INTERNATIONAL STANDARD

ISO 20158

First edition
2018-08

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

Reference number
ISO 20158:2018(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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.

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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

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 ±0,001 g.

5.3 **Timer**, such as stop-watch, with an accuracy of ±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 × (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 selvedges.

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 immerged 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.

