DRAFT INTERNATIONAL STANDARD

ISO/DIS 16895

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Wood-based panels — Dry-process fibreboard

Panneaux à base de bois — Panneaux de fibres obtenus par procédé à sec
[Revision of first edition (ISO 16895-1:2008) and ISO 16895-2:2010]

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 16895 was prepared by Technical Committee ISO/TC 89, *Wood-based Panels*, Subcommittee SC 1, *Fibreboards*.

This second/third/... edition cancels and replaces the first/second/... edition (), [clause(s) / subclause(s) / table(s) / figure(s) / annex(es)] of which [has / have] been technically revised.

Wood-based panels — Dry process fibreboard

1 Scope

ISO 16895 specifies a classification matrix, related mandatory tests and thickness ranges for ultra-low-, low-, medium-, and high-density dry process fibreboard.

The values listed in ISO 16895 relate to product properties used to classify fibreboards into one of four types (UDF, LDF, MDF and HDF, see Clause 3), one of four grades (GP, FN, BL and LB), for use in one of four service conditions (REG, MR1, MR2, and HMR ~~EXT~~). The values are not characteristic values to be used for design purposes.

NOTE 1 Fibreboards are broadly divided into two groups based on the manufacturing process, namely the dry process group and the wet process group (see Clause 3). Wet process fibreboards lie outside the scope of ISO 16895.

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.

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

ISO 9426, *Wood-based panels — Determination of dimensions of panels*

ISO 9427, *Wood-based panels — Determination of density*

ISO 12460-1, *Wood-based panels — Determination of formaldehyde release — Part 1: Formaldehyde emission by the 1-cubic-metre chamber method*

ISO 12460-2, *Wood-based panels — Determination of formaldehyde release — Part 2: Small-scale chamber method*

ISO 12460-3, *Wood-based panels — Determination of formaldehyde release — Part 3: Gas analysis method*

ISO 12460-4, *Wood-based panels — Determination of formaldehyde release — Part 4: Desiccator method*

ISO 12460-5, *Wood-based panels — Determination of formaldehyde release — Part 5: Perforator method*

ISO 16572, *Timber structures — Wood-based panels — Test methods for structural properties*

ISO 16978, *Wood-based panels — Determination of modulus of elasticity in bending and of bending strength*

ISO 16979, *Wood-based panels — Determination of moisture content*

ISO 16981, *Wood-based panels — Determination of surface soundness*

ISO 16983, *Wood-based panels — Determination of swelling in thickness after immersion in water*

ISO 16984, *Wood-based panels — Determination of tensile strength perpendicular to the plane of the panel*

ISO 16985, *Wood-based panels — Determination of dimensional changes associated with changes in relative humidity*

ISO 16987, *Wood-based panels — Determination of moisture resistance under cyclic test conditions*

ISO 16998, *Wood-based panels — Determination of moisture resistance — Boil test*

ISO 17064, *Wood-based panels — Fibreboard, particleboard and oriented strand board (OSB) — Vocabulary*

ISO 20585, *Wood-based panels — Determination of wet bending strength after immersion in water at 70 °C or 100 °C (boiling temperature)*

ISO 27528, *Wood-based panels — Determination of resistance to axial withdrawal of screws*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 17064 and the following, apply.

3.1
dry process fibreboard
fibreboard with a forming line moisture content, as a mass fraction, of less than or equal to 20 % and whose primary bonding results from applied adhesives or resins.

3.2
wet process fibreboard
fibreboard with a forming line moisture content, as a mass fraction, of greater than 20 % and whose primary bonding results from felting of fibres and their inherent adhesive properties.

4 Symbols and abbreviated terms

BL	building
DIY	do-it-yourself
EXT	exterior
F	fungi resistant
FN	furniture
FR	fire retardant
GP	general purpose
HDF	high-density fibreboard
HMR	highly moisture resistant
I	insect resistant
LB	load bearing
LDF	low-density fibreboard
MDF	medium-density fibreboard
MR1	moisture resistant—temperate
MR2	moisture resistant—tropical
REG	regular
UDF	ultra-low-density fibreboard
δ	thickness

5 Classification, designation and coding

5.1 General

5.1.1 Classification matrices

Overall classification matrices, which include all major classes available at the time of publication, are shown in Tables 1 to 4. Tables 1 to 4 allow for future classes to be included as they become available on international markets.

Not all products in the matrices shown in Tables 1 to 4 are currently available or under development. Realistic property tables can only be developed for existing products. The remainder are potential future products and property tables will be developed when necessary.

Density ranges given in product descriptions in 5.2 to 5.5 are a guide. Manufacturers may classify a product as a particular type or grade if it meets all the property requirements of the nominated type or grade. For example, a thin fibreboard of density 830 kg/m^3 could be called MDF if it meets all property requirements of the particular MDF grade nominated.

5.1.2 Uses

Products specified in this document have the following applications:

regular	REG	dry conditions only
moisture resistant—temperate	MR1	temperate humid conditions
moisture resistant—tropical	MR2	Tropical humid conditions
highly moisture resistant	HMR	high humid conditions
exterior	EXT	exposed to weather conditions, above ground
general purpose	GP	applications not requiring the specific properties of furniture or load-bearing grades
furniture	FN	in furniture manufacture, cabinet making, fitments, joinery, bases for surface decorative treatment
building	BL	building applications requiring high dimensional stability
load bearing	LB	structural or load bearing
do-it-yourself	DIY	home projects done by residents rather than professional tradespersons

5.1.3 Additional classifications

If additional attribute classifications are used, such as fire retardant (FR), insect resistant (I) and fungi resistant (F), claimed performance shall be confirmed by appropriate testing. Relevant tests and performance requirements may be specified by national standards and regulations.

5.1.4 Structural grades

When a product is used in a load-bearing or structural application, additional information shall be available in the form of characteristic values derived from structural testing (ISO 16572), experimental test results or history of use to validate its performance under the proposed conditions.

It should be noted that engineering design methods do not provide for design for high humid or exterior service conditions. The inclusion of the MDF-LB grade in the “high humid” section of the classification matrix (Table 3) is on the basis that performance is validated by experimental test results or history of use.

5.2 Ultra-low-density fibreboard (UDF)

UDF has a nominal density less than 550 kg/m^3 and is classified according to Table 1.

Table 1 — UDF classification matrix

UDF type	Service conditions				
	Dry	Humid temperate	Humid tropical	High humid	Exterior
UDF-FN	REG furniture grade	No existing product	No existing product	No existing product	No existing product
Application examples	Light-duty partitions				

5.3 Low-density fibreboard (LDF)

LDF has a nominal density in the range 550 kg/m^3 to 650 kg/m^3 and is classified according to Table 2.

Table 2 — LDF classification matrix

LDF type	Service conditions				
	Dry	Humid temperate	Humid tropical	High humid	Exterior
LDF-GP	No existing product	MR1 general purpose	MR2 general purpose	No existing product	No existing product
Application examples		Roof underlay/sheathing, wall sheathing	Roof underlay/sheathing, wall sheathing		
LDF-FN	REG furniture grade	MR1 furniture grade	MR2 furniture grade	No existing product	No existing product
Application examples	Furniture, DIY uses, general uses, light-duty partitions	Furniture, DIY uses, general uses	Furniture, DIY uses, general uses		
LDF-BL	REG building grade	MR1 building grade	No existing product	No existing product	No existing product
Application examples	Window frames, door backs	Window frames, door backs			

5.4 Medium density fibreboard (MDF)

MDF has a nominal density in the range 650 kg/m^3 to 800 kg/m^3 and is classified according to Table 3.

Table 3 — MDF classification matrix

MDF type	Service conditions				
	Dry	Humid temperate	Humid tropical	High humid	Exterior
MDF-GP	REG general purpose	MR1 general purpose	MR2 general purpose	No existing product	No existing product
Application examples	DIY uses, general uses, veneer grade	DIY uses, general uses, overlay floors	DIY uses, general uses, overlay floors		
MDF-FN	REG furniture grade	MR1 furniture/fitments grade	MR2 furniture/fitments grade	HMR furniture/fitments grade	No existing product
Application examples	Carcase, furniture, cabinets, substrate for any decorative finish	Carcase, furniture, cabinets for kitchen and bathroom, substrate for any decorative finish	Carcase, furniture, cabinets for kitchen and bathroom, substrate for any decorative finish	~~Cladding~~, fascias, window joinery, ~~decking~~, protected exterior construction	
MDF-LB	REG load bearing	MR1 load bearing	MR2 load bearing	No existing product	No existing product
Application examples	Domestic flooring, shelving, general construction	Domestic or industrial flooring, shelving, general construction	Domestic or industrial flooring, wall and roof sheathing, beams, toilet partitions		
MDF-BL	REG building grade	MR1 building grade	MR2 building grade	HMR building grade	No existing product
Application examples	Window frames, door linings, bearing walls	Window frames, door linings, bearing walls	Window frames, door linings, bearing walls, floor and roof sheathing, underlay	Window frames, door linings, bearing walls, floor and roof sheathing, underlay	

5.5 High-density fibreboard (HDF)

HDF has a nominal density greater than 800 kg/m^3 and is classified according to Table 4.

Table 4 — HDF classification matrix

HDF type	Service conditions				
	Dry	Humid temperate	Humid tropical	High humid	Exterior
HDF-GP	REG general purpose	MR1 general purpose	MR2 general purpose	No existing product	No existing product
Application examples	Composite flooring, machined articles, patterns, packaging	Composite flooring, wall panelling in public amenities, packaging	Composite flooring, wall panelling in public amenities		
HDF-BL	REG building grade	MR1 building grade	MR2 building grade	No existing product	No existing product
Application examples	Composite flooring	Composite flooring	Bearing walls		