



swissi process safety

Swissi Process Safety GmbH · Mattenstrasse 24, CH-4002 Basel



Test report 918509-14-0009-01

Determination of the fire index of Polyurethane – flexible foam

Customer

HOWE a/s
Mandal Allé 23
DK-5500 Middelfart

Summary:

Fire Index:

(Derived result of the tests)

5.3

The examination is accomplished in accordance with : Determination of the fire index (combustibility and smoke formation) according to the "Directives for the prescriptions on the fire police, Materials and part of construction", Part B: Examination conditions, edition 1988 (with complements 1990, 1994 and 1995) of the "Vereinigung Kantonalen Feuerversicherungen" (VKF), Bundesgasse 20, Postfach 8576, CH-3001 Bern .

This test report has a validity period from 5 years.

The detailed test results are shown on the table of page 2.

Test lab manager

Head of Testing

Date

Marcel Lasry

Adrien Bisel

18.02.2014

The results in this test report are based on measurements of samples given to the test laboratory.
The total test report may be copied but not parts of it.



STS 042

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Explosion Protection – Electrostatics – Thermal Stability – Process Safety



European Group of
Organizations for Fire
Testing, Inspection
and Certification



Chemie Service

Test Object

| | |
|---------------------------|--|
| Sample | Polyurethane – flexible foam |
| Sample Description | Polyurethane flexible foam or PUR. Colour: green Delivered samples: 20 pieces: approx. 160 x 60 x 6 mm 20 pieces approx. 60 x 60 x 25 mm Measured density: 56 (± 1) kg/m ³ . |
| Receiving Date | 06.01.2014 |

Applied Testing Procedure

SOP-No: 241 (Determination of the combustibility degree)

SOP-No: 242 (Determination of the smoke formation degree)

Test set-up

The tests were carried out in the laboratory for fire -, and explosion prevention of the Swiss Process Safety GmbH in Basel. The testing method is based on empirical bases. The quality of the testing method is supervised by periodic comparison attempts with other laboratories or with reference samples.

The sample was air-conditioned for ≥ 28 days (23°C / 50% rH).

Results and evaluation:

Basic Test:

- Thickness: 6.0 (± 0.2)mm
- Burning time (*in seconds*)
- attains the height of 150 mm?
Rupture of the cotton thread
- Flame spread in mm
Visual observation of the flame tip.
- melt up to a height of about (mm)
- drips from burning?
- Filter paper aflame?

| | | | | | |
|-------------------------------|----|----|---|---|---|
| 6 | 7 | 6 | - | - | - |
| No | No | No | - | - | - |
| 50 | 60 | 50 | - | - | - |
| 80 | 80 | 70 | - | - | - |
| Falling droplets not flaming. | | | | | |
| No | No | No | - | - | - |

- **Fire behaviour:** hardly combustible

Smoke test:

Smoke density test (on cup):

- Light absorption in %
- Mean value

| | | | | | |
|------|----|----|-----|---|---|
| 44 | 46 | 48 | - | - | - |
| 46 % | | | --- | | |

Smoke behaviour: weak smoke formation

End of experimental part: 10.02.2014



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Test report 918509-14-0009-02

Determination of the fire index of Seat shell of beech wood

Customer
HOWE a/s
Mandal Allé 23
DK-5500 Middelfart

Summary:
Fire Index:
(Derived result of the tests)

4.3

The examination is accomplished in accordance with : Determination of the fire index (combustibility and smoke formation) according to the "Directives for the prescriptions on the fire police, Materials and part of construction", Part B: Examination conditions, edition 1988 (with complements 1990, 1994 and 1995) of the "Vereinigung Kantonaler Feuerversicherungen" (VKF), Bundesgasse 20, Postfach 8576, CH-3001 Bern .

This test report has a validity period from 5 years.

The detailed test results are shown on the table of page 2.

Test lab manager

Head of Testing

Date

18.02.2014

Marcel Lasry

Adrien Bisel

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Chemie Service

Test Object

| | |
|---------------------------|---|
| Sample | Seat shell of beech wood |
| Sample Description | Beech wood not treated. Colour: brown Delivered samples: 20 pieces: approx. 160 x 60 x 4 mm 20 pieces approx. 30 x 30 x 4 mm Measured density: approx. 836 kg/m ³ . |
| Receiving Date | 06.01.2014 |

Applied Testing Procedure

SOP-No: 241 (Determination of the combustibility degree)

SOP-No: 242 (Determination of the smoke formation degree)

Test set-up

The tests were carried out in the laboratory for fire -, and explosion prevention of the Swissi Process Safety GmbH in Basel. The testing method is based on empirical bases. The quality of the testing method is supervised by periodic comparison attempts with other laboratories or with reference samples.

The sample was air-conditioned to constant weight (23°C / 50% rH).

Results and evaluation:

Basic Test:

- Thickness: 4.2 (±0.1)mm
- Burning time (*in seconds*)
- attains the height of 150 mm?
Rupture of the cotton thread
- Flame spread in mm
Visual observation of the flame tip.

| | | | | | |
|-----|-----|-----|---|---|---|
| >60 | >60 | >60 | - | - | - |
| No | No | No | - | - | - |
| ~50 | ~50 | ~50 | - | - | - |

Comment: The sample doesn't melt, doesn't drip but is charred in flame impingement zone.

- **Fire behaviour:** moderately combustible.

Smoke test:

Smoke density test (on sieve):

- Light absorption in %
- Mean value

| | | | | | |
|-----|---|---|-----|---|---|
| 1 | 1 | 1 | - | - | - |
| 1 % | | | --- | | |

Comment: Almost no measurable smoke detected.

Smoke behaviour: weak smoke formation

End of experimental part: 10.02.2014