

# Fibreboards — Specifications

## Part 4: Requirements for softboards

ICS 79.060.20

## National foreword

This British Standard is the UK implementation of EN 622-4:2009. It supersedes BS EN 622-4:1997 which is withdrawn.

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.

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 May 2010.

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ISBN 978 0 580 62906 8

### Amendments/corrigenda issued since publication

Date	Comments

EUROPEAN STANDARD

**EN 622-4**

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2009

ICS 79.060.20

Supersedes EN 622-4:1997

English Version

## Fibreboards - Specifications - Part 4: Requirements for softboards

Panneaux de fibres - Exigences - Partie 4: Exigences pour panneaux tendres

Faserplatten - Anforderungen - Teil 4: Anforderungen an poröse Platten

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## Foreword

This document (EN 622-4:2009) has been prepared by Technical Committee CEN/TC 112 "Wood-based panels", the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by May 2010, and conflicting national standards shall be withdrawn at the latest by May 2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 622-4:1997.

This European Standard is one of a series specifying requirements for fibreboards. The other part of this series are listed in Clause 2 and in the Bibliography.

Compared with EN 622-4:1997 the following modifications have been made:

- a) additional thickness range > 36 mm introduced;
- b) marking requirements and definitions adapted to EN 13986.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

## 1 Scope

This European Standard specifies the requirements for softboards as defined in EN 316, with a density  $\geq 230 \text{ kg/m}^3$  to  $400 \text{ kg/m}^3$ .

The values listed in this European Standard relate to product properties but they are not characteristic values to be used in design calculations.

NOTE Panels which are intended for use exclusively as thermal insulating products are covered by EN 13171.

## 2 Normative references

The following referenced documents are indispensable for the application 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.

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

EN 316, *Wood fibre boards — Definition, classification and symbols*

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

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: Quality control in the factory*

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

EN 622-1, *Fibreboards — Specifications — Part 1: General requirements*

EN 13986:2004, *Wood-based panels for use in construction — Characteristics, evaluation of conformity and marking*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13986:2004 and the following apply.

### 3.1 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  $20 \text{ }^\circ\text{C}$  and a relative humidity of the surrounding air only exceeding 65 % for a few weeks per year

NOTE Boards of this type are suitable for use only in hazard class 1 of EN 335-3.

### 3.2 humid conditions

conditions corresponding to service class 2 of EN 1995-1-1 which is characterised by a moisture content in the material corresponding to a temperature of  $20 \text{ }^\circ\text{C}$  and a relative humidity of the surrounding air only exceeding 85 % for a few weeks per year

NOTE Boards of this type are suitable for use only in hazard classes 1 and 2 of EN 335-3.

**3.3  
external conditions**

conditions corresponding to service class 3 of EN 1995-1-1 which is characterised by climatic conditions leading to higher moisture contents than in service class 2

NOTE Boards of this type are suitable for use only in hazard classes 1, 2 and 3 of EN 335-3.

**3.4  
general purpose use**

all non-load-bearing applications

NOTE e. g. fitments and underlays.

**3.5  
loading-bearing use**

use in a load-bearing construction, i.e. an organized assembly of connected parts designed to provide mechanical resistance and stability to the works.

NOTE Also referred to as "structure".

**3.6  
load duration class**

class characterised by the effect of a constant load acting for a certain period of time in the life of the structure

NOTE The load duration classes are defined in EN 1995-1-1 (see Table 1).

**Table 1 — Load duration categories**

Load duration class	Order of accumulated duration of characteristic load	Examples of loading
Permanent	more than 10 years	self weight
Long term	6 months to 10 years	storage
Medium term	1 week to 6 months	imposed load
Short term	less than one week	snow <sup>a</sup> , wind
Instantaneous	-	accidental loading

<sup>a</sup> In areas which have a heavy snow load for a prolonged period of time, part of the load should be regarded as medium-term.

**4 Requirements**

**4.1 General**

Softboards shall comply with the general requirements of EN 622-1 together with the relevant requirements set out in 4.2 and 4.3 of this standard.

The requirements in the tables shall be met by 5 percentile values (95 percentile values in the case of swelling in thickness), based on the mean test values for individual panels and calculated in accordance with EN 326-1. In the case of swelling in thickness, they shall be equal to or less than the values in the tables, and in the case of all other properties, they shall be equal to or greater than the values in the tables. The values in the tables for both bending strength and modulus of elasticity shall apply to test results obtained in any direction in the plane of the panel.

With the exception of swelling in thickness, the values given in the tables are characterised by a moisture content in the material corresponding to a temperature of 20 °C and a relative humidity of 65 %. The values

given for swelling in thickness are characterised by a moisture content in the material corresponding to a temperature of 20 °C and a relative humidity of 65 % before the treatment (immersion in water).

The moisture resistance of softboards for use in humid and external conditions (see Tables 3, 4 and 6) is reflected by the respective requirements for swelling in thickness after 2 h immersion in cold water (according to EN 317). This property as well as the improvement of mechanical resistance of boards use in instantaneous or short-term load-bearing situation is derived from the addition of a hydrophobic substance such as a petrochemical or a natural substance.

## 4.2 Requirements for general purpose boards

### 4.2.1 Requirements for boards for use in dry conditions

Table 2 specifies the requirements for general purpose boards for use in dry conditions.

**Table 2 — Requirements for general purpose boards for use in dry conditions (type SB)**

Property	Test method	Unit	Ranges of nominal thickness (mm)			
			≤ 10	> 10 to 19	> 19 to 36	> 36
Swelling in thickness 2 h	EN 317	%	10	10	10	10
Bending strength	EN 310	N/mm <sup>2</sup>	0,9	0,8	0,8	0,7

### 4.2.2 Requirements for boards for use in humid conditions

Table 3 specifies the requirements for general purpose boards for use in humid conditions.

**Table 3 — Requirements for general purpose boards for use in humid conditions (type SB.H)**

Property	Test method	Unit	Ranges of nominal thickness (mm)			
			≤ 10	> 10 to 19	> 19 to 36	> 36
Swelling in thickness 2 h	EN 317	%	7	7	7	7
Bending strength	EN 310	N/mm <sup>2</sup>	1,1	1,0	0,8	0,8

### 4.2.3 Requirements for boards for use in external conditions

Table 4 specifies the requirements for general purpose boards for use in external conditions.

**Table 4 — Requirements for general purpose boards for use in exterior conditions (type SB.E)**

Property	Test method	Unit	Ranges of nominal thickness (mm)			
			≤ 10	> 10 to 19	> 19 to 36	> 36
Swelling in thickness 2 h	EN 317	%	6	6	6	6
Bending strength	EN 310	N/mm <sup>2</sup>	1,2	1,1	0,9	0,8



### 4.3 Requirements for load-bearing boards

#### 4.3.1 Requirements for boards for use in dry conditions

Table 5 specifies the requirements for load-bearing boards for use in dry conditions **for instantaneous or short-term load duration only**.

**Table 5 — Requirements for load-bearing for use in dry conditions (type SB.LS)**

Property	Test method	Unit	Ranges of nominal thickness (mm)			
			≤ 10	> 10 to 19	> 19 to 36	> 36
Swelling in thickness 2 h	EN 317	%	8	8	8	8
Bending strength	EN 310	N/mm <sup>2</sup>	1,2	1,1	0,9	0,8
Modulus of elasticity in bending	EN 310	N/mm <sup>2</sup>	140	130	100	80

If it is made known by the purchaser that the boards are intended for specific use in flooring, walls or roofing, the relevant performances standard also has to be consulted. This may result in additional requirements having to be complied with.

#### 4.3.2 Requirements for boards for use in humid conditions

Table 6 specifies the requirements for load-bearing boards for use in humid conditions **for instantaneous or short-term load duration only**.

**Table 6 — Requirements for load-bearing boards for use in humid conditions (type SB.HLS)**

Property	Test method	Unit	Ranges of nominal thickness (mm)			
			≤ 10	> 10 to 19	> 19 to 36	> 36
Swelling in thickness 2 h	EN 317	%	6	6	6	6
Bending strength	EN 310	N/mm <sup>2</sup>	1,3	1,2	1,0	0,9
Modulus of elasticity in bending	EN 310	N/mm <sup>2</sup>	150	140	120	100

If it is made known by the purchaser that the boards are intended for specific use in flooring, walls or roofing, the relevant performances standard also has to be consulted. This may result in additional requirements having to be complied with.

## 5 Verification of compliance

### 5.1 General

Verification of compliance with this European Standard shall be carried out using the test methods listed in EN 622-1 and in Tables 2, 3, 4, 5, and 6, as appropriated.

### 5.2 External control

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

The inspection of a consignment of panels shall be carried out according to EN 326-3.

### 5.3 Factory production control

Factory production control shall be carried out according to EN 326-2. The properties listed in Tables 2, 3, 4, 5, and 6 and in EN 622-1 shall be controlled, using intervals between tests not exceeding the intervals given in Table 7. 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. The intervals between tests given in Table 7 are related to a production under statistical control.

**Table 7 — Maximum intervals between tests for each production line**

Property	Maximum interval between tests
General properties	see EN 622-1
All other properties listed in Tables 2, 3, 4, 5 and 6	8 h <sup>a</sup>
<sup>a</sup> If several thickness ranges are produced in 8 h, the internal control shall be organized so that at least one board of each thickness range is tested in one week's production.	

## 6 Marking

### 6.1 Boards marketed within the European Economic Area for construction applications

Boards produced in conformity with this European Standard and marketed in any of the territories of the European Economic Area for use in construction applications as defined in the Construction Products Directive (89/106/EEC) shall be marked according to the requirements of EN 13986.

### 6.2 Other boards

In the case of other boards produced in conformity with this European Standard, each panel or package shall be clearly marked by the manufacturer by indelible direct printing with at least the following information in this sequence:

- a) the manufacturer's name, trade mark or identification mark;
- b) the number of this EN 622-4 and the symbol of the board type (SB, SB.H, or SB.E, as appropriate);
- c) the nominal thickness;
- d) the batch number or the production week and year.

### 6.3 Colour coding

Additionally, panels may be colour-coded at the time of manufacture by the vertical application near one corner of a series of colour stripes each at least 12 mm in width. For the boards specified in this standard, the colour codes specified in Table 8 shall be used.

**Table 8 — Colour codes for softboards**

<b>Specification</b>	<b>Colour code</b>	<b>Board type</b>	<b>Reference</b>
General purpose, dry	white, white, blue	SB	Table 2
General purpose, humid	white, white, green	SB.H	Table 3
General purpose, exterior	white, white, brown	SB.E	Table 4
Load-bearing, dry	yellow, yellow, blue	SB.LS	Table 5
Load-bearing, humid	yellow, yellow, green	SB.HLS	Table 6

NOTE The colour coding system is explained in EN 622-1.

## Bibliography

- [1] EN 335-3, *Durability of wood and wood-based products — Definition of hazard classes of biological attack — Part 3: Application to wood-based panels*
- [2] EN 622-2, *Fibreboards — Specifications — Part 2: Requirements for hardboards*
- [3] EN 622-3, *Fibreboards — Specifications — Part 3: Requirements for medium boards*
- [4] EN 622-5, *Fibreboards — Specifications — Part 5: Requirements for dry process boards (MDF)*
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- [6] EN 1058, *Wood-based panels — Determination of characteristic values of mechanical properties and density*
- [7] ENV 1156, *Wood-based panels — Determination of duration of load and creep factors*
- [8] EN 1995-1-1, *Eurocode 5: Design of timber structures — Part 1-1: General — Common rules and rules for buildings*
- [9] EN 12871, *Wood-based panels — Performance specifications and requirements for load bearing boards for use in floors, walls and roofs*
- [10] EN 13171, *Thermal insulating products for buildings — Factory made wood fibre (WF) products — Specification*



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