

Westnafa Industrier as
P.b. 104,
N-6301 Åndalsnes
Norway

**SINTEF Civil and
Environmental Engineering**
Norwegian Fire Research Laboratory

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Enterprise No.:
NO 948 007 029 MVA

Your ref.: Letter of 1998-04-24,
Steinar Dale
Our ref.: bk/98.170 F1
Direct line: + 47 73 59 10 78
Trondheim,
1998-05-26

TEST REPORT

Task no.: 22N010.50/98.170 F1

Test method/Standard: California Technical Bulletin 117,
Section A – Part I

Intention of test: Documentation for approval

Test performed at: **SINTEF Civil and Environmental Engineering,**
Norwegian Fire Research Laboratory
Tiller bru, Tiller
N-7034 Trondheim
NORWAY

Total number of pages: 4
(Appendices included)

Client: Westnafa Industrier as

Name of product: **Weflex 36**

Type of product: Filling Materials Used in Upholstered Furniture

Product description: 20 specimens of polyurethane foam with dimensions
12 x 3 inches (304,8 x 76,2 mm), thickness approximately
0,5 inches (12,7 mm). Density approximately 35,0 kg/m³.
Colour brown.

Manufacturer: Westnafa Industrier as

The results presented in this test report may only be quoted in full.
Excepts may be quoted only with the written permission of SINTEF Civil and Environmental Engineering - Norwegian Fire Research
Laboratory.

The test results referred to in this report relate only to the items tested.

Test reports from SINTEF Civil and Environmental Engineering - Norwegian Fire Research Laboratory form the basis of fire technical
classifications, certifications and approvals.

Place of production: Åndalsnes, Norway

Samples received: 1998-04-29

Sampling: The test material was chosen by the client

Number of single tests: 5 tests before ageing and 5 tests after ageing.

Conditioning of the specimen: The specimens were stored in air with a relative humidity of 50 % and at a temperature of 23 °C for a minimum of 24 hours. 5 of the specimens were aged in an oven at 220°F (104°C) for 24 hours before testing.

Date of testing: 1998-05-19

Duration of the test: 12 seconds flame exposure

Operator: Erling Stenhaug, engineer

Test results: See Table 1, Appendix I

Remarks/deviations: The product **Weflex 36** meets the requirements for Resilient Cellular Materials Used in Upholstered Furniture of Bureau of Home Furnishings Technical Bulletin No. 117, Section A – Part I.

Appendices: Appendix I Test results
Appendix II Description of test method and classification criteria

SINTEF Civil and Environmental Engineering - Norwegian Fire Research Laboratory



Anne Steen Hansen
Discipline Manager
Materials Reaction to Fire


Bjarne Kristoffersen
Engineer

DESCRIPTION OF TEST METHOD AND CLASSIFICATION CRITERIA

Test Procedure

A conditioned test specimen with dimensions 12 x 3 inches (304,8 x 76,2 mm), thickness approximately 0,5 inches (12,7 mm) is mounted vertically in a small test enclosure. A stainless steel specimen holder according to California Technical Bulletin 117, Section A – Part I, is used during the testing.

The specimen in its holder is suspended vertically in the cabinet in such a manner that the lower end is 0,75 inches (19,1 mm) above the top of the burner. The burner flame is applied vertically at the middle of the lower edge of the specimen for 12 seconds. The flame is then extinguished, and the fire behaviour of the specimen is observed. After the flame in the specimen has extinguished, the damage is assessed.

Resilient cellular materials shall meet the requirements both before and after ageing for 24 hours in an oven at 220°F (104°C). A minimum of 10 test specimens shall be tested: 5 specimens before ageing and 5 specimens after ageing.

Requirements

According to the regulations from Bureau of Home Furnishings Technical Bulletin No. 117, Section A – Part I, Resilient Filling Materials Used in Upholstered Furniture shall fulfil the following criteria:

1. The average char length of all specimens shall not exceed 6 inches (152,4 mm).
2. The maximum char length of any individual specimen shall not exceed 8 inches (203,2 mm).
3. The average afterflame, including afterflame of molten material or other fragments dropping from specimens, shall not exceed 5 seconds.
4. The maximum afterflame of any individual specimen, including afterflame of molten material or other fragments dropping from the specimen, shall not exceed 10 seconds.
5. The average afterglow, including afterglow of molten material or other fragments dropping from specimens, shall not exceed 15 seconds.
6. Resilient cellular materials shall meet the above requirements both before and after ageing for 24 hours in an oven at 220°F (104°C).
7. A minimum of 10 test specimens shall be tested; 5 specimens before ageing and 5 specimens after ageing.

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Letter of 1998-04-24, Steinar Dale	bk/98.170 F2	+ 47 73 59 10 78	1998-06-04

TEST REPORT

<i>Task no.:</i>	22N010.50/98.170 F2
<i>Test method/Standard:</i>	California Technical Bulletin 117, Section D – Part II
<i>Intention of test:</i>	Documentation for approval
<i>Test performed at:</i>	SINTEF Civil and Environmental Engineering, Norwegian Fire Research Laboratory Tiller bru, Tiller N-7034 Trondheim NORWAY
<i>Total number of pages: (Appendices included)</i>	4
<i>Client:</i>	Westnofa Industrier as
<i>Name of product:</i>	Weflex 36
<i>Type of product:</i>	Resilient Filling Materials Used in Upholstered Furniture
<i>Product description:</i>	A total of 16 specimens of polyurethane foam, 8 with dimensions 7,25 x 8 x 2 inches (184,2 x 203,2 x 5,1 mm) for vertical panels and 8 with dimensions 8 x 4 x 2 inches (203,2 x 101,6 x 5,1 mm) for horizontal panels. Density approximately 35,0 kg/m ³ . Colour brown.

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<i>Manufacturer:</i>	Westnofa Industrier as
<i>Place of production:</i>	Åndalsnes, Norway
<i>Samples received:</i>	1998-04-29
<i>Sampling:</i>	The test material was chosen by the client
<i>Number of single tests:</i>	3
<i>Conditioning of the specimen:</i>	The specimens were stored in air with a relative humidity of 50 % and at a temperature of 23°C for a minimum of 24 hours.
<i>Date of testing:</i>	1998-05-11
<i>Duration of the test:</i>	5 minutes after all evidence of combustion has ceased.
<i>Operator:</i>	Erling Stenhaug, engineer
<i>Test results:</i>	See Table 1, Appendix I
<i>Remarks/deviations:</i>	<p>The tests were performed in a room essentially free of air currents. A test enclosure, as described in Section 1.2 in the test description, was not used.</p> <p>The product Weflex 36 meets the requirements for Resilient Cellular Materials Used in Upholstered Furniture of Bureau of Home Furnishings Technical Bulletin No. 117, Section D – Part II.</p>
<i>Appendices:</i>	Appendix I Test results Appendix II Description of test method and classification criteria

SINTEF Civil and Environmental Engineering - Norwegian Fire Research Laboratory



Anne Steen Hansen
Discipline Manager
Materials Reaction to Fire



Bjarne Kristoffersen
Engineer

DESCRIPTION OF TEST METHOD AND CLASSIFICATION CRITERIA

Test Procedure

A weighed conditioned test specimen with dimensions 7,25 x 8 x 2 inches (184,2 x 203,2 x 5,1 mm) for vertical panels and dimensions 8 x 4 x 2 inches (203,2 x 101,6 x 5,1 mm) for horizontal panels is mounted in a test stand constructed as shown in California Technical Bulletin 117, Section D – Part II, Figure 1.

The foam test panels, standard fabric, cigarette and cover fabric are assembled as shown in California Technical Bulletin 117, Section D – Part II, Figure 2. The cigarette is placed at the crevice created by the abutment of the vertical and horizontal panels, such that the cigarette contacts both horizontal and vertical panels. The position of the cigarette is equidistant from the edges of the test panels.

After lighting the cigarette, a finger is run along the length of the covered cigarette to ensure good cover fabric-to-cigarette contact. The test is continued until all evidence of combustion has ceased for at least 5 minutes. Then, the cover fabric and remains of standard test fabric is removed. The foam test panels are removed after all carbonaceous char is removed from their surface.

The post test weight of the panels are measured, and the percent non-smoldered foam is calculated using the formula:

$$\text{Post test weight} \times 100\% / \text{Pre-test weight}$$

Requirements

According to the regulations from Bureau of Home Furnishings Technical Bulletin No. 117, Section D – Part II, Resilient Filling Materials Used in Upholstered Furniture shall fulfil the following criteria:

1. All 3 test specimens shall have a non-smoldered residue greater than 80%

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Fax of 2000-10-12,
Mr. Steinar Dahle

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Trondheim,
2000-11-14

TEST REPORT

Task no.: 22N010.50 / 00.310 D

Test method/Standard: NS-EN 1021-1:1993 (Ignition source: Smouldering cigarette)
NS-EN 1021-2:1993 (Ignition source: Match flame equivalent)

Intention of test: Documentation for approval

Test performed at: **SINTEF Civil and Environmental Engineering,
Norwegian Fire Research Laboratory**
Tiller bru, Tiller
N-7465 Trondheim
NORWAY

*Total number of pages:
(Appendices included)* 4

Client: Westnofa Industrier as

Name of product: **WEF 36**

Type of product: Foam

Product description: 6 specimens of white foam with dimensions 450 mm x 300 mm,
thickness 75 mm. Nominal and measured density: both 34 kg/m³.
The foam was tested in combination with 100 % FR polyester
fibre according to *Consumer Protection The Furniture and
Furnishings (Fire) (Safety) regulations 1988.*

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Manufacturer: Westnofa Industrier as

Place of production: 6301 Åndalsnes, Norway

Samples received: 2000-10-17

Sampling: The test material was chosen by the client

Number of single tests: 2 of each of the ignition sources cigarette and small flame

Conditioning of the specimen: The materials were conditioned for 16 hours immediately before the fire tests in air with a relative humidity of 50 % and at a temperature of 23 °C.

Date of testing: 2000-10-24

Duration of the test: 1 hour for each test

Operator: Erling Stenhaug, engineer

Test results: See tables, Appendix I

Remarks/deviations: According to the standard, the following statement shall be given in the test report: *The above 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 materials in use.*


The product was tested in combination with 100 % FR polyester fibre according to *Consumer Protection The Furniture and Furnishings (Fire) (Safety) regulations 1988.*


The product WEF 36 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.

Appendices:

- Appendix I Test procedure and test results
- Appendix II Criteria for classification

SINTEF Civil and Environmental Engineering - Norwegian Fire Research Laboratory


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Discipline Manager
Reaction to Fire


Bjarne Kristoffersen
Senior Engineer

**CRITERIA FOR CLASSIFICATION IN ACCORDANCE WITH NS-EN 1021-1:1993
AND NS-EN 1021-2:1993.**

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.