



Brussels, 31 January 2017

## TM 1013:2017

# Determination of the Movement Capability of an OCF<sup>1</sup> Canister Foam

### 1. Scope

This test method describes how to determine the movement capability of cured foam. The result gives an indication of the degree of flexibility of the cured foam.

### 2. Short description of procedure

At least two identical test specimens are prepared by foaming between two wooden plates. After fully curing, one of the specimens is alternately compressed and stretched for a total of 1000 cycles (by a tensile testing machine). Additionally the compressed/stretched sample is evaluated visually.

After that, both specimens – the tested one and the control – are stretched until the samples fracture. Tensile force and elongation at fracture can be measured and compared.

### 3. Background and purpose

One of the main application areas of OCF is thermal insulation and sound damping in connecting joints. Those joints have to absorb the movement of the construction elements caused by temperature change, wind load, etc., and have to provide certain flexibility to ensure a long service life. The elongation is measured by stretching a piece of foam.

### 4. Equipment

At least two specimens are required. Each consists of:

- 2 wooden boards (chipboards) P3 or P5 (EN 312), size: 50 mm x 200 mm x 10 mm
- 2 wooden boards (chipboards) P3 or P5 (EN 312), size: 80 mm x 200 mm x 10 mm
- 2 spacers, size: 50 mm x 20 mm x 20 mm
- 2 screw clamps

Other equipment:

- PU adhesive
- Sharp cutter
- Tensile testing machine (e.g. Zwick or Instron)
- 2 C-profiles + 12 fixing screws for fixing the specimen to the tensile testing machine
- Controlled climate chamber

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<sup>1</sup> **OCF**: Generic term for moisture-curing or physically drying foam as well as self-curing activatable foam extruded as a froth from single pressurised containers.

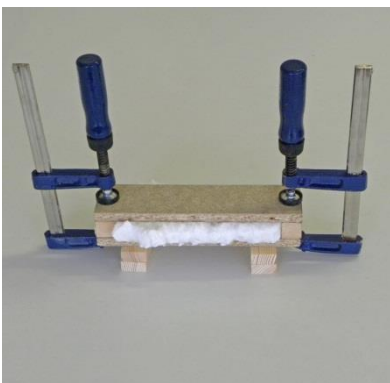
## 5. Procedure

### 5.1 Preparation

Bring the test canister and the chipboards to the test temperature (23°C/50% r.h.) for at least 24 hours.

### 5.2 Experimental procedure

- a) Attach the spacers between the two smaller panels and fix them with screw clamps. The cavity in the assembled joint should measure 50 mm x 160 mm x 20 mm.
- b) Prepare a minimum of two joints.
- c) Moisten both joints. The clamped boards are immersed in water for 20 sec., taken out and stored horizontally for two minutes, until excess water has dripped off. The foaming must start within the next 30 sec.
- d) Shake the canister vigorously 20 times.
- e) Discard the first 30 g – 50 g of foam.
- f) Fill the joint in a horizontal direction to allow the foam to expand freely on both sides.
- g) Fill approximately 60% of the joint if using straw dispensing or 100% of the joint if using gun dispensing.
- h) Allow the foam to cure for 24 hours at 23°C/50% r.h.
- i) Cut off excess foam after 24 hours.
- j) Remove the screw clamps and adhere the two larger wooden boards to the specimen protruding 1.5 cm per side.
- k) Immediately fix the screw clamps again.
- l) After six days remove the screw clamps and spacers (samples are to be stored at 23°C/50% r.h.).



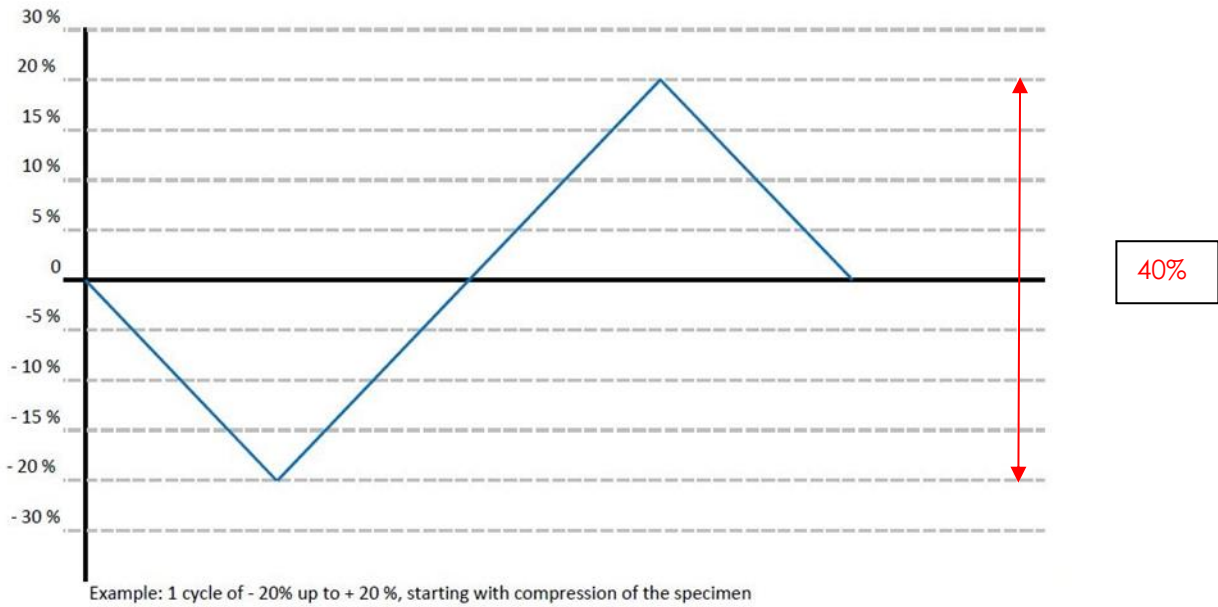
## 6. Evaluation

The first specimen is fitted into the C-profiles of the tensile testing machine and fixed with screws to avoid shearing. Start the measurement with a duration of two minutes per cycle and define the ratio of speed to distance (in both directions - compressing and stretching). See the chart below. Run 1000 cycles after starting with compressing.

Velocity mm/min – Movement %:

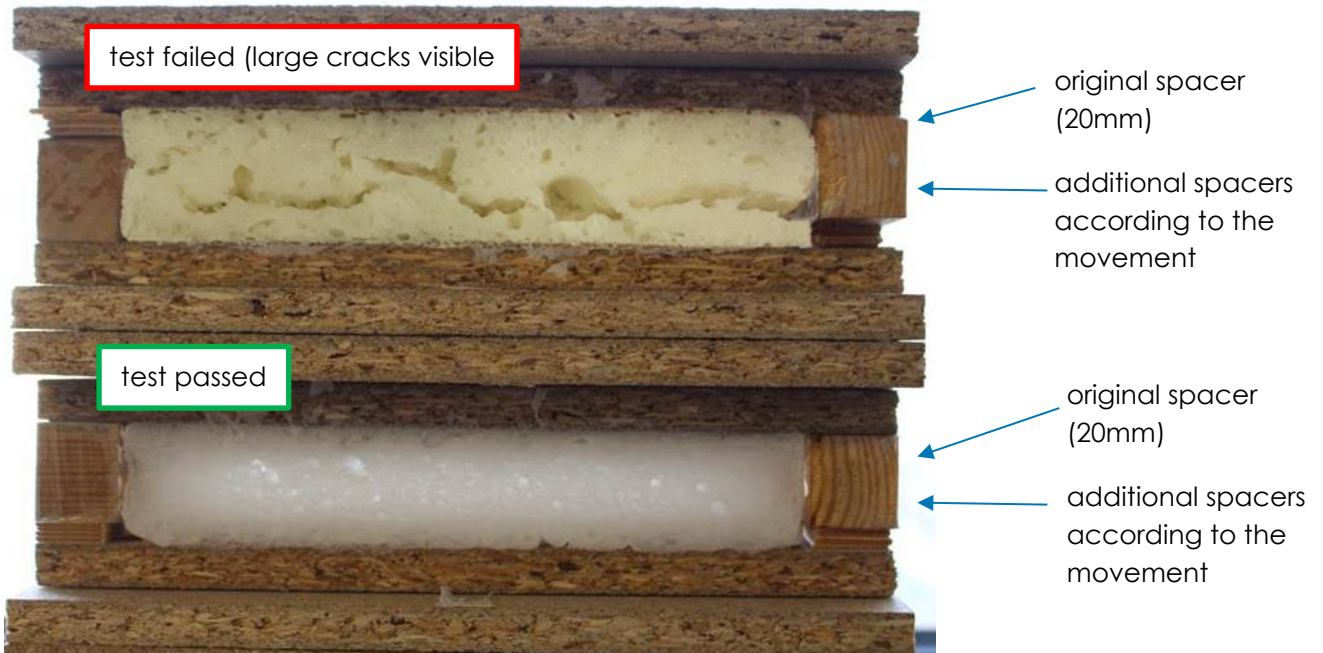
2	from - 5 % to + 5%
3	from - 7.5 % to + 7.5%
4	from - 10 % to + 10%
5	from - 12.5% to + 12.5%
6	from - 15 % to + 15%

8 from - 20 % to + 20%  
 10 from - 25% to + 25%



Additionally the specimen subjected to 1000 test cycles is evaluated visually:

- Elongate the specimen to the maximum elongation during the test, by inserting the original spacers and adding additional spacers:



- No visible cracks longer than 30 mm
- No cracks passing from one side to the other
- The adhesion on the surface must be more than 90%

If all these requirements are ok, the foam has passed the test.

## 7. Revision

Version	Date	Remarks
1	18 February 2015	Released at the OCF TTF meeting on 28 January 2015
2	31 January 2017	Released at the OCF TTF meeting on 31 January 2017

## 8. Contact

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