INTERNATIONAL STANDARD

ISO 9727-4

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Cylindrical cork stoppers — Physical tests —

Part 4: Determination of dimensional recovery after compression

Bouchons cylindriques en liège — Essais physiques —

Partie 4: Détermination du taux de retour dimensionnel après compression

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 9727-4 was prepared by Technical Committee ISO/TC 87, *Cork*.

This first edition of ISO 9727-4, 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 4: Determination of dimensional recovery after compression

1 Scope

This part of ISO 9727 specifies a test method for determining the percentage of diameter recovery of cylindrical cork stoppers, after compression.

It is applicable to all types of cylindrical cork stoppers ready for use or semi-worked, 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 Apparatus

4.1 Vernier gauge, with a constant contact force and a maximum resolution of 0,05 mm, or any other device allowing the same precision to be reached.

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

5 Test conditions

5.1 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 %.

5.2 Cork stoppers

5.2.1 Temperature

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

5.2.2 Humidity

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

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

6 Sampling

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

Stoppers from the sample shall not show visible defects that may interfere with the performance of the measurement, namely:

— stoppers with an abnormal shape (asymmetric, truncated, bevelled);

— stoppers with gutters or belly irregularities.

7 Procedure

Before testing, each stopper shall be numerated.

Measure the diameter of each stopper from the sample with the vernier gauge (4.1). The diameter of natural cork stoppers is measured at the perpendicular to the cork growth layers. Measurements are carried out according to ISO 9727-1.

Register the result. The result of this first measurement is called D_1.

Using a pen or any other appropriate object, mark the contact points of the vernier gauge stand on the stopper.

Introduce the stopper into the bottling machine (4.2). Compress the stopper (diameter of compression jaws between 15,5 mm and 16 mm). Then eject the stopper, as though this happens during bottling.

Take the stopper from the bottling machine jaws.

Three minutes later, measure the stopper diameter again, on the marked contact points. Register the value obtained. The result of this second measurement is called D_2.

8 Results

The percentage of diameter recovery after compression of the stopper is given by the equation:

$$\frac{D_2}{D_1} \times 100$$

rounded off to the nearest unit.

The final test result is the arithmetic average of the results obtained with each stopper from the test sample, expressed in percentage, rounded off to the nearest unit, and also the standard deviation.