International Standard

ISO 13061-16

Second edition
2025-03

Physical and mechanical properties of wood — Test methods for small clear wood specimens —

Part 16: Determination of volumetric swelling

Propriétés physiques et mécaniques du bois — Méthodes d'essais sur petites éprouvettes de bois sans défauts —

Partie 16: Détermination du gonflement volumique

Reference number
ISO 13061-16:2025(en)

© ISO 2025



COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

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 Principle **1**
5 Sampling **1**
6 Stereometric method **2**
6.1 Apparatus 2
6.2 Preparation of test pieces 2
6.2.1 Dimensions of test pieces 2
6.2.2 Inclination of annual rings of test pieces 2
6.2.3 Marking of measurement points 3
6.3 Procedure 3
6.3.1 Determination of the dimensions of test pieces in oven-dry state 3
6.3.2 Determination of the dimensions of test pieces in fully saturated condition 3
6.4 Calculation and expression of results 3
7 Immersion method **4**
7.1 Apparatus 4
7.2 Preparation of test pieces 4
7.3 Procedure 4
7.3.1 Determination of the volume of test pieces in oven-dry state 4
7.3.2 Determination of the volume of test pieces in fully saturated condition 4
7.4 Calculation and expression of results 4
8 Test report **5**

© ISO 2025 – All rights reserved

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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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 218, *Timber*.

The second edition cancels and replaces the first edition (ISO 13061-16:2017), which has been editorially and technically revised.

The main changes are as follows:

— changes in the sizes and measurements of test pieces and the calculation of test results.

A list of all parts in the ISO 13061 series can be found on the ISO website.

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.

© ISO 2025 – All rights reserved

Physical and mechanical properties of wood — Test methods for small clear wood specimens —

Part 16: Determination of volumetric swelling

1 Scope

This document specifies methods for the determination of volumetric swelling of wood.

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 3129, *Wood — Sampling methods and general requirements for physical and mechanical testing of small clear wood specimens*

ISO 24294, *Timber — Round and sawn timber — Vocabulary*

3 Terms and definitions

For the purpose of this document, the terms and definitions given in ISO 24294 apply.

ISO and IEC maintain terminology 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/

4 Principle

Stereometric and immersion methods are specified for determining the volumetric swelling by measuring volume of a test piece after drying to a constant mass and after soaking in water to a constant volume. The volume of the test pieces is calculated as a product of the linear dimensions of the test piece in stereometric method and measured as the volume of water displaced or the mass of the water displaced in immersion method. The volumetric swelling is calculated as the change of the volume expressed as a percentage of the original volume. The initial measurements shall be taken on test pieces in oven-dry state. The final measurements shall be taken on the fully saturated test pieces.

5 Sampling

The selection, preparation and the minimum number of test pieces shall be in accordance with ISO 3129.

© ISO 2025 – All rights reserved