Wood-based panels —
Determination of 
moisture content

The European Standard EN 322:1993 has the status of a 
British Standard
Cooperating organizations

The European Committee for Standardization (CEN), under whose supervision this European Standard was prepared, comprises the national standards organizations of the following countries:

Austria         Oesterreichisches Normungsinstitut
Belgium         Institut belge de normalisation
Denmark         Dansk Standardiseringsraad
Finland         Suomen Standardisoimisliito, r.y.
France          Association française de normalisation
Germany         Deutsches Institut für Normung e.V.
Greece          Hellenic Organization for Standardization
Iceland         Technological Institute of Iceland
Ireland         National Standards Authority of Ireland
Italy           Ente Nazionale Italiano di Unificazione
Luxembourg      Inspection du Travail et des Mines
Netherlands     Nederlands Normalisatie-instituut
Norway          Norges Standardiseringsforbund
Portugal        Instituto Português da Qualidade
Spain           Asociación Española de Normalización y Certificación
Sweden          Standardiseringskommissionen i Sverige
Switzerland     Association suisse de normalisation
United Kingdom  British Standards Institution

Amendments issued since publication

<table>
<thead>
<tr>
<th>Amd. No.</th>
<th>Date</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This British Standard, having been prepared under the direction of the Technical Sector Board for Building and Civil Engineering (B/-), was published under the authority of the Standards Board and comes into effect on 15 April 1993.

© BSI 07-1999

The following BSI references relate to the work on this standard:
Committee reference B/541
Draft for comment 90/11135 DC

ISBN 0 580 21057 X
## Contents

<table>
<thead>
<tr>
<th>Cooperating organizations</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>National foreword</td>
<td>ii</td>
</tr>
<tr>
<td>Foreword</td>
<td>2</td>
</tr>
<tr>
<td>Text of EN 322</td>
<td>3</td>
</tr>
<tr>
<td>National annex NA (informative) Committees responsible</td>
<td>Inside back cover</td>
</tr>
</tbody>
</table>
National foreword

This British Standard has been prepared under the direction of the Technical Sector Board for Building and Civil Engineering and is the English language version of EN 322:1993, Wood-based panels — Determination of moisture content, published by the European Committee for Standardization (CEN).

EN 322 was produced as a result of international discussion in which the UK took an active part.

The principle of the method is technically equivalent to A.5 of BS 1142:1989 Specification for fibre building boards and to clause 9 of BS 5669 Particleboard Part 1:1989 Methods of sampling, conditioning and test, and to Appendix A of BS 6556 Plywood — Part 5:1985 Specification for moisture content, all of which will be withdrawn in due course.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages
This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 4, an inside back cover and a back cover.
This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.
Panneaux à base de bois — Holzwerkstoffe —
Détermination de l'humidité — Bestimmung des Feuchtegehaltes

This European Standard was approved by CEN on 1992-12-15. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

© 1993 Copyright reserved to CEN members
Foreword

This European Standard was prepared by Working Group 4 “Common test methods” (Secretariat: United Kingdom) of Technical Committee CEN/TC 112 “Wood-based panels” (Secretariat: Germany).

The text is based on ISO 9425:1989 which has been elaborated with European participation.

This Standard is one of a series of standards specifying methods of test for determining dimensions and properties of wood-based panels. No existing European Standard is superseded.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 1993, and conflicting national standards shall be withdrawn at the latest by December 1994.

In accordance with the Common CEN/CENELEC Rules the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Contents

<table>
<thead>
<tr>
<th>Content</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>2</td>
</tr>
<tr>
<td>1 Scope</td>
<td>3</td>
</tr>
<tr>
<td>2 Normative references</td>
<td>3</td>
</tr>
<tr>
<td>3 Principle</td>
<td>3</td>
</tr>
<tr>
<td>4 Apparatus</td>
<td>3</td>
</tr>
<tr>
<td>5 Test pieces</td>
<td>3</td>
</tr>
<tr>
<td>6 Procedure</td>
<td>3</td>
</tr>
<tr>
<td>7 Expression of results</td>
<td>3</td>
</tr>
<tr>
<td>8 Estimation of board moisture content</td>
<td>3</td>
</tr>
<tr>
<td>9 Test report</td>
<td>3</td>
</tr>
<tr>
<td>Annex A (informative) Bibliography</td>
<td>4</td>
</tr>
</tbody>
</table>
1 Scope
This European Standard specifies a method for determining the moisture content of test pieces of wood-based panels. Such result may be used to estimate the moisture content of wood-based panels according to EN 326-1.

2 Normative references
This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard, only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 326-1, Wood-based panels — Sampling, cutting and inspection — Part 1: Sampling and cutting of test pieces and expression of test results 1).

3 Principle
Determination, by weighing, of the loss of mass of each test piece between its state at the time of sampling and its state after drying to constant mass at \((103 \pm 2) \, ^\circ\text{C}\), and calculation of this loss of mass as a percentage of the mass of the test piece after drying; these results are used to estimate the moisture content of whole boards.

4 Apparatus
4.1 Balance
Balance, scale interval 0,01 g.

4.2 Drying oven
Ventilated drying oven, capable of being controlled at \((103 \pm 2) \, ^\circ\text{C}\).

4.3 Desiccator
Silica gel containing a desiccant, to maintain the air as close as possible to the absolutely dry condition.

5 Test pieces
5.1 Sampling and cutting
Sampling and cutting of the test pieces shall be carried out in accordance with EN 326-1. Test pieces shall cover the full thickness of the board.

5.2 Dimensions
The test piece shall have a minimum initial mass of 20 g; shape and size are unimportant. The test pieces shall be free from loose splinters and sawdust.

6 Procedure
6.1 Weighing before drying
Weigh each test piece in the as-sampled state to an accuracy of 0,01 g.
This initial weighing shall be carried out immediately after sampling or where this is impossible, precautions shall be taken to avoid changes in the moisture content of the test piece after sampling.

6.2 Drying
Place the test pieces in the drying oven (4.2) at a temperature of \((103 \pm 2) \, ^\circ\text{C}\) until constant mass has been reached.
Constant mass is considered to be reached when the results of two successive weighing operations, carried out at an interval of 6 h, do not differ by more than 0,1 % of the mass of the test piece.

6.3 Weighing after drying
After the test pieces have been cooled to approximately room temperature in the desiccator (4.3), weigh each test piece to an accuracy of 0,01 g, rapidly enough to avoid an increase in moisture content greater than 0,1 %.

7 Expression of results
Calculate the moisture content \(H\) of each test piece, as a percentage by mass to the nearest 0,1 %, in accordance with the following formula:

\[
H = \frac{m_H - m_0}{m_0} \times 100
\]

where

- \(m_H\) is the initial mass of the test piece, in grams
- \(m_0\) is the mass of the test piece after drying, in grams

8 Estimation of board moisture content
The moisture content of a board shall be obtained by calculating the arithmetic mean of the moisture contents of all the test pieces taken from the same board and shall be expressed as a percentage to one decimal place.

9 Test report
As described in EN 326-1.

---

1) At present at the draft stage
Annex A (informative)
Bibliography

EN 309, Particleboards — Definition and classification.
EN 313-1, Plywood — Classification and terminology — Part 1: Classification.
EN 316, Wood fibreboards — Definitions, classification and symbols.
EN 633, Cement-bonded particleboards— Definition and classification2).
ISO 9425, Wood-based panels — Determination of moisture content.

---

2) At present at the draft stage
National annex NA (informative)
Committees responsible

The United Kingdom participation in the preparation of this European Standard was entrusted by the Technical Sector Board for Building and Civil Engineering (B/-) to Technical Committee B/541, upon which the following bodies were represented:

American Plywood Association
Association of British Plywood and Veneer Manufacturers
British Woodworking Federation
Chartered Institute of Building
Co-ordinator for Timber and Timber Products
Council of the Forest Industries of British Columbia
Department of the Environment (Timber Division Building Research Establishment)
Fibre Building Board Organisation (FIDOR)
Finnish Plywood International
Flat Roofing Contractors’ Advisory Board
Forestry Commission
Furniture Industry Research Association
Institution of Structural Engineers
National Federation of Roofing Contractors
National House-building Council
National Panel Products Association
Royal Institute of British Architects
Timber Research and Development Association
Timber Trade Federation
United Kingdom and Ireland Particleboard Association
Co-opted member
BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: 020 8996 9000. Fax: 020 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: 020 8996 9001. Fax: 020 8996 7001.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: 020 8996 7111. Fax: 020 8996 7048.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: 020 8996 7002. Fax: 020 8996 7001.

Copyright

Copyright subsists in all BSI publications. BSI also holds the copyright, in the UK, of the publications of the international standardization bodies. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI.

This does not preclude the free use, in the course of implementing the standard, of necessary details such as symbols, and size, type or grade designations. If these details are to be used for any other purpose than implementation then the prior written permission of BSI must be obtained.

If permission is granted, the terms may include royalty payments or a licensing agreement. Details and advice can be obtained from the Copyright Manager. Tel: 020 8996 7070.