



SLOVENSKI STANDARD
SIST EN 622-5:1998
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Fibreboards - Specifications - Part 5: Requirements for dry process boards (MDF)

Fibreboards - Specifications - Part 5: Requirements for dry process boards (MDF)

Faserplatten - Anforderungen - Teil 5: Anforderungen an Platten nach dem Trockenverfahren (MDF)

Panneaux de fibres - Exigences - Partie 5: Exigences pour panneaux obtenus par procédé a sec (MDF)

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ICS:

79.060.20 X|a } ^ } ^ / & / & ^ ! } ^ A || z ^ Fibre and particle boards

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EUROPEAN STANDARD

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Descriptors: wooden boards, fibreboards, insulating boards, characteristics, specifications, environments, humidity, conformity tests, marking

English version

Fibreboards - Specifications - Part 5: Requirements for dry process boards (MDF)

Panneaux de fibres - Exigences - Partie 5:
Exigences pour panneaux obtenus par procédé à
sec (MDF)

Faserplatten - Anforderungen - Teil 5:
Anforderungen an Platten nach dem
Trockenverfahren (MDF)

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This European Standard was approved by CEN on 1997-04-21. 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.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart,36 B-1050 Brussels

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 112 "Wood based panels", the secretariat of which is held by DIN.

This standard is one of a series specifying requirements for fibreboards. The other parts of this series are listed in clause 2 and annex D.

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of an identical text or by endorsement, at the latest by December 1997, and conflicting national standards shall be withdrawn at the latest by December 1997.

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



1 Scope

This European Standard specifies the requirements for dry process boards (MDF) as defined in EN 316.

The values listed in this standard relate to product properties but they are not characteristic values to be used in design calculations¹⁾.

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 310

Wood-based panels – Determination of modulus of elasticity in bending and of bending strength

EN 311

Particleboard – Surface soundness – Test method

EN 316

Wood fibreboards – Definition, classification, and symbols

EN 317

Particleboards and Fibreboards – Determination of swelling in thickness after immersion in water

EN 318

Fibreboards – Determination of dimensional movements associated with changes in relative humidity

EN 319

Particleboards and Fibreboards – Determination of tensile strength perpendicular to the plane of the board

EN 320

Fibreboards – Determination of resistance to axial withdrawal of screws

EN 321

Fibreboards – Cyclic test in humid conditions

EN 326-1

Wood-based panels – Sampling, cutting and inspection – Part 1: Sampling and cutting of test pieces and expression of test results

EN 382-1

Fibreboards – Determination of surface absorption – Part 1: Test method for dry process fibreboards

EN 622-1

Fibreboards – Specifications – Part 1: General requirements

EN 1087-1 : 1995

Particleboards – Moisture resistance – Part 1: Boil test

ISO 3340

Fibre building boards – Determination of sand content

¹⁾ Such characteristic values (e.g. for use in design calculation in ENV 1995-1-1) are either given in prEN 12369 or derived by testing according to EN 789, EN 1058 and ENV 1156.

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1 dry conditions: conditions (defined in terms of service class 1 of ENV 1995-1-1 for load-bearing boards) characterized by a moisture content of the material corresponding to a temperature of 20 °C and a relative humidity of the surrounding air exceeding 65 % only for a few weeks per year. Boards of this type are suitable for use only in hazard class 1 of EN 335-3.

3.2 humid conditions: conditions (defined in terms of service class 2 of ENV 1995-1-1 for load-bearing boards) characterized by a moisture content of the material corresponding to a temperature of 20 °C and a relative humidity of the surrounding air exceeding 85 % only for a few weeks per year. Boards of this type are suitable for use in hazard classes 1 and 2 of EN 335-3.

3.3 exterior conditions: imply exposure to weathering conditions or to liquid water or to water vapour in a damp but ventilated location. Boards of this type are suitable for use in hazard classes 1, 2 and 3 of EN 335-3.

3.4 general purpose use: all non-bearing applications, e.g. furniture and fitments.

3.5 load-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. Also referred to as "structure".

3.6 load duration category: see table 1

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Table 1: Load duration category

Load duration category	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*), wind
Instantaneous		accidental loading

*) 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

Dry process boards 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. Some supplementary properties and their appropriate test methods are given in Annex A.

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.

Properties not required for specific thickness ranges are marked "-".

With the exception of swelling in thickness and internal bond after boil test (see tables 3 and 5), 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 and internal bond after boil test 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 or boil treatment).

The moisture resistance of dry process boards for use in humid conditions (see tables 3 and 5) is assessed by showing compliance with either one of two options:

- Option 1: Swelling in thickness and internal bond after cyclic test in humid conditions (according to EN 321),
- Option 2: Internal bond after immersion in boiling water (according to EN 1087-1 : 1995), with the modified procedure given in Annex B.

Option 2 requirements apply to boards with adhesive systems based on alkaline hardening phenolic resins or isocyanate PMDI or any other adhesive system approved according to the procedure outlined in annex C by an accredited testing institute. The internal bond after boil test is used for verification of the bond quality.

When verifying compliance by external control, only the test option performed and notified by the manufacturer shall be carried out. If the option is unknown, it will be necessary to carry out both sets of procedures, even though compliance with only one set of specifications is required.

NOTE: The above choice of procedure should only be regarded as an interim measure pending the result of a prenormative research programme to develop a solution independent of the board composition.

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, particularly interior fitments including furniture.

Table 2: Requirements for general purpose boards for use in dry conditions (type MDF)

Property	Test method	Unit	Ranges of nominal thickness (mm)								
			1,8 to 2,5	> 2,5 to 4,0	> 4 to 6	> 6 to 9	> 9 to 12	> 12 to 19	> 19 to 30	> 30 to 45	> 45
Swelling in thickness 24 h	EN 317	%	45	35	30	17	15	12	10	8	6
Internal bond	EN 319	N/mm ²	0,65	0,65	0,65	0,65	0,60	0,55	0,55	0,50	0,50
Bending strength	EN 310	N/mm ²	23	23	23	23	22	20	18	17	15
Modulus of elasticity in bending	EN 310	N/mm ²	-	-	2 700	2 700	2 500	2 200	2 100	1 900	1 700

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 MDF.H)

Property	Test method	Unit	Ranges of nominal thickness (mm)								
			1,8 to 2,5	> 2,5 to 4,0	> 4 to 6	> 6 to 9	> 9 to 12	> 12 to 19	> 19 to 30	> 30 to 45	> 45
Swelling in thickness 24 h	EN 317	%	35	30	18	12	10	8	7	7	6
Internal bond	EN 319	N/mm ²	0,70	0,70	0,70	0,80	0,80	0,75	0,75	0,70	0,60
Bending strength	EN 310	N/mm ²	27	27	27	27	26	24	22	17	15
Modulus of elasticity in bending	EN 310	N/mm ²	2 700	2 700	2 700	2 700	2 500	2 400	2 300	2 200	2 000
Option 1 Swelling in thickness after cyclic testing	EN 317 EN 321	%	50	40	25	19	16	15	15	15	15
Internal bond after cyclic testing	EN 319 EN 321	N/mm ²	0,35	0,35	0,35	0,30	0,25	0,20	0,15	0,10	0,10
Option 2 Internal bond after boil test*)	EN 319 EN 1087-1	N/mm ²	0,20	0,20	0,20	0,15	0,15	0,12	0,12	0,10	0,10

*) EN 1087-1 : 1995 applies with the modified procedure given in Annex B.

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4.3 Requirements for load-bearing boards

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4.3.1 Requirements for boards for use in dry conditions

Table 4 specifies the requirements for load-bearing boards for use in dry conditions for all load duration categories.

Table 4: Requirements for load-bearing boards for use in dry conditions (type MDF.LA)

Property	Test unit	Unit	Ranges of nominal thickness (mm)								
			1,8 to 2,5	> 2,5 to 4,0	> 4 to 6	> 6 to 9	> 9 to 12	> 12 to 19	> 19 to 30	> 30 to 45	> 45
Swelling in thickness 24 h	EN 317	%	45	35	30	17	15	12	10	8	6
Internal bond	EN 319	N/mm ²	0,70	0,70	0,70	0,70	0,65	0,60	0,60	0,55	0,50
Bending strength	EN 310	N/mm ²	29	29	29	29	27	25	23	21	19
Modulus of elasticity in bending	EN 310	N/mm ²	3 000	3 000	3 000	3 000	2 800	2 500	2 300	2 100	1 900

NOTE: If it is made known by the purchaser that the boards are intended for specific use in flooring, walls or roofing, the relevant performance 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 5 specifies the requirements for load-bearing boards for use in humid conditions for instantaneous or short-term load duration only.

Table 5: Requirements for load-bearing boards for use in humid conditions (type MDF.HLS)

Property	Test method	Unit	Ranges of nominal thickness (mm)								
			1,8 to 2,5	> 2,5 to 4,0	> 4 to 6	> 6 to 9	> 9 to 12	> 12 to 19	> 19 to 30	> 30 to 45	> 45
Swelling in thickness 24 h	EN 317	%	35	30	18	12	10	8	7	7	6
Internal bond	EN 319	N/mm ²	0,70	0,70	0,70	0,80	0,80	0,75	0,75	0,70	0,60
Bending strength	EN 310	N/mm ²	34	34	34	34	32	30	28	21	19
Modulus of elasticity in bending	EN 310	N/mm ²	3 000	3 000	3 000	3 000	2 800	2 700	2 600	2 400	2 200
Option 1 Swelling in thickness after cyclic testing	EN 317 EN 321	%	50	40	25	19	16	15	15	15	15
Internal bond after cyclic testing	EN 319 EN 321	N/mm ²	0,35	0,35	0,35	0,30	0,25	0,20	0,15	0,10	0,10
Option 2 Internal bond after boil test*)	EN 319 EN 1087-1	N/mm ²	0,20	0,20	0,20	0,15	0,15	0,12	0,12	0,10	0,10

*) EN 1087-1 : 1995 applies with the modified procedure given in Annex B.

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

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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 and 5, as appropriate.

5.2 External control

External control of the factory, if any, shall be carried out according to a statistical basis²⁾.

The inspection of a consignment of panels shall be carried out according to a statistical basis²⁾.

²⁾ It is intended to apply EN 326-2 and EN 326-3 (which are under preparation for the time being) as a statistical basis when implemented.