
Karakterizacija enokomponentnih pen - 3. del: Uporaba

Characterization of One Component Foam - Part 3: Application

Charakterisierung von Einkomponentenschäumen - Teil 3: Anwendung

Caractérisation des mousses monocomposants - Partie 3: Application

Ta slovenski standard je istoveten z: **EN 17333-3:2020**

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EUROPEAN STANDARD
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EUROPÄISCHE NORM

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English Version

**Characterisation of one component foam - Part 3:
Application**

Caractérisation des mousses monocomposants - Partie
3 : Application

Charakterisierung von Einkomponentenschäumen -
Teil 3: Anwendung

This European Standard was approved by CEN on 1 December 2019.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 17333-3:2020) has been prepared by Technical Committee CEN/TC 193 “Adhesives”, the secretariat of which is held by UNE.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2020, and conflicting national standards shall be withdrawn at the latest by September 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document is one of the product European Standards within the framework series of EN 17333 on Characterization of one component foam, as follows:

- *Part 1: Foam yield characteristics;*
- *Part 2: Expansion characteristics;*
- *Part 3: Application (this document);*
- *Part 4: Mechanical strength;*
- *Part 5: Insulation.*

This document is one of a series of standards which specify test methods for determining the properties of one component foams (OCFs).

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

EN 17333-3:2020 (E)**1 Scope**

This document specifies test methods for the evaluation of the application properties for moisture curing, self-curing activatable or water drying foams dispensed from single pressurized foam containers.

This document does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this document to establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use.

The following test methods are described:

- Method 1 – Cutting time: This test method describes how to determine the hardening time of a dispensed froth until it could be cut.
- Method 2 – Tack free time: This test method describes how to determine the tack free time of a freshly foamed OCF.
- Method 3 – Sagging: This test method describes how to evaluate the sagging behaviour and determine the biggest joint possible before dispensed froth slips off.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 923, *Adhesives - Terms and definitions*

EN 15006, *Metal aerosol containers - Aluminium containers - Dimensions of the 25,4 mm aperture*

EN 14847, *Aerosol containers - Tinplate containers - Dimensions of the 25,4 mm aperture*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 923 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/ui>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1**one component foam (OCF)**

moisture curing or water drying foam as well as self-curing activatable foam dispensed from a single pressurised foam container

3.2**pressurised foam container**

pressurised can according to EN 14847 and EN 15006

3.3**test container**

pressurised can according to EN 14847 and EN 15006 used for testing purposes

3.4**fully cured or dried foam**

cross-linked foam which reaches its serviceable properties as claimed by the manufacturer

3.5**cutting time**

time necessary after application to achieve a stage in which the bead of the foam could be cut without deforming the structure

3.6**tack free time**

time that surface tack is no longer detectable

3.7**straw foam**

one component or two component foams for the extrusion with an adapter tube

3.8**gun foam**

one component foams for the extrusion with a foam application gun

3.9**sagging**

tendency of freshly applied foam to collapse in or flow out of the joint before reaching its cured stage

Note 1 to entry: Sagging behaviour is dependent on temperature of both the canister, the environment and the dimensions of the joint, particularly vertical joints.

4 Test methods**4.1 Method 1 – Cutting time****4.1.1 Principle**

The liquid foam is dispensed in defined beads on a horizontal surface. After a certain time for curing, the bead is cut. The cutting time is reached when the cut surface is not sticky anymore, the knife remains clean without foam residues and the foam is not squeezed.

NOTE The measured value depends strongly on the dispensed bead diameter as well as the humidity, temperature and the processing and tools. The cutting time gives an indication about the water transport inside the foam body, therefore about the foam quality.

4.1.2 Equipment

4.1.2.1 Sharp and clean knife blade.

4.1.2.2 Stopwatch.

4.1.2.3 Paper or cardboard.

4.1.2.4 Conditioning chamber capable of being controlled at a temperature of (23 ± 2) °C and (50 ± 5) % relative humidity (RH).

4.1.2.5 Template with a window of 30 mm height and approximately 60 mm width (see Figure 1).

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4.1.3 Sampling

4.1.3.1 Conditioning

Bring the test container to the test temperature for at least 24 h.

4.1.4 Test procedure

- a) Shake an unused test container vigorously 20 times.
- b) Discard the first (40 ± 10) g of foam.
- c) Extrude at least 3 beads of fresh foam on the paper or cardboard and start the stopwatch, maintaining at least 50 mm between each bead and a maximum bead height of 30 mm (see Figure 2).
- d) Indicative times after which it is recommended to start the measurements are 15 min for moisture curing foam, 5 min for self-curing activatable foam and 24 h for water drying foam.
- e) Test conditions: (23 ± 2) °C and (50 ± 5) % RH. The test may also be performed under other conditions. The selected test conditions shall be part of the report.
- f) Find 30 mm diameter bead by template (see Figure 3) and cut it in this place. Do not “saw” the foam, cut it in one or two steps at a fast pace.
- g) If fresh foam remains on the knife, or the foam is crushed, the foam is still not cured.
- h) Clean the knife.
- i) Wait for another five minutes and try to cut again, but in another bead to avoid impact on the foam due to the cut surface.
- j) Repeat steps b) to e), until the foam is not crushed by the knife. Also the bead shall stay in shape.

NOTE Flexible foams may be difficult to assess.

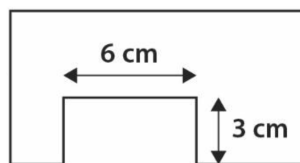


Figure 1 — Template

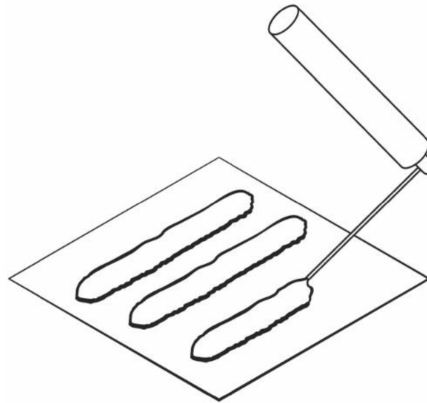


Figure 2 — Beads on the cardboard

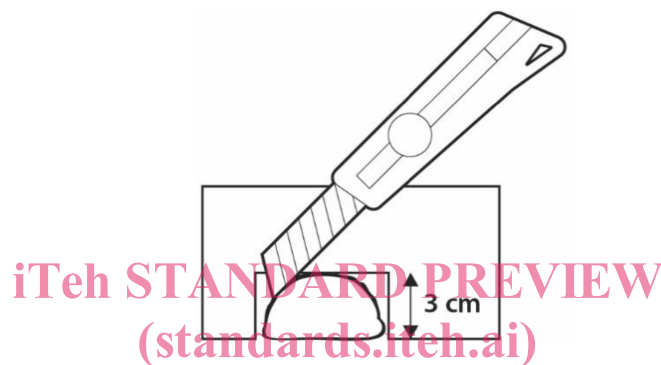


Figure 3 — How to find 30 mm diameter bead

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4.1.5 Expression of results

The result is expressed in minutes to the nearest full 5 min.

4.1.6 Test report

The test report shall include the following information:

- a) reference to this document;
- b) the name and address of the testing laboratory;
- c) the number and date of the test report;
- d) the name and signature of the person responsible or signatory of the report;
- e) product identification:
 - 1) product name, manufacturer or supplier,
 - 2) batch number or identification code,
 - 3) origin of the sample(s),
 - 4) way of dispensing, e.g. dispensing gun and type or adapter tube,
 - 5) packaging: volume,