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**Plywood — Classification by surface  
appearance —**

**Part 4:  
Palm-plywood**

*Contreplaqué — Classification selon l'aspect des faces —  
Partie 4: Contreplaqué de palmier*

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Published in Switzerland

# Contents

	Page
Foreword .....	iv
<b>1 Scope .....</b>	<b>1</b>
<b>2 Normative references .....</b>	<b>1</b>
<b>3 Terms and definitions .....</b>	<b>1</b>
<b>4 Classification by surface appearance .....</b>	<b>2</b>
4.1 Appearance classes .....	2
4.2 Permissible characteristics and defects .....	2
4.2.1 General .....	2
4.2.2 Characteristics inherent in palm-plywood .....	2
4.2.3 Manufacturing defects .....	4

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## Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 89, *Wood-based panels*, Subcommittee SC 3, *Plywood*.

A list of all parts in the ISO 2426 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

# Plywood — Classification by surface appearance —

## Part 4: Palm-plywood

### 1 Scope

This document specifies the nature and limits of characteristics inherent in palm-plywood and manufacturing defects enabling the visual assessment of the plywood for allocation to an appearance class.

This document applies to palm-plywood, the surface veneers of which are made from oil palm trunk.

### 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 2074, *Plywood — Vocabulary*

ISO 2426-1, *Plywood — Classification by surface appearance — Part 1: General*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 2074 and the following apply.

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

#### 3.1

##### **oil palm trunk**

log that is obtained from a matured palm tree stem harvested during replanting activities usually after a 25-year rotation

#### 3.2

##### **oil palm veneer**

thin sheet of uniform thickness obtained from an *oil palm trunk* (3.1) by slicing, rotary cutting, semi rotary-cut or sawing

#### 3.3

##### **outer veneer**

veneer obtained from the peripheral zone of an *oil palm trunk* (3.1), usually 20 % to 30 % of the trunk diameter

**3.4 inner veneer**

veneer obtained from the intermediate zone of an *oil palm trunk* (3.1) diameter beginning from the inner peripheral to the central zone (section outside the pith)

Note 1 to entry: Generally, oil palm veneers are produced from the outer and inner sections of the oil palm trunk, and are subsequently classified, based on their density, as outer and inner veneers, respectively.

Note 2 to entry: In normal practice, the oil palm trunk is peeled down to about 30 % of the trunk diameter to maintain panel quality.

**4 Classification by surface appearance**

**4.1 Appearance classes**

Assessment of characteristics and defects for determination of appearance class shall be carried out in accordance with ISO 2426-1. Surface classification shall be based on the permissible characteristics and defects within each of the appearance classes as specified in 4.2

**4.2 Permissible characteristics and defects**

**4.2.1 General**

Each surface shall be individually assigned to one of the appearance classes E, I, II, III, or IV, as defined by the permissible characteristic according to Table 1 and permissible defects according to Table 2.

**4.2.2 Characteristics inherent in palm-plywood**

Classification according to characteristics inherent in palm-plywood veneer is given in Table 1.

The outer veneer is usually denser, lower in moisture content, higher in fibre (also called vascular bundle) content and lower in parenchyma compared to inner veneer. These characteristics may cause irregularity in veneer surface appearance:

**Table 1 — Surface appearance classification of oil palm veneer**

Categories of characteristics		Appearance class				
		E	I	II	III	IV
4.2.2.1	Pin knots <sup>a</sup> (Not applicable)					
4.2.2.2	Sound intergrown knots (Not applicable)					
4.2.2.3	Unsound or non-adhering knots and knot holes (Not applicable)					
NOTE Characteristics inherent to palmwood are permitted provided that they do not impair the serviceability of the panel.						
<sup>a</sup> Pin knots: sound intergrown knots of no more than 3 mm diameter.						
<sup>b</sup> Irregularities: some older oil palm trees tend to develop a darker coloration and dark stripes at the lower section of the tree which is a valued feature.						

Table 1 (continued)

Categories of characteristics			Appearance class				
			E	I	II	III	IV
4.2.2.4	Splits	Open	Practically absent	Permitted if less than:			Permitted, but see NOTE
				1/10	1/5	1/3	
				Of panel length up to an individual width of:			
				3 mm	5 mm	20 mm	
				And up to a number of:			
				3/m	3/m	3/m	
	Of panel width						
		Closed		Permitted			
4.2.2.5	Abnormalities due to insects, marine borers and parasitic plants	Not permitted	Not permitted	Marks of parasitic plants not permitted. Insects and marine borer holes permitted up to a:		Permitted, but see NOTE	
				Diameter of 3 mm vertically to the plane of the panel up to a number of 10/m <sup>2</sup>	Width of 15 mm and length of 60 mm up to a number of 3/m <sup>2</sup>		
4.2.2.6	Pin holes		1,5 mm or less in diameter but shall not be clustered; maximum 4 per sheet	Permitted if occasional and isolated	Permitted if not excessive	Permitted, but see NOTE	
4.2.2.7	Inbark/bark pocket		Not permitted	Permitted up to a width of:		Permitted, but see NOTE	
				5 mm if properly filled	25 mm		
4.2.2.8	Irregularities in the structure of the palmwood <sup>b</sup>	Practically absent	Permitted (natural appearance-tiger grain)		Permitted		
			If very slight	If slight			
4.2.2.9	Discoloration which is not palmwood-destroying		Permitted if low contrast		Permitted		
4.2.2.10	Fungal decay which is palmwood-destroying		Not permitted				
4.2.2.11	Other characteristics	Practically absent	To be considered under the category which they most closely resemble				

NOTE Characteristics inherent to palmwood are permitted provided that they do not impair the serviceability of the panel.

<sup>a</sup> Pin knots: sound intergrown knots of no more than 3 mm diameter.

<sup>b</sup> Irregularities: some older oil palm trees tend to develop a darker coloration and dark stripes at the lower section of the tree which is a valued feature.

An additional characteristic is pin holes (see ISO 2426-1).

4.2.3 Manufacturing defects

Classification according to manufacturing defects is given in [Table 2](#).

**Table 2 — Surface appearance classification of palm-plywood**

Categories of defect		Appearance class				
		E	I	II	III	IV
4.2.3.1	Open joints	Not permitted	Not permitted	Permitted up to a width of:		
				3 mm	5 mm	25 mm
				And up to a number of:		
				1/m	2/m	unlimited
				Of panel width with joints		
				Filled if more than 1 mm in width	unfilled	unfilled
4.2.3.2	Overlaps		Not permitted	Permitted up to a number of 1/m <sup>2</sup> and up to 100 mm length	Permitted up to a number of 2/m <sup>2</sup>	Permitted <sup>a</sup>
4.2.3.3	Blisters		Not permitted			
4.2.3.4	Hollows, imprints and bumps		Not permitted	Permitted if slight	Permitted	
4.2.3.5	Roughness		Not permitted	Permitted if slight	Permitted	
4.2.3.6	Sanding through	Not permitted			Permitted up to an extent of panel surface of:	
					1 %	5 % <sup>a</sup>
4.2.3.7	Glue penetration <sup>b</sup>	Not permitted	Permitted			Permitted <sup>a</sup>
			If slight and occasional	Up to an extent of 5 % of panel surface		
4.2.3.8	Foreign particles	Not permitted	Not permitted	Ferrous particles not permitted		
4.2.3.9	Repairs:	Practically without defects	Permitted if properly made and tightly filled up to number of:			
4.2.3.10	1) Patches		3/m <sup>2</sup>	6/m <sup>2</sup>	Unlimited	
	2) Shims					
	3) Synthetic fillers	Not permitted	Not permitted	Permitted within the limits specified in the categories		Unlimited
	Defects at the edges of the panel due to sanding or sawing	Practically without defects	Permitted up to			Permitted <sup>a</sup>
			2 mm from the edge	5 mm from the edge		
4.2.3.11	Other characteristics or defects		To be considered under the category which they most closely resemble			

<sup>a</sup> Manufacturing defects are permitted provided that they do not impair the serviceability of the panel.

<sup>b</sup> Not applicable to resin pre-treated veneer.