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Cork stoppers for sparkling wines and gasified wines — Specifications

Bouchons en liège pour vins mousseux et vins gazéifiés — Spécifications

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Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 4710 was prepared by Technical Committee ISO/TC 87, *Cork*.

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Cork stoppers for sparkling wines and gasified wines — Specifications

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1 Scope

This International Standard specifies the characteristics of cork stoppers for sparkling wines and gasified wines.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 633, *Cork — Vocabulary*.

3 Definitions

For the purposes of this International Standard, in addition to the definitions given in ISO 633, the following definitions apply.

3.1 sparkling wines : Special wines made with grapes, with must or with wines treated according to techniques approved under the "Office international de la vigne et du vin" (OIV) code for oenological treatments. They are characterized by the production, upon opening the container, of a more or less persistent effervescence resulting from the release of carbon dioxide solely of endogenous origin.

The gas in the bottle is under an overpressure of at least 3,5 bar¹⁾ at 20 °C over and above atmospheric pressure; however, the minimum overpressure for bottles of less than 25 cl capacity becomes 3 bar at 20 °C. Depending on the preparation technique, sparkling wines are classified into wines that develop their effervescence characteristic in the bottle and wines that develop their effervescence characteristic in a closed vat.

3.2 gasified wines : Special wines derived from wines treated according to methods approved by the OIV and presenting physical characteristics similar to those of sparkling wines, but in which the carbon dioxide has a partial or total exogenous origin.

3.3 crown : The bottom surface of a stopper for sparkling wines and gasified wines.

4 Types

The stoppers for sparkling wines and gasified wines may be of several types, namely :

- a) natural cork stoppers;
- b) agglomerated cork stoppers with, however, one or several discs made of natural cork;
- c) stoppers made only of agglomerated cork.

1) 1 bar = 10⁵ Pa

5 Shape

Each one of the types described in clause 6 may be of two distinct shapes, depending on the kind of manufacturing process :

- A stopper shaped as a right quadrangular prism with rounded lateral edges, called "hand imitation" (see figure 1).
- A stopper that has the shape of a cylinder generated by the rotation of a rectangle, called "round" (see figure 2).

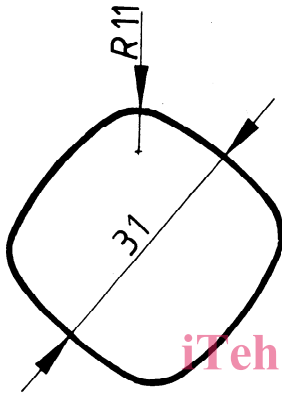


Figure 1 — Cross-section of a "hand imitation" stopper

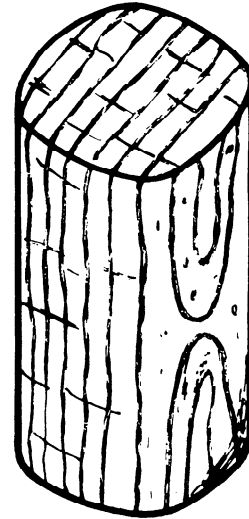


Figure 3 — "Homogeneous" stopper

6.2 Stoppers made of several pieces of natural corkwood glued together

6.2.1 Two-piece stopper (symbol 2)

A stopper made up of two equal pieces cut from the same strip, glued with the "back" towards the inner part of the stopper and the "belly" towards the outside. (See figure 4.)

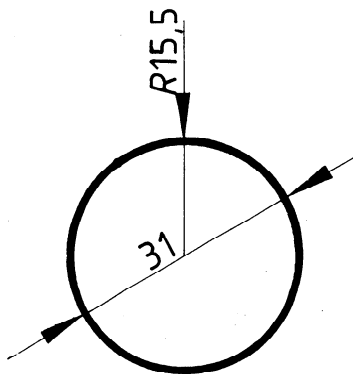


Figure 2 — Cross-section of a "round" stopper

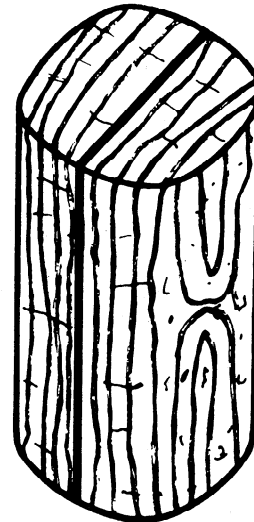


Figure 4 — Two-piece stopper

6 Description

6.1 One-piece stopper, called "homogeneous" stopper (symbol 1)

A stopper made of one piece of natural corkwood. (See figure 3.)

6.2.2 Three-piece stopper (symbol 3)

A stopper made up of three glued parts derived from the same strip and with the same thickness, and in which both external parts have the "back" towards the inner part of the stopper and the "belly" towards the outside. (See figure 5.)



Figure 5 — Three-piece stopper



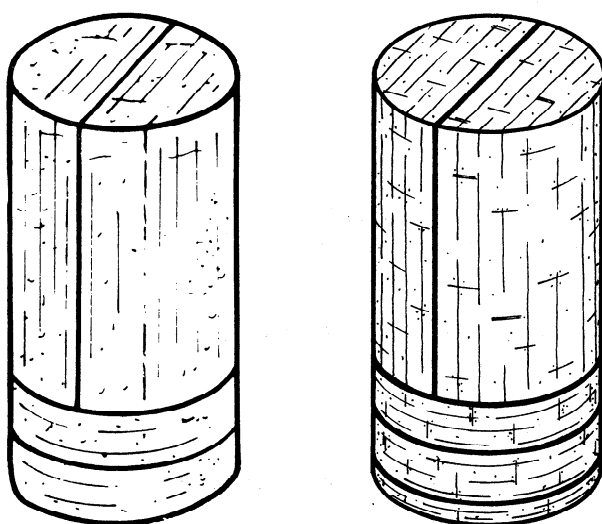
6.2.4 Stopper with one crosswise disc (symbol C)

This may be considered as a two-piece stopper (6.2.1) a part of which has been cut off at right angles to the generant, having the same thickness as a disc, then rotated through 90° and glued to the other pieces. (See figure 7.)

Figure 7 — Stopper with one crosswise disc

6.2.3 Four/five-piece stopper (symbol 4 or 5)

A stopper comprising a body made up of two (possibly three) pieces cut from the same strip, glued as for the two-piece stopper (6.2.1) or the three-piece stopper (6.2.2), and of two or three discs of natural corkwood (three discs being used only for stoppers comprising a body made up of two pieces) cut at right angles to the lenticels, with fully parallel faces, an equal thickness of 6 to 8 mm (with a minimum of 3 mm for the external disc when the stopper has three discs), and glued to one end of the body (see figure 6).



Four-piece stopper

Five-piece stopper

Figure 6 — Four/five-piece stoppers

6.2.5 Stopper with two crosswise discs (symbol CC)

This may be considered as a two-piece stopper (6.2.1) two consecutive parts of which have been cut off at right angles to the generant, each one having the same thickness as a disc, the intermediate disc only being then rotated through 90° and the discs being afterwards glued to the body. (See figure 8.)

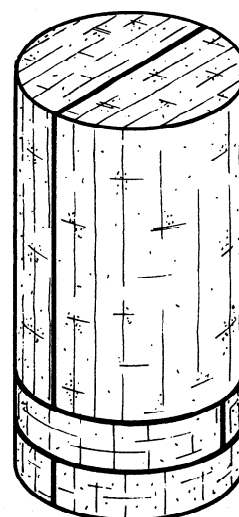


Figure 8 — Stopper with two crosswise discs

6.3 Agglomerated cork stopper (symbol A preceded by a number indicating the number of discs)

A stopper comprising a body of agglomerated cork of uniform compression lengthwise and one to three discs of natural corkwood cut at right angles to the lenticels, with fully parallel faces, a thickness of 6 to 8 mm (with a minimum of 4 mm for the external disc when the stopper has two or three discs), and glued to one end of the body. (See figure 9.)



Figure 9 — Agglomerated cork stopper

7 Finish

Whatever their type and shape, stoppers shall have a very good finish (polished surfaces, crowns at right angles to the lateral edges).

8 Classification according to characteristics

8.1 Stoppers of natural corkwood

The classification of stoppers and discs made of natural corkwood is determined by the significance, in number and seriousness, of their anomalies.

- The fineness of the cork, upon which depends that of the stopper, depends on the number and diameter of pores per unit of surface area.

In practice the notion of grain is sometimes referred to instead of fineness.

- The firmness of the stopper is related to the number of veins and to their breadth.

Defects in stoppers stem both from the nature and the defects of the corkwood used in their manufacture and from the manufacturing and finishing operations. Anomalies are of three types : non-allowable, tolerable and minor.

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8.1.1 Fineness

Stoppers are classified according to four degrees of fineness :

- a) superior stoppers with only very slight, almost imperceptible pores;
- b) fine stoppers, with a few fine pores;
- c) "first" stoppers, with a certain number of average sized pores;
- d) "second" stoppers, with a few large pores filled with reddish powder, a few cracks or a few crevices of small extent.

"Second" stoppers are used only for ageing in the bottle.

8.1.2 Firmness

Stoppers are classified according to four degrees of firmness :

- a) firm stoppers, with at least 10 regular veins;
- b) half-firm stoppers, with 8 to 10 regular veins;
- c) half-soft stoppers, with 6 to 8 regular veins;
- d) soft stoppers, with less than 6 regular veins.

6.4 Stopper made only of agglomerated cork of uniform compression lengthwise (symbol OA)

(See figure 10)

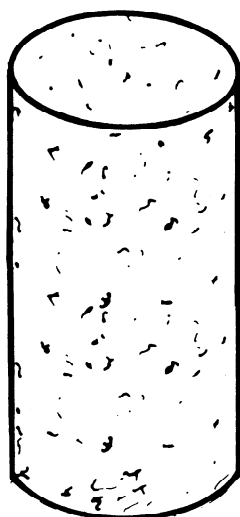


Figure 10 — Stopper made only of agglomerated cork of uniform compression lengthwise

This type of stopper shall not be used for sparkling wines.

8.1.3 Anomalies

8.1.3.1 Non-allowable anomalies :

- yellow stain;
- brown stain sprinkling the stopper;
- blue stain covering almost the whole of the stopper;
- green stain;
- dry vein;
- multiple lignin inclusions.

8.1.3.2 Tolerable anomalies due either to their extent, or to the intended use :

- belly traces, if not extensive;
- blue stain, if not extensive;
- mottled corkwood, which is more permeable to the pressure exerted by liquids;
- veins not entirely distinct from each other (jumbled veins), which withstand pressure less well than regularly spaced, and therefore clearly distinct, veins;
- "white" veins, with greater permeability than those of normal colour;
- "folded" corkwood, if the "folding" is found only in a small part of the vein and is not deep;
- "dry green" stain, provided that the part of the stopper exhibiting this anomaly, being more permeable to the liquid, does not come into contact with the wine;
- cracks and fissures, depending on their number, extent, depth, and on whether they are found in the centre or towards the ends;
- "worm holes", only in stoppers for ageing in the bottle and provided that they do not run from one end of the stopper to the other;
- "ant holes", only in stoppers for ageing in the bottle and provided that they are found only on one end of the stopper and/or on the corresponding crown.

8.1.3.3 Minor anomalies which affect

- the perfect shape of the stopper (see cross-section in figures 1 and 2);
- the degree of roughness of the lateral surface;
- for "hand-imitation stoppers", veins slightly oblique in relation to the two parallel lateral surfaces for one-piece stoppers, or a glue-line slightly oblique in relation to the veins in the case of glued stoppers.

NOTE — All the specifications given in 8.1 (except 8.1.2) may be applied to the discs of natural corkwood referred to in 6.2.3, 6.2.4 and 6.2.5 (figures 6, 7 and 8).

8.2 Agglomerated cork stoppers

The binder shall be chosen so as not be incompatible with the food products with which it will be in contact, according to the rules in force in the countries concerned.

NOTE — The specifications given in 8.1 (except 8.1.2) are applicable, whenever necessary, to natural corkwood discs as referred to in 6.3 (figure 9).

9 Classification of stoppers according to use

Taking into account the evaluation criteria specified in 8.1.1, 8.1.2, 8.1.3.2 and 8.1.3.3, stoppers are also classified according to their intended use as follows :

- a) stoppers for ageing in the bottle : for the closure of the bottles in which the wine ages in the cellar;
- b) stoppers for final delivery : for the closure of the bottles in which the wine is sold to the customer.

10 Selection of stoppers

By combining the several categories listed in clause 8, a wide range of choices is available and will enable suppliers to meet the different requirements of the different types of closure specified by customers.

This International Standard does not set out the different choices, which shall be agreed upon between buyer and seller.

11 Designation

The stoppers for sparkling wines or gasified wines are designated by a symbol for the construction (see clause 6), followed by a symbol for the container (magnum, bottle and half-bottle — 1; quarter-bottle — 4). A stroke shall then be added, followed by the letter E (stoppers for final delivery) or by the letter T (stoppers for ageing in bottle).

Examples :

Four-piece stopper for quarter-bottle, for final delivery :	4 4/E
Two-piece stopper for magnum, for final delivery :	2 1/E
Two-piece stopper for bottle, for ageing in bottle :	2 1/T
Stopper with two crosswise discs for bottle, for final delivery :	CC 1/E
Agglomerated cork stopper with three discs for quarter-bottle, for final delivery :	3A 4/E

12 Dimensions

Unless otherwise agreed, the dimensions of stoppers for final delivery shall meet the specifications in table 1, according to the intended duration of the closure.

Table 1 — Dimensions of stoppers for final delivery

Dimensions in millimetres

Type of stopper	Magnum, bottle, 1/2 bottle	1/4 bottle
One, two and three pieces	31,5 × 52	
4/5 pieces	31,5 to 32 × 50 to 52	
One or two crosswise discs	31,5 × 52	27 or 28 × 44 to 47
Agglomerated	29 to 31,5 × 47 to 50	

Tolerances on dimensions are as follows :

- on length : ± 0,5 mm;
- on diameter : ± 0,3 mm.

13 Binder and treatment

The binder and the products used in the manufacture and treatment of the stoppers for sparkling wines and gasified wines shall not be incompatible with food products with which they will be in contact, according to the regulations in force in the countries concerned.

14 Packing

Unless otherwise agreed between the interested parties, stop-

pers for sparkling wines or gasified wines shall be packed in strong and ventilated packages.

15 Marking

The package or the label shall show :

- a) the coded name or the brand of the manufacturer, and the country of origin;
- b) the coded initials of the buyer, and the country or place of destination;
- c) the number of stoppers and the corresponding symbols according to clause 11;
- d) the gross mass.

Example : GS Portugal
BC France
5 000 3A 4/E
32 kg

NOTE — Transport documents or Customs declaration forms may also include, with the uncoded name and exact designation of the merchandise, any reference relative to the rules concerning goods coming into contact with food products.

16 Transport and storage

The stoppers for sparkling wines or gasified wines shall be protected against humidity and any contamination during transport and storage. They shall be stored in a dry, clean, ventilated place and be isolated from the floor.

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Descriptors : cork, stoppers, wines, specifications, classification.

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