PD CEN/TS 16368:2014

BSI Standards Publication

Lightweight Particleboards — Specifications

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National foreword

This Published Document is the UK implementation of CEN/TS 16368:2014.

The UK committee voted negatively against this Technical Specification on the basis that the formaldehyde testing requirements are out of line with those of Annex B of the harmonised standard EN 13986.

It is the view of the UK committee that there should be derived test method limits for formaldehyde i.e. EN 120 and EN 717-2. In addition, there should be a formaldehyde class E2. Both of which will bring it in line with Annex B of EN 13986.

The UK participation in its preparation was entrusted to Technical Committee B/541, Wood based panels.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2014

ISBN 978 0 580 76829 3
ICS 79.060.20

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 April 2014.

Amendments/corrigenda issued since publication

Date	Text affected

TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

CEN/TS 16368

March 2014

ICS 79.060.20

English Version

Lightweight Particleboards - Specifications

Panneaux de particules légers - Spécifications

Leichte Spanplatten - Anforderungen

This Technical Specification (CEN/TS) was approved by CEN on 13 January 2014 for provisional application.

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Foreword

This document (CEN/TS 16368:2014) has been prepared by Technical Committee CEN/TC 112 “Wood-based panels”, the secretariat of which is held by DIN.

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1 Scope

This European Technical Specification specifies the requirements for uncoated particleboards for use in dry conditions in non load-bearing applications with density below 600 kg/m^3.

This Technical Specification applies to particleboard which is mostly homogenous and continuous in its composition and which does not contain hollow spaces, chambers or other type of cavities which can be encountered as honeycombs in sandwich panels or as tubes in extruded boards.

This Technical Specification does not give requirements for extruded particleboards (see EN 14755), flaxboards (see EN 15197) and sandwich panels.

NOTE Typical applications for lightweight boards are in furniture and non-structural applications e.g. in doors, packaging.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 310, *Wood-based panels — Determination of modulus of elasticity in bending and of bending strength*

EN 311, *Wood-based panels — Surface soundness — Test method*

EN 317, *Particleboards and fibreboards — Determination of swelling in thickness after immersion in water*

EN 318, *Wood-based panels — Determination of dimensional changes associated with changes in relative humidity*

EN 319, *Particleboards and fibreboards — Determination of tensile strength perpendicular to the plane of the board*

EN 322, *Wood-based panels — Determination of moisture content*

EN 323, *Wood-based panels — Determination of density*

EN 324-1, *Wood-based panels — Determination of dimensions of boards — Part 1: Determination of thickness, width and length*

EN 324-2, *Wood-based panels — Determination of dimensions of boards — Part 2: Determination of squareness and edge straightness*

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

EN 326-2, *Wood-based panels — Sampling, cutting and inspection — Part 2: Initial type testing and factory production control*

EN 326-3, *Wood-based panels — Sampling, cutting and inspection — Part 3: Inspection of an isolated lot of panels*

EN 717-1, *Wood-based panels — Determination of formaldehyde release — Part 1: Formaldehyde emission by the chamber method*

ISO 3340, *Fibre building boards — Determination of sand content*

3 Terms and definitions

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

3.1
lightweight particleboard
particleboard, manufactured under pressure and heat from particles of wood (wood flakes, chips, shavings, sawdust and similar) and/or other lignocellulosic material in particle form (flax shives, hemp shives, bagasse fragments and similar) with the addition of an adhesive, of mean density below 600 kg/m^3

3.2
dry conditions
conditions corresponding to service class 1 of EN 1995-1-1 which is characterised by a moisture content in the material corresponding to a temperature of 20 °C and a relative humidity of the surrounding air only exceeding 65 % for a few weeks per year

4 Classification of boards

Two types of general purpose lightweight boards for use in dry conditions LP1 and LP2 are defined.

5 General requirements for all board types

Particleboards shall comply with the general requirements as listed in Table 1 when dispatched from the producing factory. For certain types or uses of particleboards (see specific standards for board types and performance standards), or in the case of dispatch in cut sizes, or further machined (e.g. tongued and grooved, and similar), special tolerances for properties No. 1, 2 and 3 may be agreed upon.

Table 1 — General requirements at dispatch

No	Property		Test method	Requirement
1[a]	Tolerances on nominal dimensions		EN 324-1	
	– Thickness (sanded)			± 0,3 mm
	within and between boards			
	– Thickness (unsanded)			–0,3 mm + 1,7 mm
	within and between boards			
	– Length and width			± 5 mm
2[a]	Edge straightness tolerance		EN 324-2	1,5 mm per m
3[a]	Squareness tolerance		EN 324-2	2 mm per m
4	Moisture content		EN 322	5 % to 13 %
5[a]	Tolerance on the mean density within a board		EN 323	± 10 %
6[b]	Formaldehyde release		EN 717-1	
		Class E1:	EN 717-1	Release ≤ 0,124 mg/m^3 air

[a] These values are characterized by a moisture content in the material corresponding to a relative humidity of 65 % and a temperature of 20 °C.

[b] For factory production control, correlations can be established between EN 717-1 and derived test methods such as EN 120.

6 Requirements

The requirements in Table 2 and Table 3 shall be met by 5 percentile values based on the mean values for individual boards and calculated in accordance with EN 326-1, they shall be equal to or greater than the specification values.

The values in Table 2 and Table 3 for both bending strength and modulus of elasticity shall apply to test results obtained in any direction in the plane of the panel.

7 Requirements for general purpose lightweight boards for use in dry conditions (Type LP1)

This clause specifies the requirements, in addition to those specified in Clause 5, for general purpose lightweight boards for use in dry conditions. Therefore, boards of this type shall comply with the requirements given in Table 1 and Table 2.

Table 2 — General purpose lightweight boards LP1 for use in dry conditions – Requirements for specified mechanical properties

Property	Test method	Unit	Requirement					
			Thickness range (mm, nominal)					
			> 6 to 13	> 13 to 20	> 20 to 25	> 25 to 32	> 32 to 40	> 40
Bending strength	EN 310	N/mm^2	4,0	3,5	3,0	2,5	2,0	2,0
Modulus of elasticity in bending	EN 310	N/mm^2	550	500	475	450	400	375
Internal bond	EN 319	N/mm^2	0,28	0,24	0,20	0,17	0,14	0,14
NOTE The values are characterized by a moisture content in the material corresponding to a relative humidity of 65 % and a temperature of 20 °C.								

8 Requirements for general purpose (including furniture) lightweight boards for use in dry conditions (Type LP2)

This clause specifies the requirements, in addition to those specified in Clause 5, for general purpose lightweight boards for use in dry conditions. Therefore, boards of this type shall comply with the requirements given in Table 1 and Table 3.

Table 3 — General purpose (including furniture) lightweight boards LP2 for use in dry conditions – Requirements for specified mechanical properties

Property	Test method	Unit	Requirement					
			Thickness range (mm, nominal)					
			> 6 to 13	>13 to 20	> 20 to 25	> 25 to 32	> 32 to 40	> 40
Bending strength	EN 310	N/mm^2	8,0	7,0	6,0	5,0	4,5	4,0
Modulus of elasticity in bending	EN 310	N/mm^2	1 000	950	900	850	750	650
Internal bond	EN 319	N/mm^2	0,35	0,30	0,25	0,20	0,17	0,17
NOTE The values are characterized by a moisture content in the material corresponding to a relative humidity of 65 % and a temperature of 20 °C.								

9 Supplementary properties

For certain applications, information on some of the properties listed in Table 4 can be required. On request, this information shall be supplied by the board manufacturer and in this case shall have been derived using the EN test methods listed in Table 4.

Table 4 — Supplementary properties and test methods

Property	Test method
Density	EN 323
Dimensional changes	EN 318
Surface soundness	EN 311
Swelling in thickness	EN 317
Sand content	ISO 3340

10 Verification of compliance

10.1 General

Verification of compliance with this Technical Specification shall be carried out using the test methods listed in Table 1 to Table 4.

10.2 External control

External control of the factory, if any, shall be carried out according to EN 326-2.

Inspection of isolated lots shall be carried out according to EN 326-3.

In the case of formaldehyde potential, however, for both external control and inspection of an isolated lot of panels, the respective requirement set out in Table 1 shall be met by the average value of at least three boards controlled. Additionally, no individual board is allowed to exceed an upper tolerances limit of + 10 %.

10.3 Factory production control

Factory production control shall be carried out according to EN 326-2.

The properties listed in the Tables 2 to 3, shall be controlled using intervals between tests not exceeding the intervals given in Table 5. Sampling shall be carried out at random. Alternative test methods and/or unconditioned test pieces may be used if a valid correlation to the specified test methods can be proven (see EN 326-2). The intervals between tests given in Table 5 are related to a production under statistical control.

Table 5 — Maximum intervals between tests for each production line

Property	Maximum interval between tests
Moisture content and density	8 h per type of board
Formaldehyde release[a] Class E1	24 h per type of board
All other properties listed in Table 1	8 h per type and thickness range
All other properties listed in Tables 2 to 4	8 h[b]

[a] Alternative test methods may be used provided a correlation with EN 717-1 is established. Certain types of particleboards are known to release little or no formaldehyde. In these cases, the test intervals may be increased. However, it remains the responsibility of the manufacturer or inspection agency, if any, to ensure compliance with this Technical Specification.

[b] If several thickness ranges are produced in one 8 h shift, the internal control shall be organized so that at least one board of each thickness range is tested in one week's production

11 Marking

The marking and the accompanying information shall be placed on the accompanying commercial documents. Part of the marking may also be placed on the product itself, on a label attached to it or on the packaging. The marking shall contain at least the following information in this sequence:

a) the manufacturer's name, trade mark, or identification mark;

b) the number of this European Technical Specification CEN/TS 16368;

c) the panel type LP1 or LP2;

d) the nominal thickness;

e) the formaldehyde class E1;

f) the batch number, or the production week and year.

Bibliography

[1] EN 120, *Wood based panels — Determination of formaldehyde content — Extraction method called the perforator method*

[2] EN 309, *Particleboards — Definition and classification*

[3] EN 312, *Particleboards — Specifications*

[4] EN 1995-1-1, *Eurocode 5: Design of timber structures — Part 1-1: General — Common rules and rules for buildings*

[5] EN 14755, *Extruded particleboards — Specifications*

[6] EN 15197, *Wood-based panels — Flaxboards — Specifications*

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