FEICA The European voice of the adhesive and sealant industry

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Determination of the long term Thermal Conductivity of an OCF[1] Canister Foam

1. Scope

This method describes how to determine the long term thermal conductivity of a cured OCF foam, dispensed from a pressurised can, with a sample subjected to accelerated ageing procedure.

2. Short description of procedure

The test specimen is prepared by foaming into a mould made of two wooden plates and spacers. After curing, the two sides of the mould are open and the foam sample removed. The sample is then cut into the desired dimensions, depending on the measuring device to be used of e.g. 300 x 300 mm or 200 x 200 mm. The test is carried out on the basis of EN 12667 with a mean temperature of 10°C.

3. Background and purpose

One of the most important characteristics of polyurethane foam is its very good thermal insulation. When OCF foam is used as sealing and insulation of windows and external doors; low insulation value is of great importance.

4. Equipment

- 2 wooden plates (chipboard), e.g. size: 400 x 400 x 10 mm
- 2 spacers (chipboard), e.g. size: 400 x 30 x 10 mm
- PE foil
- 4 screw clamps
- Water
- Sharp cutter
- Balance with accuracy of 0,1 g.
- Testing machine (e. g. Lasercomp or Netzsch)

5. Procedure

It is necessary to complete at least three measurements to obtain a statistically relevant mean value.

[1] **OCF**: Generic term for moisture-curing One-Component Foams dispensed from pressurised containers ("aerosol cans") as well as self-curing two-component foams dispensed from pressurised containers ("1.5 component foams").

5.1 Preparation

a) Acclimatise the test canister, wooden plates and spacers for 24 h at 23°C/50% R.H.
b) Prepare the mould by placing the 30 mm thick spacers between the wooden plates (surrounded with PE foil) and tightening them with the clamps.
c) Shake the canister vigorously 20 times.
d) Spray the OFC foam in several layers between the plates. Moisten before applying each layer.
e) After 24 h. the foam sample can be removed and cut to the desired dimensions.
f) Store the foam samples for 21 days in oven at 70°C for ageing.
g) Prepare the measuring device. Set the mean temperature difference between the hot and cold plate on 10°C, with the temperature difference between the two plates for example 5°C and 15°C.
h) Carry out the test on the basis of EN 12667.

5.2 Evaluation

Report:

- Name of test specimen.
- The length, width, thickness and density of the test specimen.
- Mean temperature of the hot plate in °C.
- Mean temperature of the cold plate in °C.
- Mean temperature difference between hot and cold plate in °C.
- Declared thermal conductivity in W/mK.

6. Revision

Version	Date	Remarks
2	8 November 2016	Revised and checked by FEICA
3	31 January 2017	Revised and checked by FEICA

7. Sample Preparation

Before spraying the foam

Before spraying the foam (side view)

Spraying foam

Spraying water after each layer of foam

Leave to cure for 24 hours

Cut the expand foam to the desired dimensions

Final panel that is to be tested

8. Contact

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