FEICA The European voice of the **adhesive** and **sealant industry**

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TM 1019:2014

Determination of the Free Foamed Density of an OCF[1] Canister Foam

1. Scope

This test method describes how to determine the density of a cured OCF for identification purposes only.

2. Background and purpose

In general, density is a property used for product identification purposes. It is also an indication of the yield and strength of the product. Normally, the lower the density the higher the yield and the lower the strength. To measure the joint yield of a foam canister one should determine the density and yield in running metres according to FEICA TM 1002:2014.

3. Short description of procedure

The liquid foam is dispensed in a string on a horizontal surface. After 24 hours for curing, the density of the cured product is measured using a balance and a measuring cylinder.

4. Equipment

- PE-foil, paper or cardboard
- Sharp and clean knife (cutting knife)
- Balance with an accuracy of 0.1 g
- Measuring cylinder with increments of 10 ml
- Water

5. Procedure

5.1 Preparation

a) Test conditions: 23°C, 50 % r. h. (normal climate to DIN EN ISO 139). The test could also be performed under other conditions. The selected test conditions must be part of the report.
b) Bring the test canister and the PU-foil, paper or cardboard to the test temperature for at least 24 h.

[1] **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.

5.2 Experimental procedure

a) The can is shaken at least 20 times before application.
b) Discard the first 50 g of foam.
c) Cylindrically shaped beads with a diameter of 20 to 30 mm and length of about 200 mm are sprayed in a 3 – 5 second burst (spray speed 50 to 100 mm/sec) onto PE-foil, paper or cardboard from a distance of approximately 10 mm (see Fig. 1).
d) After 24 hours minimum, the beads are trimmed on both sides to produce beads with a length of 100 to 150 mm (see Fig. 2).
e) The mass of the samples is measured in grams (m) with an accuracy of 0.1 g.
f) A measuring cylinder with increments of 10 ml is filled with water and a reference volume (V0) is set.
g) By pressing a cutting knife into one end of the bead, the sample is submerged into the measuring cylinder. The increased volume (V1) is read off immediately (see Fig. 3).


Fig. 1: sprayed beads

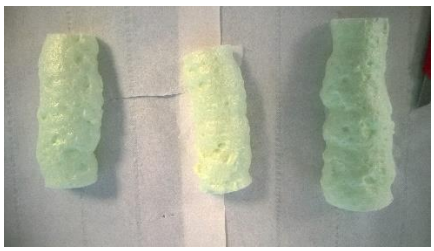
Fig. 2: trimmed beads

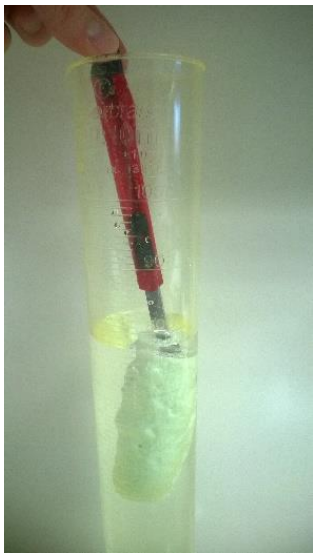
Fig. 3: measurement

6. Evaluation

a) The density of the foam is determined using the following formula:

$$s.g. = \frac{m}{\mathrm{V1} - \mathrm{V0}} * 1000$$

Where:

s.g.	is the density in kg/m³
m	is the weight of the sample in g
V0	is the reference volume level in ml
V1	is the volume level when the sample is submerged into water in ml

b) The results are expressed in kg/m³. The test result should be calculated as the mean of at least 5 single values.

7. Revision

Version	Date	Remarks
1	20 November 2014	Released at the OCF TTF meeting on 04 June 2014.

8. Contact

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