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Cork stoppers — Determination of global migration

Bouchons en liège — Détermination de la migration globale

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 87, *Cork*.

This second edition cancels and replaces the first edition (ISO 10106:2003). The main changes compared to the previous edition are that Clauses 1, 2, Subclauses 6.1, 6.2, Clauses 8 and 10 have been technically revised.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Cork stoppers — Determination of global migration

1 Scope

This document specifies a test method to measure the global migration of cork stoppers.

It is applicable to all types of cork stoppers that are ready to use, simulating the real conditions of use. This includes all kind of cork stoppers (completely or partially inserted in the bottle neck).

A bottle with an adequate finish is used to carry out the test.

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.

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.

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

— IEC Electropedia: available at http://www.electropedia.org/

3.1
global migration
mass of the non-volatile constituents of the cork stopper transferred to the simulator during the test

3.2
simulator
solution intended to simulate the foodstuff

4 Principle

Introduction of the cork stopper in the neck of a bottle containing the appropriate simulator. The contact cork stopper/simulator is carried out in specific conditions of time and temperature. After evaporation of the obtained solution, the global mass transferred to the simulator from the cork stopper is determined, by weighing.

5 Reagents and materials

5.1 Reagents

5.1.1 **Demineralized water.**

5.1.2 **Ethanol grade**, minimum 96 %.

5.1.3 Ethanol solution, with a volume fraction of either 20 % or 50 % and with an alcoholic content corresponding to the alcoholic beverage bottled with the cork stoppers under test.

5.1.4 Acetic acid – p.a.

5.1.5 Acetic solution, with a volume fraction of 3 %.

5.1.6 Other reagents to prepare simulant solution, depending on the use of the cork stopper.

5.2 Materials

5.2.1 Bottles, with adequate capacity, provided that the mouth finish is known and adequate with the use. When no reference is given, use a standardized bottle neck.

5.2.2 Cellulose filter paper, for qualitative analysis with a retention rate of 98 % for particles up to 11 µm.

5.2.3 Watch glass appropriate for contact with foodstuffs.

5.2.4 Evaporation flask of neutral glass, with capacity 500 ml fitted to be adapted on a rotary evaporator without any kind of lubricant/grease, or a evaporation neutral glass cup with a capacity of 500 ml, resistant to a temperature of (85 ± 5) °C to be adapted to other equipment (for example, a hotplate).

5.2.5 Capsule, of neutral glass or any other inert material, resistant to temperatures of (103 ± 5) °C.

6 Apparatus

6.1 Corking machine with four jaws. The compression ratio shall be adequate for the kind of cork stopper in use.

6.2 Thermostatic oven.

6.2.1 Thermostatic oven, maintained to (103 ± 2) °C.

6.2.2 Thermostatic oven, maintained to (40 ± 4) °C.

6.3 Rotative evaporator, provided with a vacuum device or any other equipment that may assure that the simulator is evaporated at a temperature of (85 ± 5) °C (for example, a hotplate or a water bath, or oven).

6.4 Balance, with a resolution of 0,1 mg.

6.5 Desiccator, with an appropriate desiccating agent.

7 Preparation of test pieces

Take a laboratory sample of at least nine cork stoppers and take three test pieces, each one with three cork stoppers.