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Rubber condoms —

Part 5:

Testing for holes — Water leak test

Préservatifs masculins en caoutchouc —

Partie 5: Essai pour la détection des trous — Détection par fuite d'eau



Reference number
ISO 4074-5:1996(E)

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 voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 4074-5 was prepared by Technical Committee ISO/TC 157, *Mechanical contraceptives*.

This third edition cancels and replaces the second edition (ISO 4074-5:1984), of which it constitutes a technical revision.

ISO 4074 consists of the following parts, under the general title *Rubber condoms*:

- Part 1: Requirements
- Part 2: Determination of length
- Part 3: Determination of width
- Part 5: Testing for holes — Water leak test
- Part 6: Determination of bursting volume and pressure
- Part 7: Oven conditioning
- Part 9: Determination of tensile properties
- Part 10: Packaging and labelling — Condoms in consumer packages

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Rubber condoms —

Part 5:

Testing for holes — Water leak test

1 Scope

This part of ISO 4074 specifies the method of testing a rubber condom for holes by observing any leakage from the condom after it has been filled with water.

2 Principle

Filling the condom with a specified volume of water and examining for visible water leakage through the wall of the suspended condom. In the absence of any leakage the condom is then rolled on coloured absorbent paper which is subsequently examined for signs of leakage.

3 Equipment

3.1 Mounting equipment suitable for mounting the condom at its open end, allowing it to be suspended, with a means of filling the condom with water while it is suspended. An example of a suitable mount is given in figure 1.

3.2 Coloured absorbent paper.

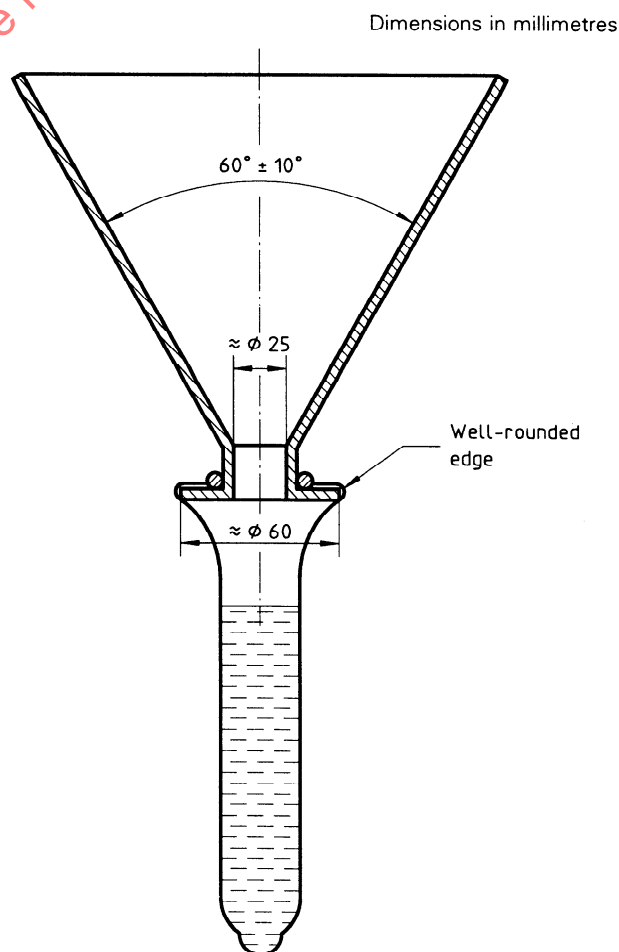


Figure 1 — Suitable mount

4 Procedure

4.1 Wear suitable gloves while handling the condom.

4.2 Move the condom inside the package such that it is away from the area where the package is to be torn. Tear the package and remove the condom.

In no circumstances use scissors or other sharp instruments to open the package.

4.3 Unroll the condom, ensuring that it is not excessively stretched in any direction.

4.4 Fit the open end of the condom onto the mount so that the condom is suspended open end upwards. Examine the condom visually under normal or corrected vision. Deem any condom which exhibits a visible hole or tear a failure and discontinue the test.

4.5 Add $300 \text{ cm}^3 \pm 10 \text{ cm}^3$ of water at a temperature between 10°C and 40°C and inspect the condom after a period of at least 1 min for visible signs of leakage. Deem any condom exhibiting visible signs of leakage up to a distance of $25 \text{ mm} \pm 1,0 \text{ mm}$ from the open end a failure and discontinue the test.

Mark the position of holes that are close to the open end of the condom so that it is subsequently possible to determine accurately their distance from the open end when the condom has been emptied.

If because of lack of distension of the condom, it is not possible for 300 cm^3 of water to be contained within the condom, permit the remainder of the water to form a pressure head within the filling system.

4.6 If there is no visible leakage through the condom after suspension for at least 1 min, take hold of the condom by the closed end and, if necessary,

gently stretch the condom to displace the water from the open end. Seal the open end of the condom by twisting the condom and remove the condom from the mount.

Transfer the condom onto a sheet of dry coloured absorbent paper. Use one hand to keep the open end of the condom closed to prevent water leakage, and the other hand to roll the condom back and forth once for a distance equal to the circumference of the condom in its water-filled condition.

During rolling, spread the fingers of the hand so as to distribute the force on the condom as equally as possible. Maintain the hand at a distance of 25 mm to 35 mm above the absorbent paper. Move the hand diagonally with respect to the condom so that all parts of the condom are subjected to hand pressure and come into contact with the absorbent paper. It is important that the closed end of the condom is rolled against the absorbent paper during this operation. Inspect the paper for signs of leakage of water from the condom. Ignore any marks made by lubricant.

5 Test record

The test record shall include at least the following:

- identification of the sample, e.g. batch number;
- number of condoms tested;
- number of condoms exhibiting a visible hole or tear and number of condoms which showed signs of leakage;
- date of test.

6 Condom disposal

Destroy condoms subjected to this test.

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