
Textiles — Determination of water absorption time and water absorption capacity of textile fabrics

Textiles — Détermination du temps d'absorption d'eau et de la capacité d'absorption d'eau des étoffes

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Foreword

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This document was prepared by Technical Committee ISO/TC 38, *Textiles*.

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.

Textiles — Determination of water absorption time and water absorption capacity of textile fabrics

1 Scope

This document describes test methods for determining water absorption time and water absorption capacity of all textile fabrics designed to absorb water. Such fabrics are commonly used in products such as cloths and mops for cleaning tasks.

This method is especially applicable to fabrics such as waffle, chamois, bubble looped, checkered, terry looped, and multilayer textile materials.

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 139, *Textiles — Standard atmospheres for conditioning and testing*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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

absorption

tendency of a textile fabric to swallow and keep a liquid in the voids and pores of the materials

3.2

water absorption time

time required for textile fabric to become saturated with water under specified conditions

3.3

water absorption capacity

mass of water that is absorbed by a textile fabric when it is saturated with water under specified conditions

4 Principle

A fabric specimen is placed as flat as possible on the water surface under specified conditions, and the time required for complete wetting of the specimen is measured. To measure the water absorption capacity, a weighed fabric specimen is immersed in the water and, after a given time to make the specimen saturated, the specimen is removed, drained and reweighed.

5 Apparatus and materials

5.1 Container, with a minimum depth of 100 mm and sufficient surface area to allow the specimen to float freely.

5.2 Analytical balance, capable of determining mass with an accuracy of $\pm 0,001$ g.

5.3 Timer, such as stop-watch, with an accuracy of $\pm 0,1$ s.

5.4 Grade 3 water, in accordance with ISO 3696, at a temperature of (20 ± 2) °C.

Other temperatures can be applied as agreed between interested parties.

6 Conditioning and testing atmosphere

The standard atmosphere for conditioning and testing textiles in ISO 139 shall be adopted.

7 Preparation of test specimens

From each laboratory sample, cut 12 test specimens with dimensions (100 ± 1) mm $\times$ (100 ± 1) mm. Mark the face side in six of them and the back side in the other six, which are real representatives of the sample.

No test specimens shall be cut from within 150 mm of laboratory sample selvages.

NOTE Six specimens (three in face and three in back) are used for water absorption time measurement described in 8.5. The rest are for measuring water absorption capacity in 8.6.

8 Procedure

8.1 Condition the test specimens according to [Clause 6](#). Conduct all tests in a standard atmosphere for testing for at least 24 h.

8.2 Fill the container with water ([5.4](#)).

8.3 Weigh the specimen to the nearest 0,01 g.

8.4 Position the specimen horizontally a few millimetres above the water surface with the marked side facing down, then gently drop it onto the water surface and simultaneously start the timer.

8.5 Record the time to the nearest 0,1 s as water absorption time (t) of each side of the specimens when the specimen is thoroughly immersed in water. If the testing time exceeds 180 s then stop testing and report the time of absorption as "More than 180 s".

8.6 Repeat procedures [8.3](#) to [8.4](#). After dropping the specimen onto the water surface, apply the fixed saturation time at (120 ± 2) s.

NOTE For specimens marked as "More than 180 s", the saturation time is (240 ± 2) s.

8.7 Carefully remove the specimen from water by one corner (specimen obtained from [8.6](#)).

8.8 Hang the specimen vertically to drain off at this corner for (60 ± 2) s.

8.9 Weigh the specimen to the nearest 0,01 g.