction from the nearest point of the original position of the source.
f) Any test specimen that displays escalating combustion behaviour so that it is unsafe to continue the test and active extinction is necessary;
g) Any test specimen that burns until it is essentially consumed within the test duration;
h) Any test specimen on which any flame front reaches its extremities or passes through its full thickness within the duration of the test.
i) Any flaming that continues to burn more than 120 s after removal of the burner tube.

Results

The following test results relate only to the ignitability of the combination of materials under the particular conditions of test, they are not intended as a means of assessing the full potential fire hazard of the item in use. They also only relate to the materials tested. They do not guarantee to represent the performance of production materials.

Ignitability Performance

Top Surface = Non-ignition

Laboratory Quality Control

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Results Test 2 Specimen	B.	
Smouldering / Flaming Criteria	**Test 1**	**Test 2**
Unsafe escalating combustion	No	No
Test assembly consumed	No	No
Smoulders through thickness	No	No
Smoulders more than 1 hour	No	No
More than 50mm from source	No	No
Test assembly consumed	No	No
Burning through thickness or to the extremities	No	No
Flaming for more than 120s	No	No

Comments
A non-ignition designation indicates that the sample met the performance requirements.

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Test : **3. FIRE TESTS ACCORDING TO BS 6807: 2006 (**methods of test for assessment of the ignitability of mattresses, upholstered divans and upholstered bed bases with flaming types of primary and secondary sources of ignition).

Norm : BS 6807 : 2006

Procedure

Specimens of Rouse Magma Matras, were tested in the 'as received' condition in accordance with clause 9 of the above standard using ignition source 5 in the positions specified, after being conditioned for 72 hours in indoor ambient conditions, and then 16 hours in an atmosphere having a temperature of 23±2℃ and a relative humidity of 50±5%.

Progressive smouldering ignition

a) Any test specimen that displays escalating smouldering combustion behaviour so that it is unsafe to continue the test and forcible extinction is required;
b) Any test specimen that smoulders until it is essentially consumed or that smoulders to the extremities of the specimen, i.e. to either side or to the full thickness of the specimen, within the duration of the test;
c) Any test specimen that produces externally detectable amounts of smoke, heat or glowing 60 after ignition of the crib;
d) For top ignition only: any test specimen that on final examination shows evidence of smouldering by means of discoloured char that extends more than 100 mm in any horizontal direction from the nearest part of the original position of the source.

Flaming ignition

a) Any test specimen that displays escalating flaming combustion behaviour so that it is unsafe to continue the test and forcible extinction is required;
b) Any test specimen that burns until it is essentially consumed within the test duration;
c) Any test specimen on which any flame front reaches the extremities of the specimen other than the top or passes through the full thickness of the specimen within the duration of the test.
d) Any test specimen that continues to flame for more than 13 minutes after ignition of the crib;
e) Any test specimen that from which debris causes an isolated floor fire not meeting the criteria of item d).

Results

The following test results relate only to the ignitability of the combination of materials under the particular conditions of test; they are not intended as a means of assessing the full potential fire hazard of this item in use. They also only relate to the materials tested.

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Results Test 3 Specimen	**B.**		
Ignition source	Position	Time of extinction(s)	Ignition/Non-ignition
5	On top	380	Non-ignition
5	Below	247	Non-ignition
5	On top	345	Non-ignition
5	below	268	Non-ignition

Comments
A non-ignition designation indicates that the sample met the performance requirements.

Meets the requirements of BS 7177: 2008 (Specification for resistance to ignition of mattresses, mattress pads, divans and bed bases) Medium Hazard Category, when tested in accordance with: BS EN 597 – 1:1995, BS EN 597 – 2:1995 & BS 6807: 2006 (Clause 9).

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Fire test of mattress according to SS 876 00 10:2001. Measurement of heat release rate and smoke production

(2 appendices)

Product

Mattress called "Hygienbelagd madrass CMHR".

Manufacturer

Järven Plast & Smide AB, Örnsköldsvik.

Purpose of test

Basis for technical fire classification.

Sampling

The sample was delivered by the client. It is not known to SP Fire Technology if the product received is representative of the mean production characteristics.
The samples were received March 15, May 19 and October 6, 2004 at SP, Fire Technology.

Test method

The mattress was tested according to SS 876 00 10 that refers to testing according to NT FIRE 032, "Upholstered Furniture: Burning Behaviour - Full Scale Test". The ignition source used is a square gas burner developed especially for upholstered furniture, see California TB 133 furniture test.

The test specimen is located on a bed frame on a scale platform and the gas burner is positioned centrically on top of the specimen. The gas burner is positioned on the test specimen for two minutes and then removed. The smoke gases produced during testing are collected by a hood and exhaust system from where samples are taken for gas analysis. Heat release rate and smoke production rate are calculated from oxygen consumption measurements. The fire test is documented with still photos and video. The smoke production is measured with a lamp (white light) and a photo cell mounted inside the exhaust duct, downstream the hood. The mass loss is recorded continually by the scale platform.

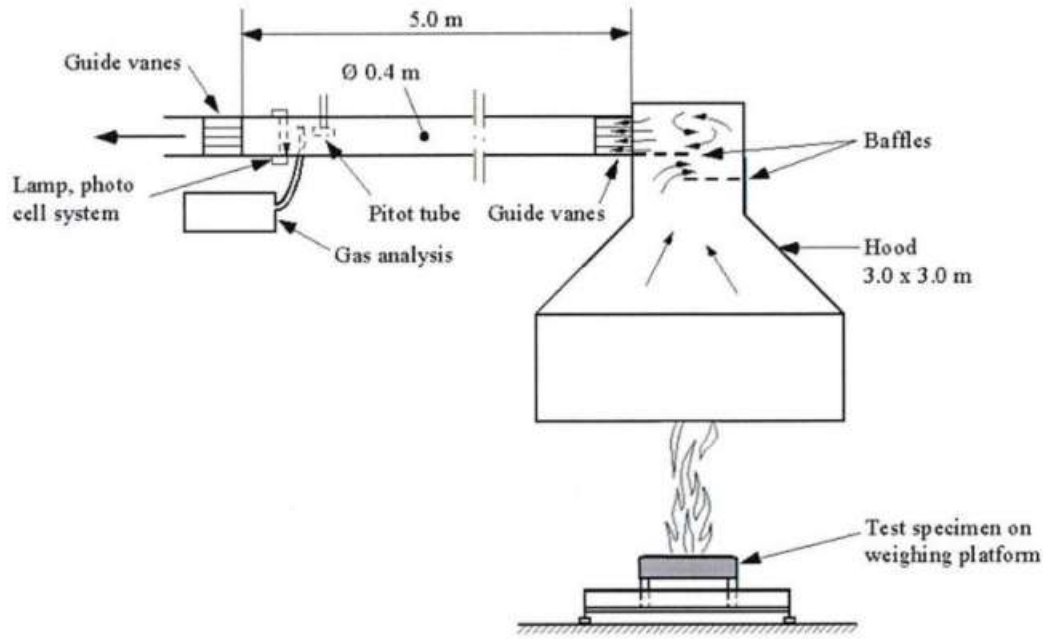

Figure 1 Schematic drawing of the test set-up according to NT FIRE 032

Test results

Detailed tests results concerning heat and smoke production are given in appendix 1. Photographs are shown in appendix 2. A summary of the test results is given in the table below.

Table 1. Summary of measured data (the burner heat output is included in the heat release data).

Parameter	**Hygienbelagd madrass CMHR**		
	Test 1	Test 2	Test 3
Total smoke production during testing (m^2)	45	44	44
Heat release rate, maximum (kW)	58*	61*	58*
After burn time, after removal of the burner (min:s)	0:45	0:00	0:33

*inclusive burner heat output (30 kW).

Deviation from standard

Information about part 12ml, 3, 4, 6, 8 according to NT FIRE 032 is not reported.

Criteria

According to SS 876 00 10 a mattress shall be tested three times according to NT FIRE 032 with a modified burner and fulfil the following requirements:

- The maximum smoke production shall not exceed 50 m^2 during any of the tests.
- The maximum heat release rate shall not exceed 55 kW during any of the tests (85 kW including the burner heat effect).
- The after burn time or afterglow time may not exceed 180 sec during any of the tests.

Assessment

The tested mattress called "Hygienbelagd madrass CMHR", fulfils the fire technical requirements mentioned above.

Note

The accreditation referred to is valid for NT FIRE 032.

An accreditation stamp has been added since this is missing in earlier versions of the report.

SP Technical Research Institute of Sweden
Fire Research - Fire Dynamics

Performed by

Anna Bergstrand

Examined by

Tommy Hertzberg

Appendices

1 Test results NT FIRE 032
2 Photographs

This is a translation from the Swedish original document. In the event of any dispute as to the content of the document, the Swedish text shall take precedence.

Appendix 1

Test results - NT FIRE 032

Product

Mattress called "Hygienbelagd madrass CMHR".

Test preparation

The mattress was located on a bed frame of steel profiles that was located on a scale platform. The scale platform had dimension 2.4 x 1.2 m and consisted of non-combustible material, see photo nr 1, 5 and 8.

Test results

Table 2. Summary of measured data (the burner heat output is included in the heat release data).

Test no	1	2	3
Heat release rate, maximum (kW)	58	61	58
Total heat release during testing (MJ)	6,1	6,4	6,1
Smoke production, maximum (m^2/s)	0,7	0,7	0,7
Total smoke production during testing (m^2)	45	44	44
Mass loss during testing (kg)	0,4	0,3	0,3
After burn time, after removal of the burner (min:s)	approx. 0:45	approx. 0:00	approx. 0:33

The smoke production rate was calculated according to the following equation:

$$SPR = \frac{1}{L} \cdot \ln\left(\frac{I_0}{I}\right) \cdot \dot{V}$$

Where

L is the optical path length in the duct (m)
I_0 is the initial intensity of a light beam
I is the intensity of the light beam after traversing a smoky environment
$\dot{V}$ is the volumetric flow in the exhaust duct (m^3/s).

Observations during fire test, Test no 1

00:00	The gas burner is ignited. Burner heat output 30 kW.
00:10	The cover melts away in vicinity of the burner.
00:20	The cover and the foam core is ignited by the burner flames, see photo no 2.
00:30	Black smoke production.
00:50	A hole has been formed in the mattress. Droplets of melted material drops down on the platform.
01:07	The melted material on the platform ignited, see photo no 3.
01:35	Flaming from the melted material on the platform ceased.
01:40	Flaming on the mattress surface ceased.
02:00	The burner is removed. A small flame continued to bee seen underneath the mattress.
02:45	All flames have ceased.

Observations after the fire test, Test no 1

The top of the mattress is intact besides local damage where the burner was located. The extension of the damage on the top of the mattress is equal to a circle of diameter 60 cm, approximately. A hole was formed through the mattress. See photo 4.

Observations during fire test, Test no 2

00:00	The gas burner is ignited. Burner heat output 30 kW.
00:13	The cover and the foam core is ignited by the burner flames.
00:20	Black smoke production.
00:56	A hole has been formed in the mattress. Droplets of melted material drops down on the platform.
01:14	The melted material on the platform ignited, see photo no 6.
01:50	Flaming in the mattress ceased.
02:00	The burner is removed. Flaming from the melted material on the platform ceased.

Observations after the fire test, Test no 2

The top of the mattress is intact besides local damage where the burner was located. The extension of the damage on the top of the mattress is equal to a circle of diameter 55-60 cm. A hole was formed through the mattress. See photo 7.

Appendix 1

Observations during fire test, Test no 3

00:00	The gas burner is ignited. Burner heat output 30 kW.
00:15	The cover and the foam core is ignited by the burner flames.
00:25	Black smoke production.
00:50	A hole has been formed in the mattress. Droplets of melted material drops down on the platform.
01:03	The melted material on the platform ignited, see photo no 8.
01:30	Heat release and smoke production decreased, see photo no 9
02:00	The burner is removed. Limited flaming in the mattress, see photo no 10.
02:14	Flaming from the melted material on the platform ceased.
02:33	All flaming has ceased.

Observations after the fire test, Test no 3

The top of the mattress is intact besides local damage where the burner was located. The extension of the damage on the top of the mattress is equal to a circle of diameter 60 cm. A hole was formed through the mattress. See photo 11.

Graphs of heat release rate and smoke production rate

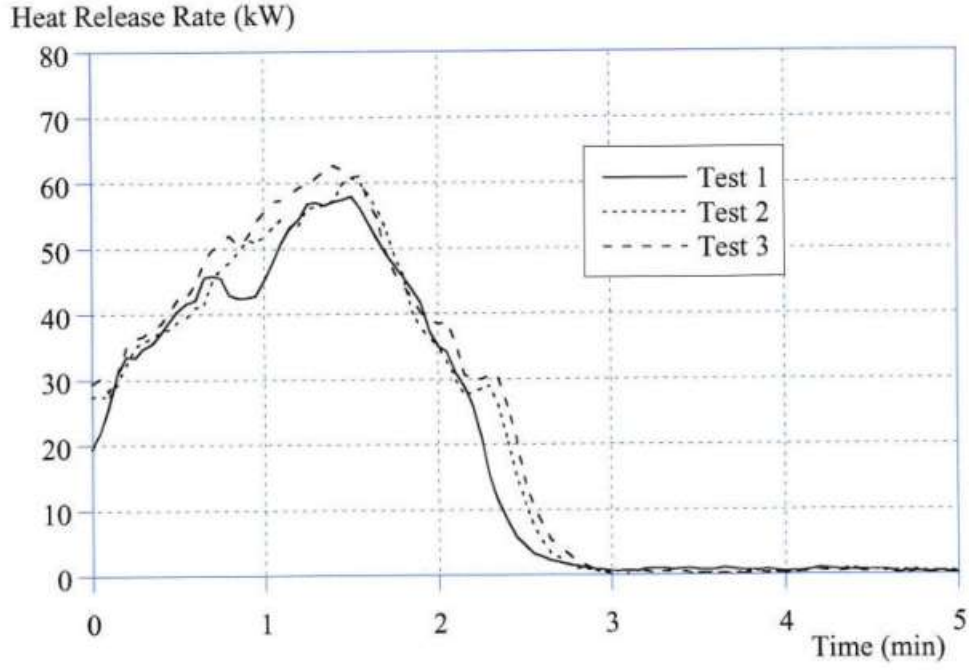

Figure 1 Heat release rate from mattress "Hygienbelagd madrass CMHR" (burner heat output is inclusive).

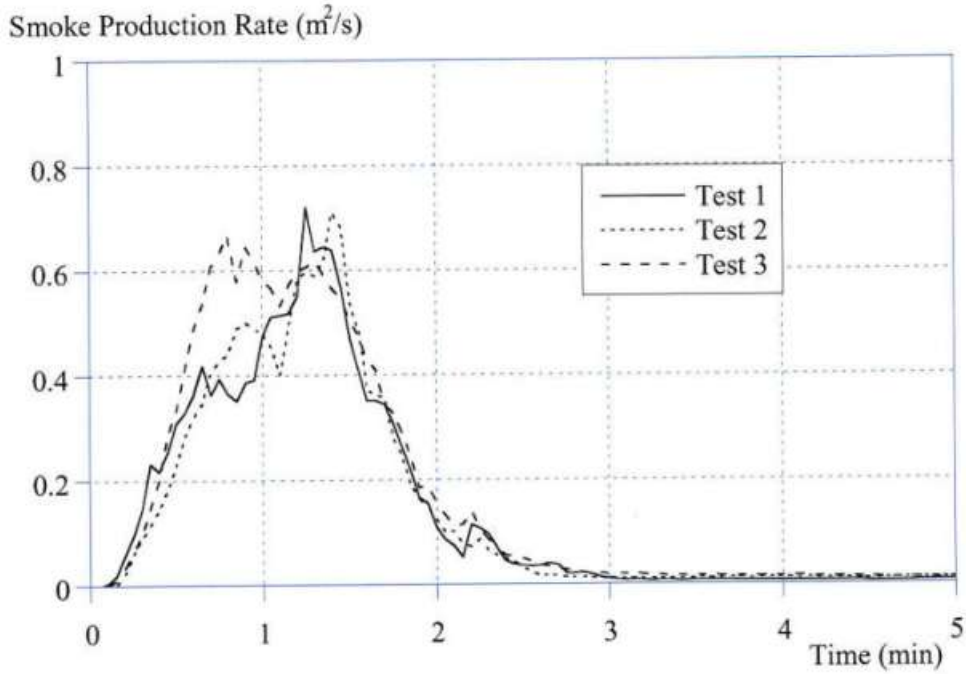

Figure 2 Smoke production from mattress "Hygienbelagd madrass CMHR".

Measured data

Thickness 100 mm.
Density 33 kg/m^3.

Uncertainty of measurements

Information about uncertainty of measurements is found on our web-site (www.sp.se/fire).

Conditioning

Temperature 20 ± 5 °C.
Relative humidity (50 ± 5) %.

Date of test

April 2, July 1 and October 26, 2004.

Appendix 2

Photo no 1 Prior to test Hygienbelagd madrass CMHR. Test 1.

The mattress is placed on a stand on the scale platform.

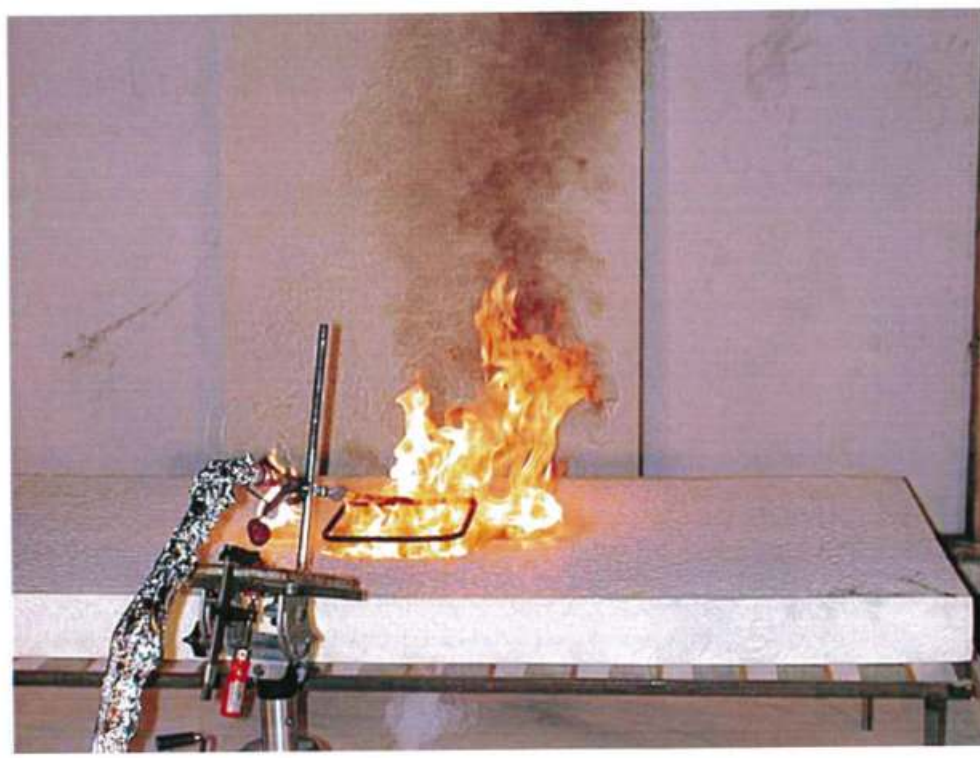

Photo no 2 Time 00:20 (min:s) Hygienbelagd madrass CMHR. Test 1.

The cover and the foam core is ignited by the burner flames.

Appendix 2

Photo no 3 Time 01:07 (min:s) Hygienbelagd madrass CMHR. Test 1.

The melted material on the platform ignites.

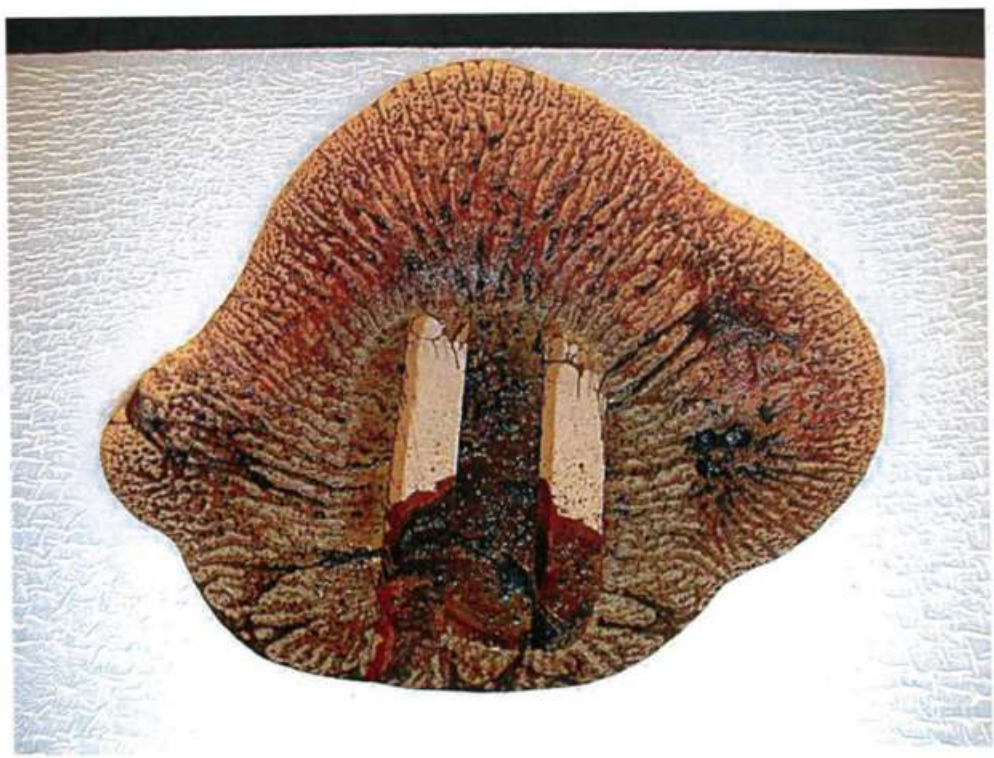

Photo no 4 After test Hygienbelagd madrass CMHR. Test 1.

Damage in the mattress, upper side.

Appendix 2

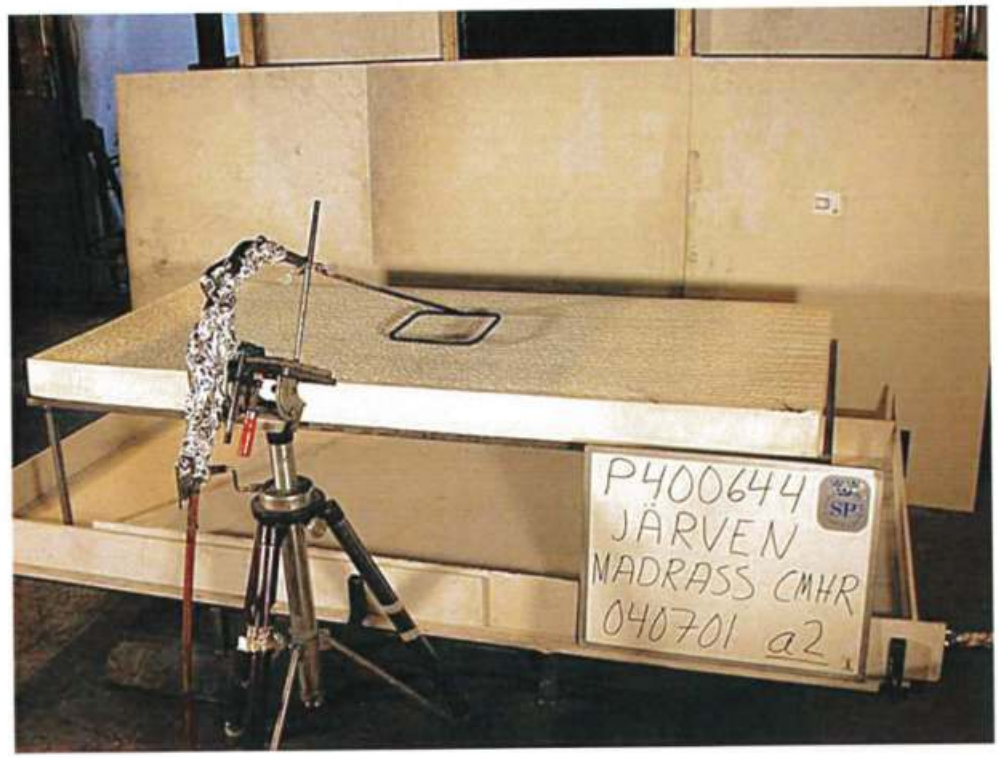

Photo no 5 Prior to test Hygienbelagd madrass CMHR. Test 2.

The mattress is placed on a stand on the scale platform

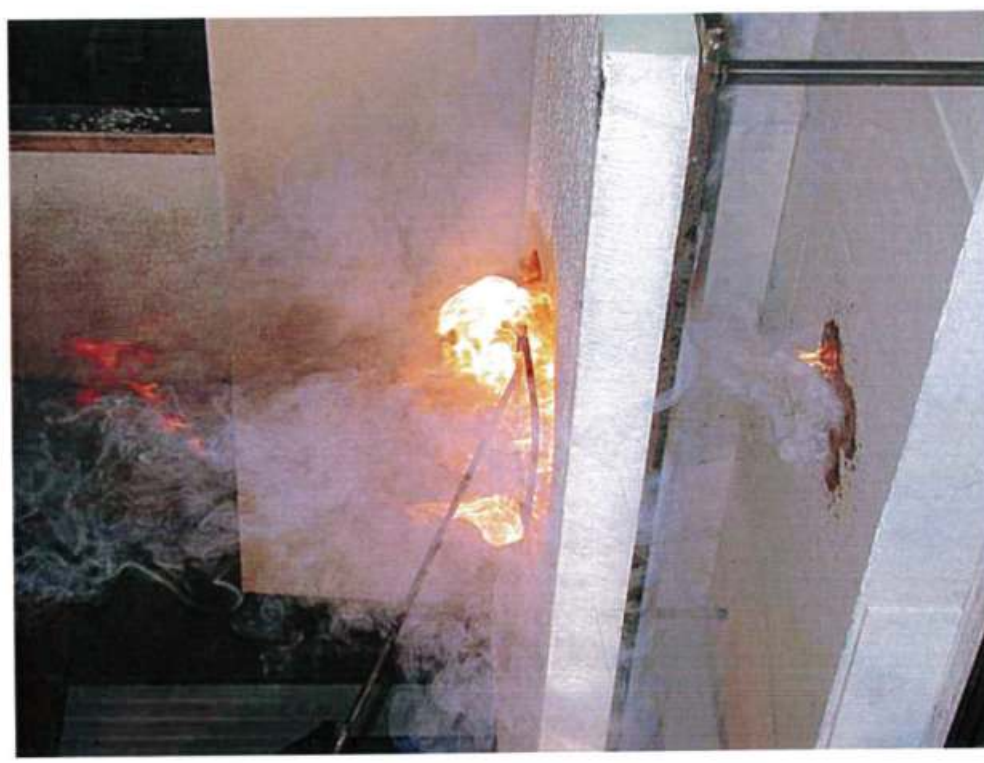

Photo no 6 Time 01:14 (min:s) Hygienbelagd madrass CMHR. Test 2

The melted material on the platform ignites.

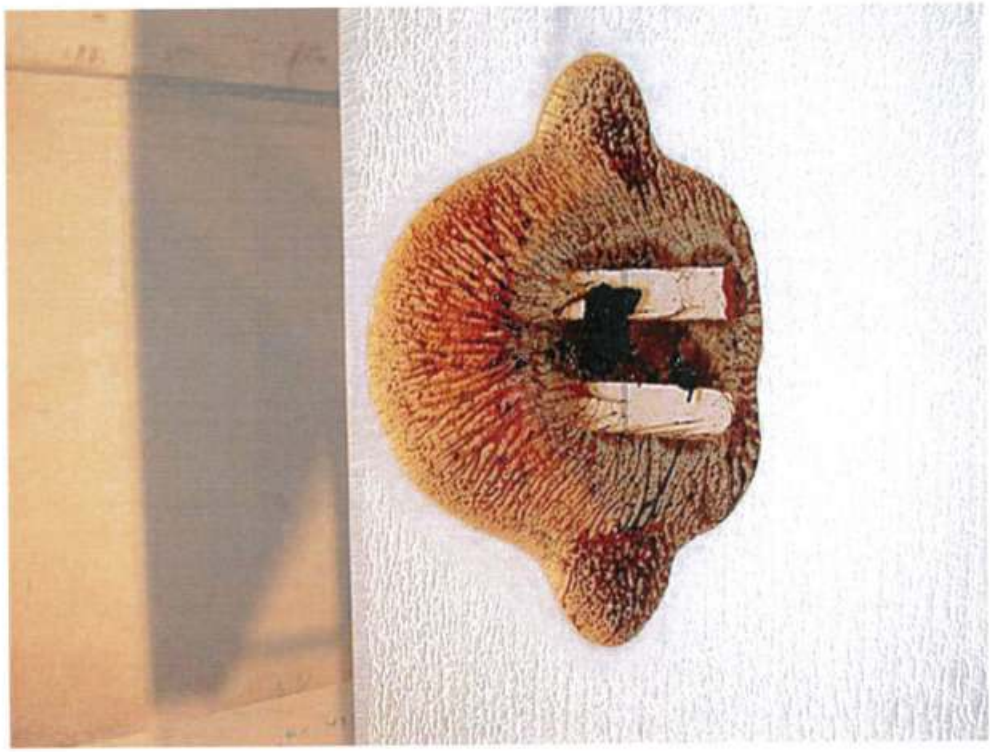

Photo no 7 After test Hygienbelagd madrass CMHR. Test 2.

Damage in the mattress, upper side.

Photo no 8 Time 01:03 (min:s) Hygienbelagd madrass CMHR. Test 3.

The melted material on the platform ignites.

Appendix 2

Photo no 9 Time 01:30 (min:s) Hygienbelagd madrass CMHR. Test 3.

Heat release rate and smoke production rate decrease.

Photo no 10 Time 02:02 (min:s) Hygienbelagd madrass CMHR. Test 3.

Limited flaming in the mattress.

Appendix 2

Photo no 11 After test Hygienbelagd madrass CMHR. Test 3.

Damage in the mattress, upper side.