



SINTEF

TEST REPORT

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TITLE / TEST METHOD

Fire testing of foam of quality Thermoflex 60 according to NS-EN 1021-1:1993 and NS-EN 1021-2:1993

PRODUCT NAME

Thermoflex 60

CLIENT(S)

Westnofa Industrier AS
Øran øst
6300 Åndalsnes
NORWAY

CLIENT'S REF.

Mr. Steinar Dahle

PROJECT NO.

102010.50/06.207 C

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ABSTRACT:

The foam of quality **Thermoflex 60** was tested according to NS-EN 1021-1:1993 (ignition source: Smouldering cigarette) and NS-EN 1021-2:1993 (ignition source: Match flame equivalent).

Test results are given in Appendix I.

The foam of quality **Thermoflex 60** satisfies the criteria for flaming and smouldering ignition tested with ignition sources smouldering cigarette and match flame equivalent, according to NS-EN 1021-1 and NS-EN 1021-2 respectively.

PRODUCT DESCRIPTION:	
<i>Type of product:</i>	Foam for use in upholstered furniture
<i>Manufacturer, place of production:</i>	Westnofa Industrier AS – Åndalsnes, Norway
<i>Sampling:</i>	The tested material was selected by the client. The material subjected for testing arrived SINTEF NBL 2006-08-31. It is not known to SINTEF NBL if the fire characteristics of the product received are representative of the fire characteristics of the average product.
<i>Test specimens:</i>	6 test specimens of foam with dimensions 450 mm x 350 mm and 6 test specimens with dimensions 450 mm x 150 mm – thickness for all specimens 75 mm. Nominal and measured density: 58 kg/m ³ and 60 kg/m ³ respectively. Colour: Pink.
TESTING:	
<i>Operator:</i>	Erling Stenhaug, engineer
<i>Conditioning of the test material:</i>	The test material was stored in air with a relative humidity of (50 ± 5) % and a temperature of (23 ± 2) °C for 16 hours immediately before the test.
<i>Number of single tests:</i>	2 with ignition source smouldering cigarette. 2 with ignition source match-flame equivalent.
<i>Duration of the tests:</i>	1 hour
REMARKS / DEVIATIONS:	
<p>According to Annex B of the standards (informational), the following statement may be given in the test report: <i>the above test results relate only to the ignitability of the combination of materials under the particular condition of test; they are not intended as a means of assessing the full potential fire hazard of the material in use.</i></p> <p>As the received test specimens did not contain any outer cover material, no water soaking and drying procedures were conducted.</p>	
APPENDICES	
Appendix I:	Test results
Appendix II:	Test procedure and criteria for classification

Appendix II - Test procedure and criteria for classification

TEST PROCEDURE

The test was performed in a room under indoor ambient conditions.

The tests shall either be conducted on a complete item of seating according to NS-EN 1021-1 and 1021-2, Annex A3, or on test specimens representative of the final product. The latter option implies the following test specimen dimensions:

Approximate dimensions of seat: 300 mm x 450 mm x 75 mm.

Approximate dimensions of back: 150 mm x 450 mm x 75 mm.

Prior to conditioning, all outer cover materials shall be subjected to water soaking and drying procedure described in Annex D. Using a liquor ratio (sample mass : water mass) of 1 : 20, each cover were immersed in water containing 0,5 g/l of non-ionic wetting agent at an initial temperature of 40°C. The cover was completely immersed during the procedure. After 30 minutes, the cover was removed and rinsed in water using a liquor ratio of 1 : 20 for 2 minutes.

The non-ionic wetting agent used during any water soaking is Emulgator U6, produced by Unger Fabrikker AS, 1601 Fredrikstad, Norway.

After water soaking, the cover material shall be dried in room temperature. The cover material is dry when the weight is the same as before the water soaking.

The materials to be tested shall be conditioned for 16 hours immediately before the tests in an atmosphere of 23°C and 50% RH.

The ignition sources smouldering cigarette and match flame equivalent are both placed on the most vulnerable zone during 4 separate tests.

CRITERIA FOR CLASSIFICATION

The test assembly shall not show any sign of progressive smouldering ignitions or flaming ignition, as described in the following:

Progressive smouldering ignitions:

- any test assembly that displays escalating combustion behaviour so that it is unsafe to continue the test and active extinction is necessary;
- any test assembly that smoulders until it is essentially consumed within the test duration;
- any test assembly that smoulders to the extremities of the specimen, viz. upper or lower margins, either side or to its full thickness, within the duration of the test;
- any test assembly that smoulders for more than one hour;
- any test assembly that, on final examination shows evidence of charring other than discoloration, for more than 100 mm in any direction apart from upwards from the nearest part of the original position of the source;

Flaming ignition:

- any test assembly that displays escalating combustion behaviour so that it is unsafe to continue the test and active extinction is necessary;
- any test assembly that burns until it is essentially consumed within the test duration;
- any test assembly on which any flame front reaches the lower margin, either side or passes through its full thickness within the duration of the test.