INTERNATIONAL STANDARD

ISO 9727-6

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Cylindrical cork stoppers — Physical tests —

Part 6: Determination of liquid tightness

Bouchons cylindriques en liège — Essais physiques —

Partie 6: Détermination de l'étanchéité aux liquides

Reference number
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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 9727-6 was prepared by Technical Committee ISO/TC 87, *Cork*.

This first edition of ISO 9727-6, together with the other parts of ISO 9727:2007, cancels and replaces ISO 9727:1991, which has been technically revised.

ISO 9727 consists of the following parts, under the general title *Cylindrical cork stoppers — Physical tests*:

— *Part 1: Determination of dimensions*

— *Part 2: Determination of mass and apparent density for agglomerated cork stoppers*

— *Part 3: Determination of humidity content*

— *Part 4: Determination of dimensional recovery after compression*

— *Part 5: Determination of extraction force*

— *Part 6: Determination of liquid tightness*

— *Part 7: Determination of dust content*

Cylindrical cork stoppers — Physical tests —

Part 6: Determination of liquid tightness

1 Scope

This part of ISO 9727 specifies a test method for determining the liquid tightness of a cylindrical cork stopper.

It is applicable to all types of cylindrical cork stoppers ready for use, intended to be completely inserted in the bottle neck (straight cork stoppers).

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 633, *Cork — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 633 and the following apply.

3.1
straight cork stopper
«*ras de bague*»
stopper which is completely introduced in the bottle neck, its superior end reaching the top border of the bottle

4 Materials

4.1 **Acetone**, for cleaning the glass tubes.

4.2 **Hydro-alcoholic solution**, 10 %, coloured with methylene blue.

5 Apparatus

5.1 **Bottling machine with 4 jaws**, with a jaw-compression diameter regulated between 15,5 mm and 16 mm.

5.2 **Glass tubes**, with an internal diameter of 18,5 mm $\pm$ 0,2 mm or an internal diameter of ($d \pm 0{,}2$) mm (where d is the bore diameter of the bottle intended to be used, measured at 3 mm from the top of the bottle finishing).

5.3 **Pressurization device**, having a graduated manometer with a resolution of 0,1 bar, or any other appropriate device to measure pressure.

6 Test conditions

6.1 Environment

The test shall be carried out in an environment with the following characteristics:

— temperature 21 °C ± 4 °C;

— relative humidity of air 60 % ± 20 %.

6.2 Cork stoppers

6.2.1 Temperature

At the beginning of the test, confirm that the stoppers of the test sample are at a temperature of 21 °C ± 4 °C.

6.2.2 Humidity

At the beginning of the test, confirm that the stoppers of the test sample are at a humidity of 6 % ± 2 %.

If the humidity is not between 4 % and 8 %, the result of the humidity obtained shall be referred to in the test report.

7 Sampling

From each lot, take the quantity of stoppers that correspond to the sampling plan previously agreed between the interested parties.

8 Procedure

8.1 Corkage

Clean the glass tubes (5.2) with acetone (4.1) and let them dry.

Using the bottling machine (5.1), put corks on the tubes (5.2).

Wait 1 h and then turn the tubes upside down and introduce 3 ml to 5 ml of hydro-alcoholic solution (4.2) into each tube.

Place the tubes on the pressurization device (5.3) with a piece of filter paper under each tube, contacting the cork stopper.

8.2 Pressure-raising kinetics

One hour after corkage, raise pressure up to 0,3 bar, wait 10 min and observe:

— raise pressure by another step of 0,3 bar (until 0,6 bar), wait 10 min and observe;

— raise pressure by another step of 0,3 bar (until 0,9 bar), wait 10 min and observe;

— raise pressure by another step of 0,3 bar (until 1,2 bar), wait 10 min and observe;

— raise pressure by another step of 0,3 bar (until 1,5 bar), wait 10 min and observe.

Leakage is detected at each step, observing stains of the coloured solution on the filter paper contacting the cork stopper. Register the identification of each concerned stopper and the corresponding internal pressure.