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Flammability for seating furniture for use in public occupancies when tested according to Technical Bulletin 133, January 1991 (3 appendices)

Product

According to the client:
Chair called "Campus stol" consisting of glass fibre reinforced polyamide. The seat is reinforced to 15% and the back to 30%.

Manufacturer

Lammhults Möbel AB, Lammhult, Sweden.

Purpose of test

Basis for technical fire classification.

Sampling

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

The sample was received on November 14 and 18, 2007 at SP Fire Technology.

Test method

The seating furniture was tested according to the Technical Bulletin 133. The furniture calorimeter was used together with the ignition source described in appendix C in the standard. The ignition source was a square gas burner, heat output 20 kW, and was positioned centrally on top of the seat. The gas burner was positioned on the test specimen for 80 seconds and then removed. The smoke gases produced was collected by a hood and exhaust system from where samples are taken for gas analysis. Heat release rate was measured continuously, see figure 1.

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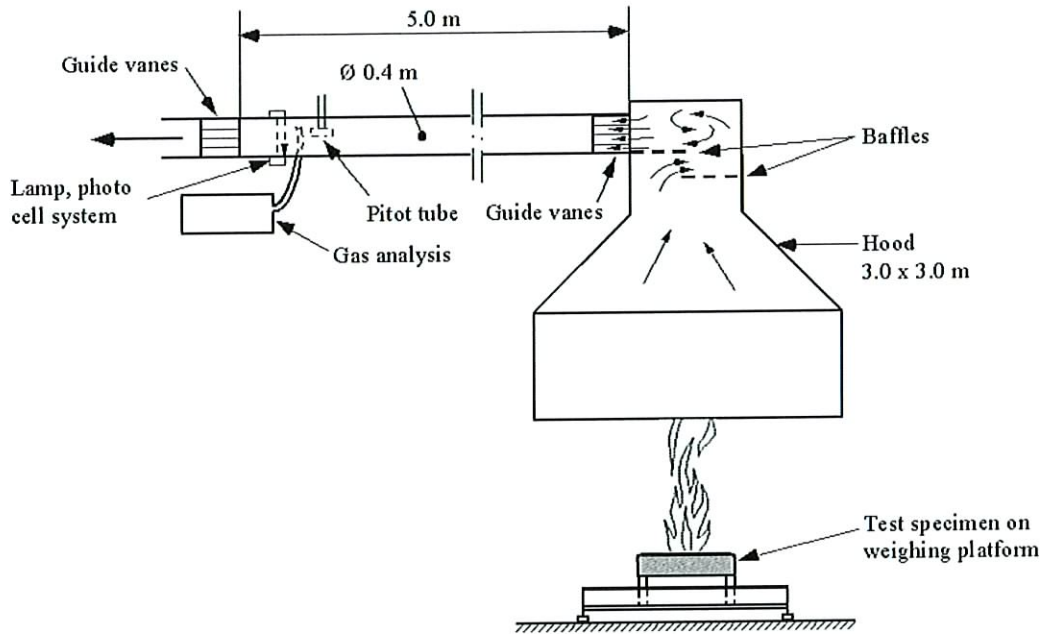


Figure 1 Schematic sketch of the test set-up according to Technical Bulletin 133.

Test results

The maximum rate of heat release (HRR) from the product measured excluding the ignition source was <10 kW and the total heat release (THR) in the first 10 minutes of the test was <1.0 MJ.

Test results with graph of rate of heat release are given in appendix 1. Photographs are shown in appendix 2. An explanation of the test parameters is given in appendix 3.

The test is used to measure and describe the response of the materials, products or assemblies to heat and flame under controlled conditions, but does not by itself incorporate all factors required for fire hazard or fire risk assessment of the materials, products or assemblies under actual fire conditions.

Criteria

According to Technical Bulletin 133 a seating furniture fails to meet the requirements if any of the following criteria are exceeded when the furniture is tested in a furniture calorimeter:

- A maximum rate of heat release of 80 kW or greater.
- A total heat release of 25 MJ or greater in the first 10 minutes of the test.

Assessment

The tested product called "Campus stol", fulfils the fire technical requirements according to Technical Bulletin 133 as given above.

SP Sveriges Tekniska Forskningsinstitut
Fire Technology - Materials Reaction to Fire



Per Thureson
Technical Manager



Patrik Johansson
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Appendices

- 1 Test results
- 2 Photographs
- 3 Test parameter explanation

Appendix 1

Test results - Technical Bulletin 133**Product**

According to the client:
Chair called "Campus stol" consisting of glass fibre reinforced polyamide. The seat is reinforced to 15% and the back to 30%.

Test preparation

The seat and back was mounted on a frame made of steel, see photo 1.

Test conditions

Temperature 20 °C.
Relative humidity 23 %.

Observations during test

Time, min:s	Observations during test
0:00	The ignition source was positioned 1 inch from the seat and 2 inch from the backrest.
0:20	Ignition of the seat.
1:10	Small flames visible in the seat, see photo 2.
1:20	The burner was removed and extinguished. The fire in the seat extinguished.

Observations after fire test

The seat was only damaged and discoloured where the flames from the burner exposed the surface. See photo no 3.

Appendix 1

Measured results

Evaluation time (min)	HRR _{peak} (excl. burner heat output) (kW)	THR ₆₀₀ (excl. burner heat output) (MJ)
0 - 10	<10 kW	<1

Graphs of heat release rate

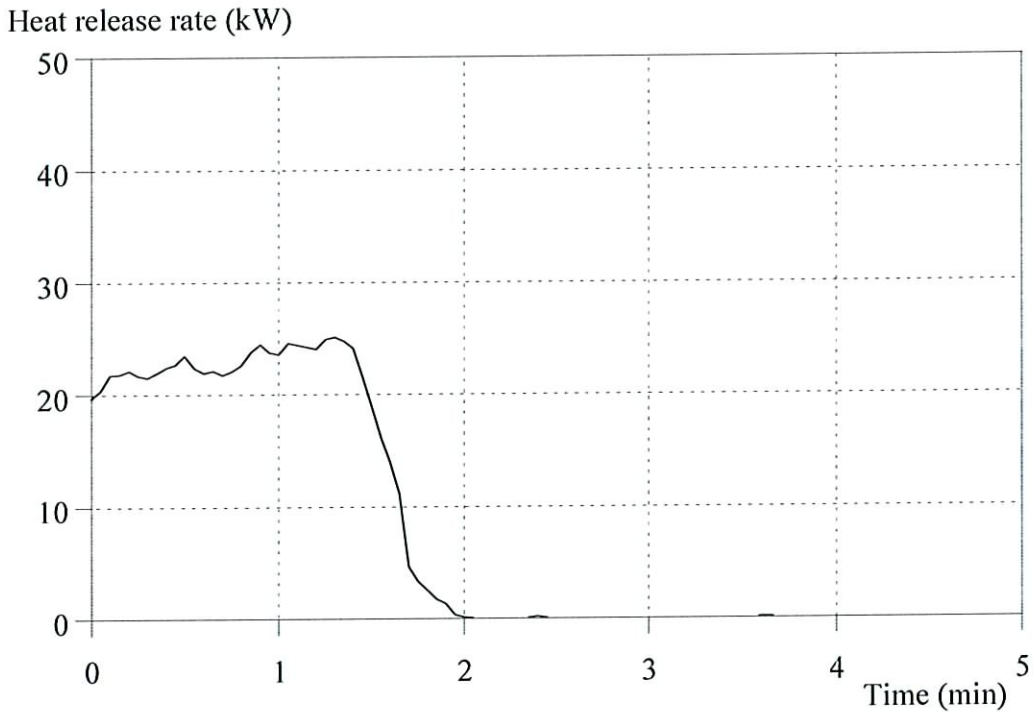


Figure 1 Heat release rate from product during test including burner.

Conditioning

Temperature (23 ± 2) °C.
Relative humidity (50 ± 5) %.

Date of test

December 12, 2004.

Appendix 2

Photographs



Photo no 1

Prior to test

“Campus stol”

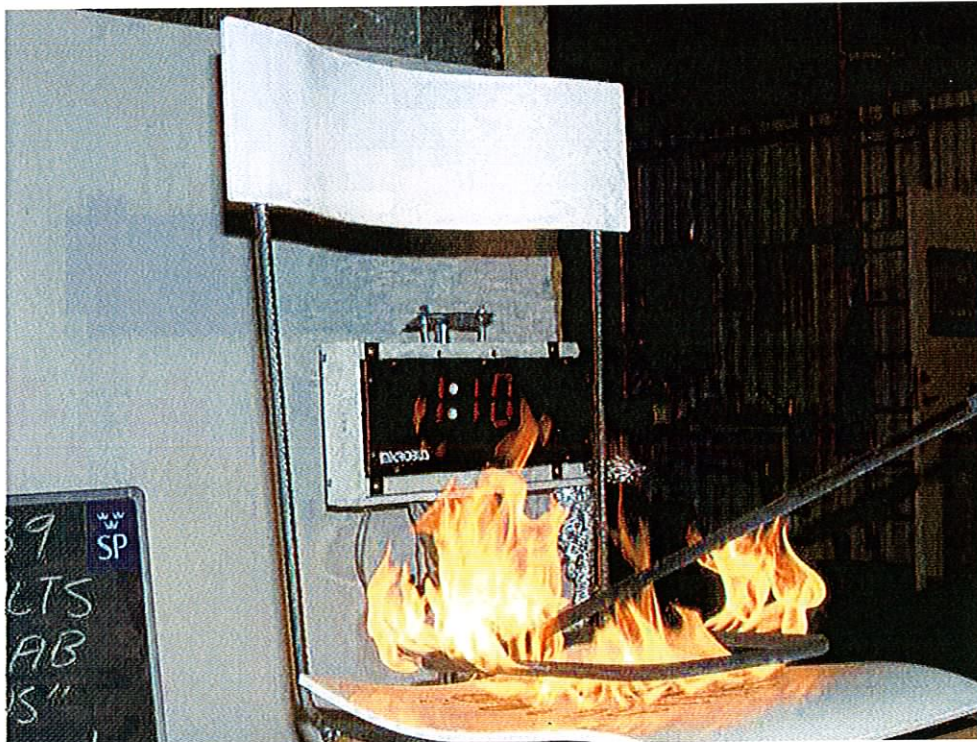


Photo no 2

Time 1:10 (min:s)

“Campus stol”

Small flames visible in the seat.

Appendix 2

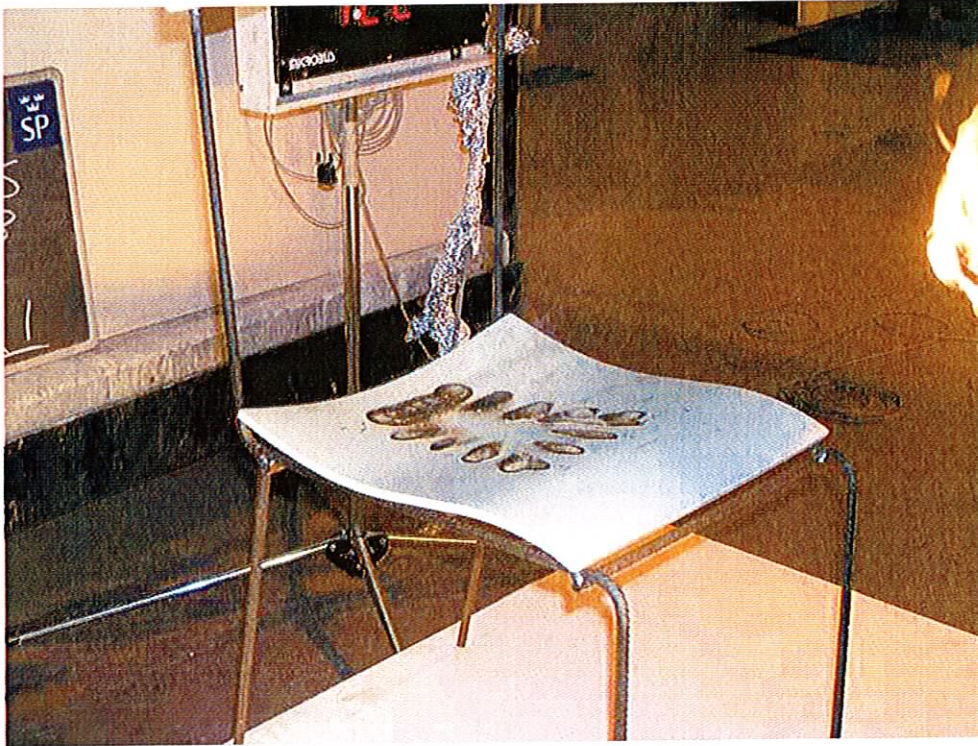


Photo no 3 After test “Campus stol”

The seat is only damaged and discoloured where the flames from the burner exposed the surface.

Appendix 3

Test parameter explanation

Parameter	Explanation
Test start	The specimen is exposed to the ignition source.
End of test	When all signs of flaming and glowing combustion have ceased.
HRR _{peak} , kW	Peak Heat Release Rate between test start and end of test, excluded contribution from ignition source.
THR ₆₀₀ , MJ	Total heat release in the first 10 minutes of the test, excluded contribution from ignition source.
