
**Hygrothermal performance of
building materials and products —
Determination of moisture
adsorption/desorption properties
in response to periodic temperature
variation**

*Performance hygrothermique des matériaux et produits pour le
bâtiment — Détermination des propriétés d'adsorption/désorption de
l'humidité en réponse à une fluctuation périodique de la température*



This document is a preview generated by EKO



COPYRIGHT PROTECTED DOCUMENT

© ISO 2021

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

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

Published in Switzerland

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Specimen	1
5 Test apparatus	2
5.1 General	2
5.2 Sealed box	2
5.3 Box or chamber with thermostat	4
5.4 Thermometer	4
5.5 Hygrometer	4
6 Curing and thermal insulation of specimen	4
6.1 Damp-proofing of specimen	4
6.2 Curing of specimen	5
6.3 Thermal insulation of specimen	5
7 Test method	6
7.1 Cleaning inside the sealed box	6
7.2 Initial relative humidity inside the sealed box	6
7.3 Installation of specimen	6
7.4 Placement of sealed box	6
7.5 Temperature conditions	7
7.6 Measurement	7
8 Water vapour leakage from sealed box	7
8.1 Calibration of sealed box for vapour leakage	7
8.2 Calculation of calibration value	8
8.3 Tolerance calibration value	8
9 Calculation of results	8
9.1 Temperature and humidity in sealed box	8
9.2 Moisture-adsorption/desorption amount	9
10 Test report	10
Annex A (informative) Temperature conditions of box or chamber with thermostat	11

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 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 163, *Thermal performance and energy use in the built environment*, Subcommittee SC 1, *Test and measurement methods*.

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.

Hygrothermal performance of building materials and products — Determination of moisture adsorption/desorption properties in response to periodic temperature variation

1 Scope

This document specifies the test method of moisture-adsorption/desorption efficiency (or capacity) of building materials, when there are changes in temperature in sealed boxes containing building 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 9346, *Hygrothermal performance of buildings and building materials — Physical quantities for mass transfer — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 9346 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 <https://www.electropedia.org/>

3.1

moisture-adsorption/desorption amount

amount of moisture which is adsorbed in or desorbed from materials in a moisture-adsorption/desorption process, calculated as:

$$m = m_4 \cdot V / A$$

$$m_4 = (\Sigma |v - \bar{v}|) / (\Sigma |\theta - \bar{\theta}|)$$

4 Specimen

A specimen shall be extracted from the test product. The size, the thickness, and the number of sheets shall be as follows.

- a) Size: the standard size of the specimen shall be 100 mm x 100 mm.
- b) Thickness: the thickness shall, as a rule, be the thickness of the product. However, the upper limit of thickness is 20 mm.
- c) The number of sheets: the number of sheets shall, as a rule, be one for each test condition.