



SLOVENSKI STANDARD

oSIST prEN 17665:2021

01-maj-2021

Embalaža - Preskusne metode in zahteve za dokazovanje, da plastični pokrovčki posod za pijačo za enkratno uporabo s prostornino do treh litrov ostanejo pritrjeni na posode med predvideno uporabo (izdelka)

Packaging - Test methods and requirements to demonstrate that plastic caps and lids of single-use beverage containers with a capacity of up to three litres remain attached to the containers during the product's intended use stage

Verpackung - Prüfverfahren und Anforderungen die nachweisen, dass Kunststoffverschlüsse von Einweggetränkebehältern mit einem Fassungsvermögen von bis drei Litern während der vorgesehenen Verwendungsdauer am Behälter befestigt bleiben

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Ta slovenski standard je istoveten z: prEN 17665

ICS:

55.100 Steklenice. Lonci. Kozarci Bottles. Pots. Jars

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en,fr,de

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EUROPEAN STANDARD
NORME EUROPÉENNE
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prEN 17665

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English Version

Packaging - Test methods and requirements to demonstrate that plastic caps and lids of single-use beverage containers with a capacity of up to three litres remain attached to the containers during the product's intended use stage

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This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 261.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (prEN 17665:2021) has been prepared by Technical Committee CEN/TC 261 “Packaging”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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Introduction

The Directive (EU) 2019/904 “on the reduction of the impact of certain plastic products on the environment” introduces the requirement that plastic caps and lids of single use plastic beverage containers up to 3 l capacity shall remain attached to the container during the intended use stage.

This document was developed with the principal objective of characterizing the attachment of the cap or lid to the container by a minimum separation force and the cap/lid’s ability to remain attached to the container over the product’s intended use stage and describing the test methods along with the performance criteria to enable demonstration that the legal requirement has been met.

The product’s intended use stage implies that the attachment feature has to resist normal handling of the cap or lid by the consumer to access the contents and, if necessary, reclose the container for subsequent further servings of the beverage. Intentional separation of the cap from the container will always be possible and is formally excluded from “intended use” as considered in this document.

This document was developed taking into account the necessity not to undermine the requirements of the Packaging and Packaging Waste Directive (94/62/EC) and its amendments in particular terms of:

- Prevention, limiting the packaging volume and weight to the minimum adequate amount to maintain the necessary functionality, by avoiding the use of excessive material.
- Recyclability and recycling capability.

In the course of the development of this document it was identified that the attachment of caps and lids to the container may interfere with established and efficient plastic bottle recycling equipment, particularly if attached caps or lids hang loose. This aspect is outside of the scope of this document, but it is recommended that the user takes into consideration best practice guidelines established by the stakeholders.

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1 Scope

This document specifies the requirements and test methods to demonstrate that plastic caps and lids of single-use beverage containers with a capacity of up to three litres remain attached to the containers during the product's intended use stage. This document also addresses the need to ensure the necessary strength, reliability and safety of beverage container closures, including those for carbonated drinks.

This document applies to the strength, reliability and safety impacted by the attachment feature and does not apply to the overall closure system.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in (*reference to guidelines due to be published according to Article 12 of the SUP Directive, to complete when available*), ISO/IEC GUIDE 51:2014 and the following apply.

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

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

3.1

attachment feature

physical link maintained between the cap or lid and the container during the intended use stage

3.2

neck finish

specific part of a container which forms the opening, manufactured with a defined geometry to accommodate the corresponding closure (cap, lid or other form of seal) and tamper-evidence feature if appropriate

4 Requirements for the attachment feature

4.1 General

The attachment feature of the caps and lids shall have the necessary strength, reliability and safety required for the intended use stage of the package.

4.2 Strength of the attachment feature

The attachment feature of caps and lids shall have the necessary strength to remain attached to the beverage container during the intended use stage.

The strength of the attachment feature shall be evaluated in accordance with the test method set out in 5.1 and the criteria defined in 6.1, Table 1.

prEN 17665:2021 (E)**4.3 Reliability of the attachment feature**

The attachment feature of caps and lids shall have the necessary reliability to remain attached to the beverage container during the intended use stage.

The reliability of the attachment feature shall be evaluated in accordance with the test method set out in 5.2 and the criteria defined in 6.2, Table 2.

4.4 Safety during the intended use stage

The attachment feature of caps and lids shall have the necessary safety characteristics during the intended use stage.

An assessment of the attachment feature shall be carried out to ensure adequate product safety characteristics for the consumer.

The assessment can be integrated in normal product safety assessments.

A method for the assessment of the attachment feature is described in 5.3.

5 Test methods**5.1 Attachment – Resistance to a tensile force****5.1.1 General**

The test shall verify that the cap or lid is able to withstand a given linear tensile force without being detached from a beverage container product.

5.1.2 Equipment required

The tensile testing device shall be capable of applying forces with an accuracy of $\pm 1\%$ of the measured value. The tensile testing device shall be equipped with a clamp, forceps, hook or other suitable gripping system capable of holding the component firmly without deformation when no force is applied.

5.1.3 Sample size

10 separate samples shall be used for each subtest (subtest 1 and subtest 2), i.e. 20 samples.

The tests shall be performed on separate caps or lids, not repeated on the same item.

5.1.4 Sample preparation

The cap or lid under test shall be applied to the neck finish for which it is designed and in accordance with the manufacturer's application specification.

The temperature of the samples to be tested shall be stabilized for 24 h at $(23 \pm 2)^\circ\text{C}$.

Testing shall be carried out at this temperature.

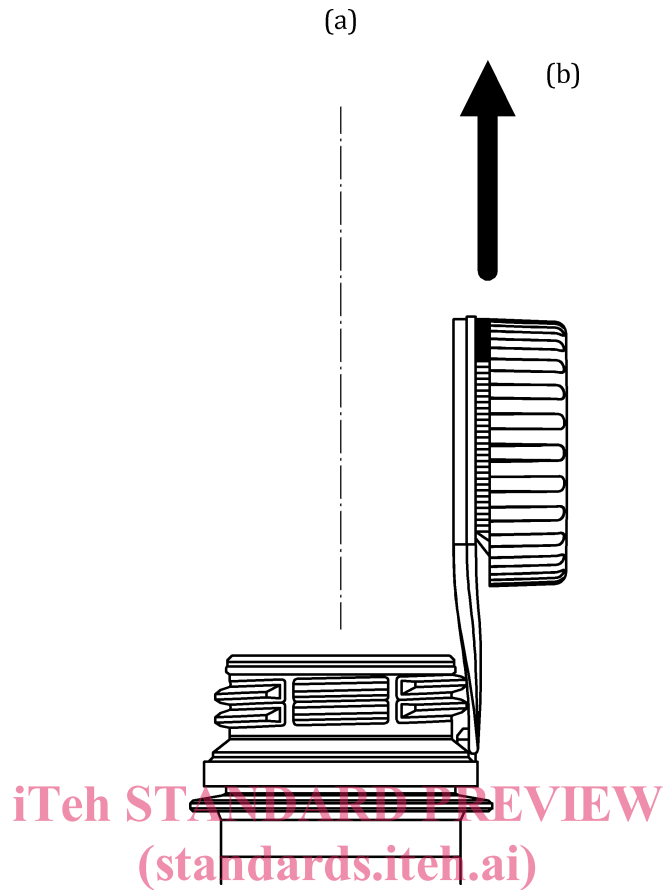
5.1.5 Acceptance criteria

The beverage container product shall pass if the cap or lid remains attached on all of the 20 samples in the two subtests specified in 5.1.7 and 5.1.8.

5.1.6 Test method

This test consists of two subtests to assess the resistance to tensile forces of the attachment feature.

- 1) The first test (subtest 1) shall be in the direction of the neck finish main axis (180°) as shown in Figure 1.

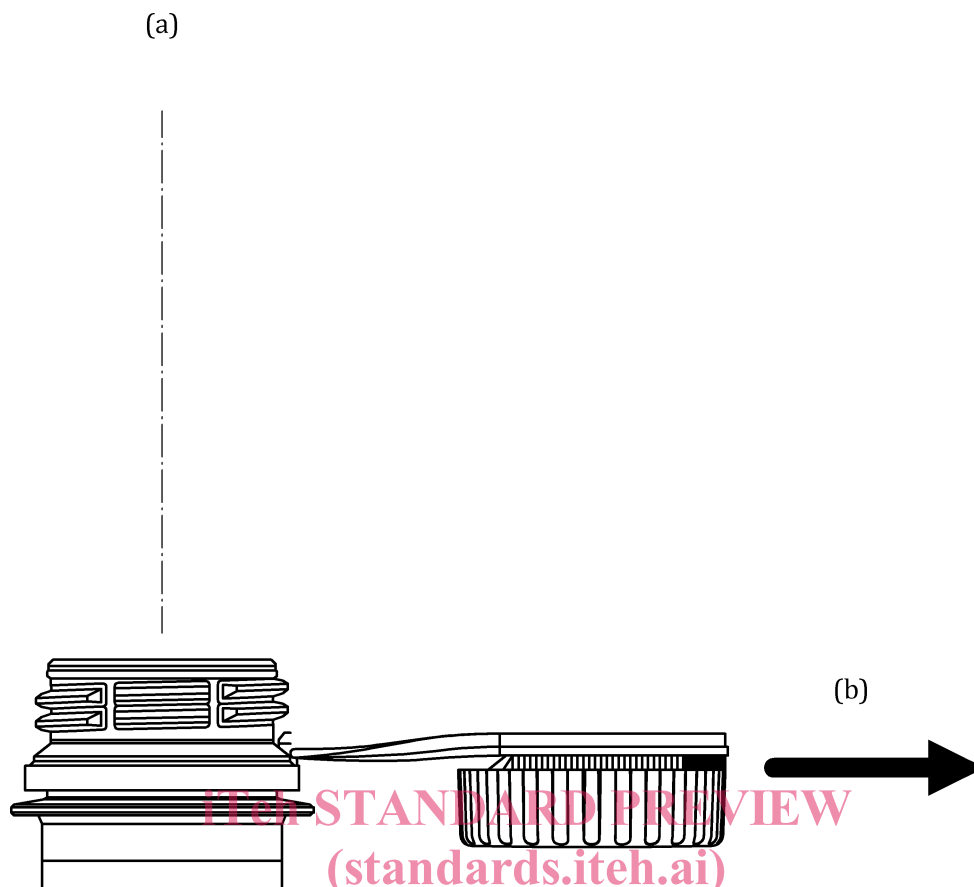
**Key**

- (a) Neck finish main axis [oSIST prEN 17665:2021](https://standards.iteh.ai/catalog/standards/sist/2eb98a10-e83c-451f-9c5a-1e933e0d735/osist-pren-17665-2021)
- (b) Direction of traction force [1e933e0d735/osist-pren-17665-2021](https://standards.iteh.ai/catalog/standards/sist/2eb98a10-e83c-451f-9c5a-1e933e0d735/osist-pren-17665-2021)

Figure 1 — Illustrative example of test in the direction of the finish main axis (180°)

- 2) The second test (subtest 2) shall be in a perpendicular direction to the neck finish main axis (90°) as shown in Figure 2.

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**Key**

- (a) Neck finish main axis <https://standards.iteh.ai/catalog/standards/sist/2eb98a10-e83c-451f-9c5a-1e933e0d735/osist-pren-17665-2021>
- (b) Direction of traction force

Figure 2 — Illustrative example of test in a perpendicular direction to the finish main axis (90°)

In cases where the neck finish forms an integral part of the container, preforms may be used instead of containers. For neck finishes which are not an integral part of the container separate neck finishes may be used, held secure in an appropriate fixture for testing.

5.1.7 Subtest 1 in the direction of the neck finish main axis (180°)

The subtest shall be conducted as follows:

- Place the container with the applied cap or lid into the fixture.
- Open the cap or lid completely.
- Grip the opened cap or lid with the gripping system (clamp, forceps, hook etc.).
- Apply a tensile force in the direction of the neck finish main axis at a test speed of 200 mm/min up to the value specified in Table 1 in 6.1.
- Record if the cap or lid detaches or remains attached.
- Repeat steps a) through e) until all 10 samples of the subtest have been tested.