INTERNATIONAL STANDARD

ISO 12466-2

Second edition
2007-11-15

Plywood — Bonding quality —

Part 2: Requirements

Contreplaqué — Qualité du collage —

Partie 2: Exigences

Reference number
ISO 12466-2:2007(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

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 12466-2 was prepared by Technical Committee ISO/TC 89, *Wood based panels*, Subcommittee SC 3, *Plywood*.

This second edition cancels and replaces the first edition (ISO 12466-2:1999) which has been technically revised.

ISO 12466 consists of the following parts, under the general title *Plywood — Bonding quality*:

— *Part 1:Test methods*

— *Part 2: Requirements*

This page is intentionally blank.

Plywood — Bonding quality —

Part 2: Requirements

1 Scope

This part of ISO 12466 specifies requirements for determination of bonding quality class of plywood, blockboard, battenboard, and laminboard, bonded with thermosetting resins, according to their intended end uses.

NOTE Appropriate test methods are specified in ISO 12466-1.

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 12465, *Plywood — Specifications*

ISO 12466-1:2007, *Plywood — Bonding quality — Part 1: Test methods*

3 Bonding classes

Bonding quality is categorized into three classes, in accordance with ISO 12465, based upon moisture resistance as follows.

3.1 Class 1: Dry conditions

This bonding class is appropriate for veneer plywood intended for use in normal interior climates excluding any extended direct exposure to weather.

3.2 Class 2: Tropical-dry/humid conditions

This bonding class is appropriate for veneer plywood intended for protected external applications (e.g behind cladding or under roof coverings), but capable of resisting weather exposure for short periods (e.g. when exposed during construction). It is also suitable for interior situations where the service moisture condition is higher than the class 1 level.

3.3 Class 3: High humidity/exterior conditions

This bonding class is designed for veneer plywood intended for exposure to weather over sustained periods.

NOTE The durability of plywood depends not only upon the level of bonding performance, but also upon other factors.

4 Requirements

4.1 General

For each bonding quality class, both the mean shear strength and the average apparent cohesive wood failure shall be determined in accordance with ISO 12466-1.

Test pieces shall be pre-treated as specified for the applicable bonding class, as given in Table 1. A minimum of 10 test pieces per glue line shall satisfy the criteria given in Table 2.

For Class 2 and Class 3 where two pre-treatments are required, each pre-treatment shall be carried out on a separate set of not less than five test pieces for each glue line.

4.2 Pre-treatments

Table 1 — Pre-treatment requirements

Bonding class	Pre-treatment					
	Basic		Additional			
	24 h Cold soak (ISO 12466-1: 2007, 5.1.1)	VP (ISO 12466-1: 2007, 5.1.4)	6 h Boil (ISO 12466-1: 2007, 5.1.2)	BDB (ISO 12466-1: 2007, 5.1.3)	72 h Boil (ISO 12466-1: 2007, 5.1.5)	Steam (ISO 12466-1: 2007, 5.1.6)
1	X	X	—	—	—	—
2	X	X	X	X	X	X
3	X	X	—	X	X	X

One of the indicated basic pre-treatments shall be chosen, plus one of the indicated additional pre-treatments for bonding class 2 and bonding class 3.

For full phenolic adhesives, when VP is used as the basic pre-treatment, an additional pre-treatment needs to be only occasionally conducted for validation purposes.

4.3 Glue line requirements

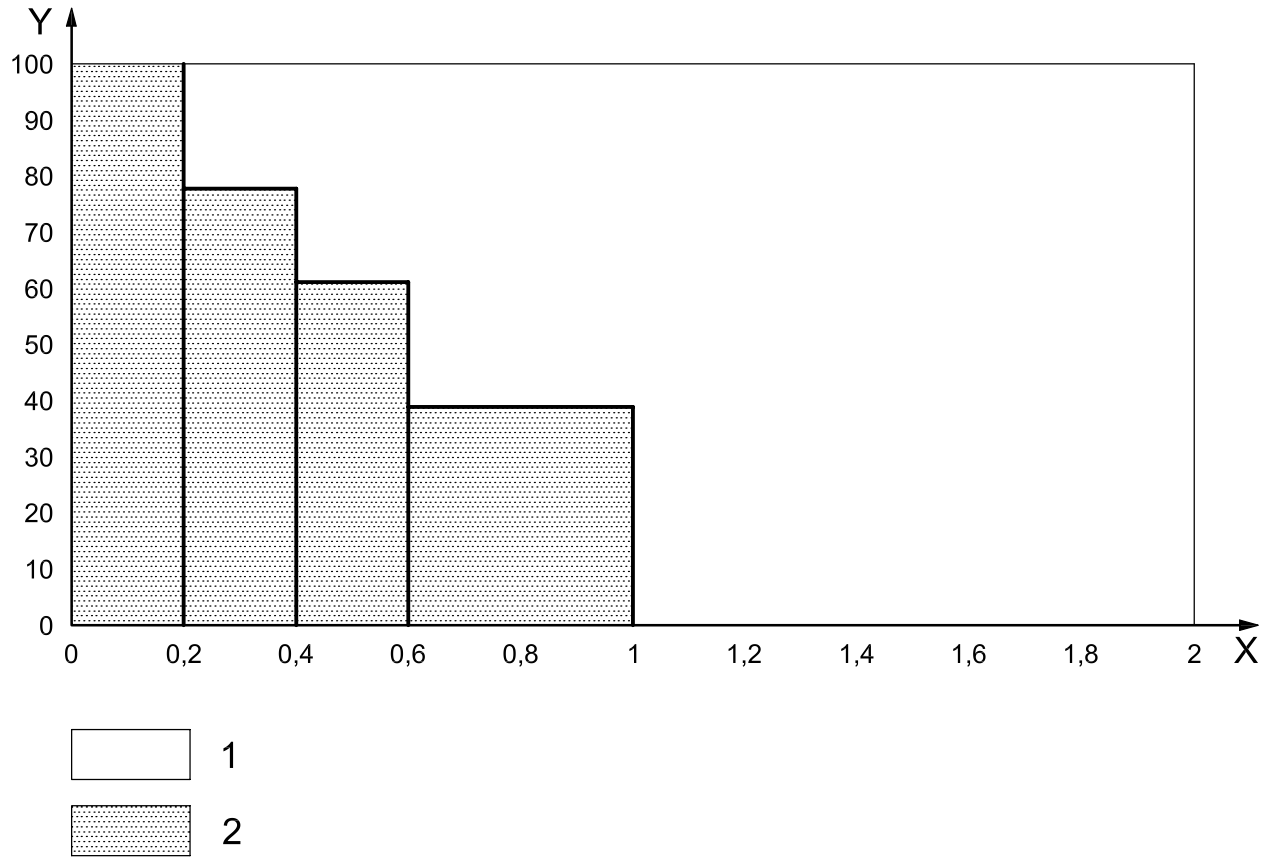
For all three bonding classes, each glue line tested shall satisfy two criteria: the mean shear strength and the average apparent cohesive wood failure, as combined in Table 2.

Table 2 — Glue line requirements

Mean shear strength τ MPa	Average apparent cohesive wood failure %
$\tau < 0{,}2$	not applicable
$0{,}2 \leqslant \tau < 0{,}4$	$\geqslant 80$
$0{,}4 \leqslant \tau < 0{,}6$	$\geqslant 60$
$0{,}6 \leqslant \tau \leqslant 1{,}0$	$\geqslant 40$
$1{,}0 < \tau$	no requirement

The relationship between the average percentage of apparent cohesive wood failure and the mean shear strength given in Table 2 is illustrated in Figure 1.

If ISO 12466-1:2007, Annex B (chisel/knife testing) is used, the average bond quality of each glue line of test sample shall be a minimum of 2 and the overall average bond quality for all glue lines in the test sample shall be 5.



Key

1 accept

2 fail

X mean shear strength, τ, MPa

Y average apparent cohesive wood failure, %

Figure 1 — Relation between average percentage of apparent cohesive wood failure and mean shear strength

5 Determination of bonding quality

The comparison of results obtained in accordance with ISO 12466-1 with the requirements defined in this part of ISO 12466 allows determination of the bonding class to which the tested panel belongs.

Bibliography

[1] ISO 1096, *Plywood — Classification*

[2] ISO 2074, *Plywood — Vocabulary*

This page is intentionally blank.

This page is intentionally blank.

This page is intentionally blank.

ICS 79.060.10

Price based on 4 pages