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Bamboo veneer

WD/CD/DIS/FDIS stage

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This document was prepared by Technical Committee *[or Project Committee]* ISO/TC *[or ISO/PC]* 296, *[Bamboo and rattan]*, Subcommittee SC ##, *[name of subcommittee]*.

This second/third/… edition cancels and replaces the first/second/… edition (ISO #####:####), which has been technically revised.

The main changes are as follows:

— xxx xxxxxxx xxx xxxx

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Bamboo veneer

1 Scope

This standard specifies the terms and definitions, technical requirements, test methods and requirements for handling, storage, packaging and marking of bamboo veneer.
This standard is applicable to bamboo veneer produced by rotary cutting, slicing and sawing.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 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 12460-3, *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 16979, *Wood-based panels - Determination of moisture content*

ISO 21625, *Vocabulary related to bamboo and bamboo products*

ISO/IEC 17065, *Conformity assessment requirements for bodies certifying products, processes and services*

3 Terms and definitions

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
bamboo veneer
thin sheet of bamboo with a maximum thickness of 6 mm, rotary cut, sliced or sawn from a bamboo culm section, laminated bamboo, and flattened bamboo

3.2
sliced bamboo veneer
sheet of bamboo obtained by slicing laminated bamboo or flattened bamboo

3.3
rotary-cut bamboo veneer
sheet of bamboo obtained by rotary cutting a bamboo culm

3.4
sawed bamboo veneer
sheet of bamboo obtained by sawing laminated bamboo

3.5
reinforced bamboo veneer
reinforced bamboo veneer processed by bonding bamboo veneer with backing materials such as paper and non-woven fabrics.

3.6
glue penetration
taint of veneer surfaces by adhesive penetration.

3.7
glue marks
marks of glue between adjacent pieces of bamboo strips

3.8
local lack of lining
bamboo veneer with partial loss of backing material

3.9
back lining blister and cockle
back lining material of bamboo veneer partially raised or wrinkled

3.10
back lining separation
separation between bamboo veneer and back lining material.

4 Requirements

4.1 Size and tolerances

4.1.1 Common size

The common size is indicated in Table 1.

Table 1 — Common product size

Parameters	Test method	Common size (mm)
Thickness	ISO 9426	0.30~1.00
Width	ISO 9426	100~1250
Length	ISO 9426	180~3200
NOTE Other specific size of the product are permitted upon agreement of both supplier and buyer.		

4.1.2 Size tolerances

The requirements of size tolerance are indicated in Table 2.

Table 2 — Size tolerances

Nominal size		Test method	Requirements (mm)
thickness	<0.30	ISO 9426	±0.05
	0.30~0.60		±0.06

	0.60~1.00		±0.08
	>1.00		±0.15
width	100~1250	ISO 9426	+ 5 0
length	250~3200	ISO 9426	+ 5 0
Diagonal deviation	Width < 360	Appendix A	⩽6
	360 < Width < 640		⩽8
	Width > 640		⩽10

4.2 Appearance

4.2.1 Classification

Bamboo veneer can be classified into Grade 1 and Grade 2 according to appearance quality when the size, size tolerances, physical and chemical properties of bamboo veneer meet the requirements of this standard.

4.2.2 Requirements

The requirements for appearance quality are indicated in Table 3.

Table 3 — Appearance quality

Parameters	**Requirements**	
	Grade 1	**Grade 2**
Mildew	Not permitted	
Decay	Not permitted	
Chromatic aberration (excluding bamboo joints)	Not obvious	
Holes (including wormholes)	Not permitted	Permitted up to 1 mm in diameter for a single hole; Permitted up to 2 per meter in length
Blotch	Not permitted	Not obvious
Knife marks, scratches, sand marks	Not obvious	
Burr the trench	Not obvious	
Crack	Not obvious	Permitted up to a length of 50 mm, a width of 0.2 mm; Permitted up to 2 per m^2
Splicing gap [a]	Not obvious	Permitted up to a length of 50 mm, a width of 0.2 mm; Permitted up to 2 per m^2
Side and corner defects	Not obvious	Permitted up to 20 mm from the edge; Permitted up to 10 mm in the side; Permitted up to 2 per m^2
Glue marks [a]	Not permitted	Not obvious
Glue penetration [a]	Not permitted	Not obvious
Back lining separation [b]	Not permitted	
Local lack of lining [b]	Not permitted	Permitted up to 30 mm from the edge; Permitted up to 15 mm in

		the side
Back lining blister and cockle [b]	Not permitted	Permitted up to 50 mm^2; Permitted up to 2 per m^2

NOTE: Not obvious indicates that the defect is not obvious with normal eyesight under natural light when observed with the naked eye at a distance of 0.4 m form the mat.

[a] Splicing gap, glue marks, and glue penetration shall be tested only for sliced and sawed bamboo veneer.

[b] Back lining separation, local lack of lining, and back lining blister and cockle shall be tested only for bamboo mat with backing materials.

4.3 Physical and chemical properties

Unless otherwise specified, requirements and test methods given in Table 4 shall be fulfilled.

The moisture content of bamboo veneer for wet overlaying is not limited.

Determination of the formaldehyde release shall be carried out in accordance with ISO 12460-1 as the reference method and ISO 12460-3 or ISO 12460-4 for factory production control.

Table 4 — Physical and chemical properties

Parameters	Test method	Unit	Requirements
Moisture content	ISO 16979	%	$4.0 \leqslant W_M \leqslant W_{EM}$
Density	ISO 9427	g/cm^3	≥0.50
Formaldehyde release [a, b]	ISO 12460-1	mg/m^3	≤0.124

Key

W_M = moisture content

W_{EM} = equilibrium moisture content

[a] If factory production control methods are employed to determine formaldehyde release, a correlation between the utilized method and the 1-cubic-meter chamber method as in 1S0 12460-1 shall be established.

[b] Formaldehyde release shall be tested only for bamboo veneer obtained from laminated bamboo.

4.4 Other Requirements

Where applicable, and where required by regulations, the following may be required: flame retardant, heat resistance, biological durability.

5 Test samples

5.1 Sampling

Specimens shall be obtained from the bamboo veneer sample that have been stored for more than 24 hours after production. If the product size is smaller than the specimen size and quantity requirements, more bamboo veneer samples will be taken. The bamboo veneer sample with the defects that affect the test precision shall be avoided.

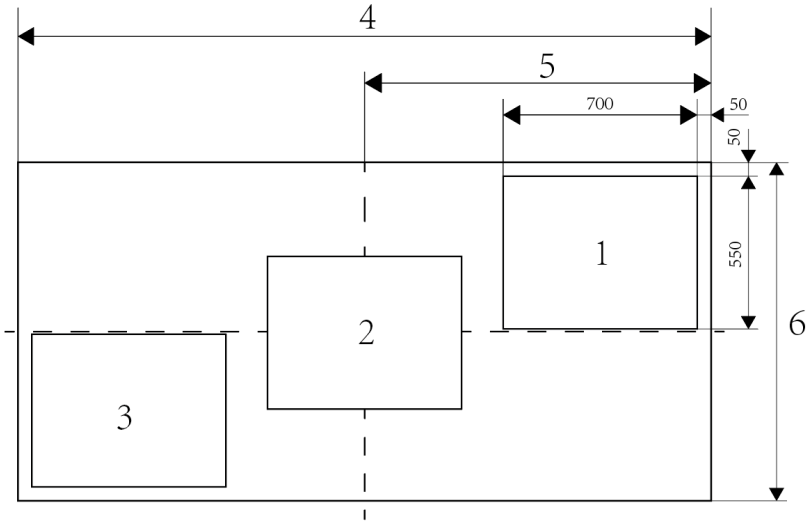
5.2 Size and quantity

The specimens shall be made according to Table 5 and Figure 1.

Table 5 — Size and quantity of test pieces

Parameters	Size (length ×width) mm	Quantity (piece)	Marking of samples	Note
Moisture content	100×100 or at least 20 g	3	①	—
Density	100×100	3	②	—

Formaldehyde release	1-Cubic-metre chamber method	500×500	2	③	Two test pieces could be taken from any position from test sample as shown in Figure 1.
	Gas analysis method	400×50	3	—	Cut from the same position as for the 1-Cubic-metre chamber method test pieces in Figure 2.
	Desiccator method	150×50	10	③	—
NOTE 1 For desiccator method, take 4, 3, and 3 test pieces separately from each of the three samples. NOTE 2 Except the test pieces for moisture content, all test pieces shall be perpendicular to the plane of the panel, free of burns, and clean on edges. Dimension tolerance is ±0.5 mm.					



Key

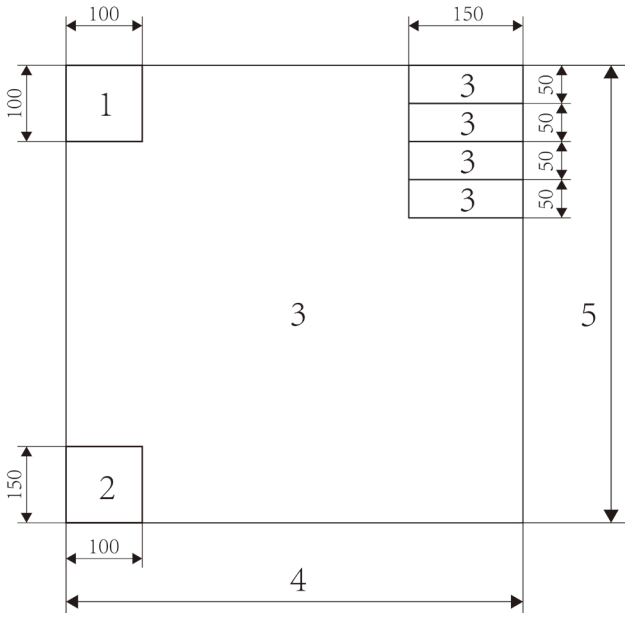
1, 2, and 3 samples

4 length of panel

5 half-length of panel

6 width of panel

Figure 1 — Example of cutting plan for test pieces preparation



Key

1, 2, 3, and 4	samples as given in Table 5
5	length of panel
6	width of panel

Figure 2 — Example of cutting plan for test pieces preparation

5.3 Conformance

Bamboo veneer conforming to this international Standard shall be manufactured undera quality system which

a) includes factory production and quality-control with internal auditing and

b) Includes external auditing of the factory quality control.

When the quality control system is certified, the bodies performing certification should operate in accordance with ISO/IEC 17065.

6 Handling, storage, packing and marking

6.1 Handling, storage, and packaging

The manufacturer shall have procedures providing methods of product handling, packaging and shall provide suitable storage areas to prevent damage or deterioration.

6.2 Marking

By agreement between buyer and supplier, the package shall be clearly marked with the following information as a minimum:

— name of manufacturer or supplier;

— tradename;

— a reference to this document, i.e. ISO ***;

— nomianal dimensions, in millimetres;

— bamboo species;

— date of production and/or batch number;

— quantity of products and/or covered surface;

— when there are special requirements, instructions for use shall be attached.

Annex A
(normative)
Test method for diagonal deviation

A.1 Measuring Tools

Steel tape, with an accuracy of 1 mm.

A.2 Test Procedure

Place the sample concave side up horizontally on a horizontal table and measure the diagonal length of the veneer with a steel tape measure on the same side respectively, accurate to 1 mm.

A.3 Result expression

The absolute value of the difference between the two diagonal lines is the diagonal deviation, accurate to 1 mm.