BS EN 350:2016

BSI Standards Publication

Durability of wood and wood-based products — Testing and classification of the durability to biological agents of wood and wood-based materials

bsi.

National foreword

This British Standard is the UK implementation of EN 350:2016. It supersedes BS EN 350-1:1994 and BS EN 350-2:1994 which are withdrawn.

BSI, as a member of CEN, is obliged to publish EN 350 as a British Standard. However, attention is drawn to the fact that during the development of this European Standard, the UK committee voted against its approval as a European Standard.

Changes from the previous version of EN 350 mean that field testing is no longer a requirement to measure durability class. Laboratory testing may now be used but ageing procedures are not required for these. Consequently durability classes can be assigned to wood with no consideration of ageing. Annex F of this standard correctly states that field tests and ageing procedures are required where performance is a consideration.

The UK committee's opinion is that durability class is not a useful measure unless it is used in the context of how a material may perform in use. Durability classes calculated using the normative text of this standard may therefore not be useful when considering how a wood species or wood-based material might perform. It is also the UK committee's opinion that testing in accordance with informative Annex F (section F.2 paragraph 2) is essential to deliver a useful durability measure.

The UK participation in its preparation was entrusted to Technical Committee B/515, Wood preservation.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English Version

Durability of wood and wood-based products - Testing and classification of the durability to biological agents of wood and wood-based materials

Durabilité du bois et des matériaux dérivés du bois - Méthodes d'essai et de classification de la durabilité vis-à-vis des agents biologiques du bois et des matériaux dérivés du bois

Dauerhaftigkeit von Holz und Holzprodukten - Prüfung und Klassifikation der Dauerhaftigkeit von Holz und Holzprodukten gegen biologischen Angriff

This European Standard was approved by CEN on 18 June 2016.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Page

European foreword

This document (EN 350:2016) has been prepared by Technical Committee CEN/TC 38 “Durability of wood and wood-based products”, the secretariat of which is held by AFNOR.

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 February 2017, and conflicting national standards shall be withdrawn at the latest by February 2017.

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

This document supersedes EN 350-1:1994 and EN 350-2:1994.

Wood durability is an important factor that influences the service life of a wood product. This standard provides input to service life prediction of wood and wood-based products. It’s intended to give guidance on using wood products appropriate for different end-uses avoiding excessive requirements. It also ranks durability against wood-decay organisms of various wood species thereby allowing species of appropriate durability to be selected for a particular use. It will however be emphasized that the biological durability rating of wood species given in Annex B cannot be regarded as any guarantee of performance in service.

There are many other factors influencing service life of a wood product, such as the principles of good design, use conditions, climate, maintenance which should be taken into consideration.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard gives guidance on methods for determining and classifying the durability of wood and wood-based materials against biological wood-destroying agents.

The methods can be applied either to individual wood species, batches of wood and processed wood-based materials, including heat-treated, preservative-treated wood and modified wood. However, this standard is not intended to replace testing of the efficacy of biocides.

The wood-destroying agents considered in this standard are:

— wood-decay fungi (basidiomycete and soft-rot fungi);

— beetles capable of attacking dry wood;

— termites;

— marine organisms capable of attacking wood in service.

Data on the biological durability of selected wood species considered of economic importance in European countries are presented in Annex B (informative), which also provides information relating to their geographical origin, density, sapwood width and treatability.

NOTE Treatability, durability to disfiguring fungi, permeability to water and performance in use of wood and wood-based materials are also important issues. However, because standardized methods aiming to assess and classify these factors do not exist and/or have not been extensively experienced yet, preliminary guidance is given in Annex C (informative) for the classification of wood treatability with aqueous wood preservatives, Annex D (informative) for the classification of the permeability to water, Annex E (informative) for the durability to disfiguring fungi, and Annex F (informative) for the classification of performance.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 20-1, *Wood preservatives - Determination of the protective effectiveness against Lyctus Brunneus (Stephens) - Part 1: Application by surface treatment (laboratory method)*

EN 46–1, *Wood preservatives - Determination of the preventive action against recently hatched larvae of Hylotrupes bajulus (Linnaeus) - Part 1: Application by surface treatment (laboratory method)*

EN 49-1, *Wood preservatives - Determination of the protective effectiveness against Anobium punctatum (De Geer) by egg-laying and larval survival - Part 1: Application by surface treatment (Laboratory method)*

EN 117, *Wood preservatives - Determination of toxic values against Reticulitermes species (European termites) (Laboratory method)*

EN 252, *Field test method for determining the relative protective effectiveness of a wood preservative in ground contact*

EN 275, *Wood preservatives - Determination of the protective effectiveness against marine borers*

ENV 12038, *Durability of wood and wood-based products - Wood-based panels - Method of test for determining the resistance against wood-destroying basidiomycetes*

EN 13556, *Round and sawn timber - Nomenclature of timbers used in Europe*

CEN/TS 15083-1, *Durability of wood and wood-based products - Determination of the natural durability of solid wood against wood-destroying fungi, test methods - Part 1: Basidiomycetes*

CEN/TS 15083-2, *Durability of wood and wood-based products - Determination of the natural durability of solid wood against wood-destroying fungi, test methods - Part 2: Soft rotting micro-fungi*

EN 16449, *Wood and wood-based products - Calculation of the biogenic carbon content of wood and conversion to carbon dioxide*

ISO 13061-2, *Physical and mechanical properties of wood — Test methods for small clear wood specimens — Part 2: Determination of density for physical and mechanical tests*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
wood species
trade name according to EN 13556 which can on occasion include more than one botanical tree species

Note 1 to entry: E.g. European oak which comprises both *Quercus robur* and *Q. petraea.*

3.2
pilot name for a wood species
result of a consensual choice due to practical considerations retaining the usual name under which the wood is the most widely commercialised, adopted either by the main exporting country or by the main importing country

Note 1 to entry: Pilot names are established since 1954 in the nomenclature of the ATIBT.

3.3
set
clearly identifiable collection of units of wood or wood-based products, originating from a commercial supply of a defined origin (single or not) and likely comprising only some of the variability of the wood species or of the wood-based material

Note 1 to entry: E.g. wood species sourced from a restricted geographical area.

3.4
wood-based material
any processed matrix containing and/or made of a specific percentage of wood

Note 1 to entry: Wood-based materials are those derived from trees and include amongst others heat-treated wood and any other material modified by chemical, physico-chemical or physical process, glue-laminated wood, wood-based panels, wood polymer composites and treated with wood preservatives. This standard is not meant to test all ligno-cellulosic materials (e.g. bamboo, reed, straw, flax) as such and would require methodological adaptions to do so.

3.5
modified wood
wood that undergoes the action of a chemical, biological or physical agent, resulting in a permanent desired property enhancement

Note1 to entry: If the modification is intended for improved resistance to biological attack, then the mode of action is assumed to be non-biocidal.

3.6
durability to biological agents
inherent resistance of a wood species or a wood-based material against wood decay organisms

Note 1 to entry: This inherent resistance is due to the presence of natural components that can exhibit different levels of toxicity towards biological organisms and/or to anatomical particularities or a specific constitution of certain wood-based materials.

3.7
sapwood
outer zone of wood that, in the growing tree, contains living cells and conducts sap

Note 1 to entry: Depending on the species, age of the tree and the growing conditions the proportions of sapwood and heartwood can vary.

Note 2 to entry: Frequently paler than heartwood though not always distinguishable from heartwood in some wood species.

Note 3 to entry: Sapwood of all wood species is considered to be non-resistant against decay fungi unless other data are available. Sapwood can have different levels of resistance against wood boring insects (excluding termites).

3.8
heartwood
inner zone of wood that, in the growing tree, has ceased to contain living cells or to conduct sap

Note 1 to entry: Frequently darker than sapwood though not always distinguishable from sapwood in some wood species.

3.9
transition wood
wood in a zone between the sapwood and the heartwood

Note 1 to entry: The transition wood can be regarded as a region of the heartwood that has not fully matured. This is only distinguishable in very few wood species. In general, its biological durability, treatability and permeability to water is intermediate between that of sapwood and heartwood.

3.10
juvenile wood
set of few growth rings of woody tissue nearest the centre of the tree, often having abnormal properties

Note 1 to entry: Juvenile wood is a zone near to the pith, displaying marked ring to ring changes in its properties. There is no clear consensus as to where this zone ends. It is generally thought to end at 10 to 20 rings from the pith, but it depends on the wood species.

Note 2 to entry: The durability, permeability to water and treatability of juvenile wood can be different from that of mature heartwood.

3.11
permeability to water
ease with which water penetrates a wood-based matrix (wood of a particular species, wood-based material) and is released by evaporation

3.12
performance
ability of a wood species or a wood-based material to withstand deterioration over time

4 Sampling of wood and wood-based materials to be tested

4.1 Testing wood species

4.1.1 General

The origin of test specimens and the number of replicates is of great importance for the reliability of the test results.

The reliability of conclusions relating to the durability of a wood species increases with the number and diversity of growing sites from which trees are taken and the number of replicates from those trees. The recommendations given in 4.1.2 to 4.1.3 shall be regarded as minima.

NOTE Background information on sampling can be found in ISO 2859-2 and ISO 3129.

4.1.2 Sampling logs

A log shall be taken from at least 3 trees of the species under test, originating from 3 different sites representative of the diversity of the geographical regions or sites where the tree species grows. Samples should be taken from at least 5 planks, originating from at least 3 trees when only sawn wood is available (see Annex A).

If high between-tree variation is expected (e.g. different botanic species), it's recommended to test a larger number of trees (e.g. 5 – 10).

NOTE 1 It can be useful to test in parallel material derived from wood species with known durability.

Each log shall be of sufficient size to permit the required number of test specimens to be obtained from it.

Each log shall be taken from the main trunk avoiding its extreme ends. Knots and other features which can influence durability shall be avoided.

Sampling shall consider sapwood, heartwood and juvenile wood separately. While testing heartwood, the region within at least 3 cm of the pith shall be excluded in order to avoid juvenile wood, which is often less resistant than the mature heartwood. For heartwood sampling, both the inner (closest to the pith) and the outer (closest to the sapwood and thus including transition wood) parts of the heartwood shall be incorporated.

NOTE 2 For some species, in order to better assess the variability, there can be a need to sample the transition wood and juvenile wood separately.

For logs of large diameter, a larger number of samples shall be taken from the outer part (outer third of the heartwood radius which is closest to the sapwood).

For each part of the wood (heartwood, transition wood, sapwood, juvenile wood) to be tested, at least 30 test specimens shall be taken for each test variable (for example "test method" or "test organism"). A minimum of 6 specimens shall be taken from each log.

Depending on the selected test method, additional specimens might be required to determine the density of the wood species and the moisture content of the specimens. The sampling shall be done according to the relevant standards (ISO 13061-2 for density and ISO 13061-1 for moisture content).

NOTE 3 A scheme of a suitable preparation and distribution of the specimens for testing is showed in Annex A.

4.1.3 Sampling sawn timber

Wood placed on the market is mostly available as sawn timber and hence it is difficult to identify pieces originating from specific trees. For this reason, it is preferred to sample as many pieces as possible so as to better estimate the overall durability. A minimum of 30 pieces originating from minimum 5 batches and providing 1 specimen per piece is required. The general considerations described in 4.1.2 related to sampling also apply for sawn wood.

4.2 Testing of sets of wood

Since timbers are mostly presented on the market as commercial supplies there is a need to assess their durability. A maximum of wood pieces shall be used for the realization of the test specimens (e.g. 2 replicate test specimens from each of 20 pieces are preferred to 10 specimens from each of 4 pieces). To give a good indication on the variability of the tested set of wood, it is recommended to test at least 30 specimens per variable (for example “test method” or “test organism”).

4.3 Testing of wood-based materials

The sampling should take into account the variability of the wood-based material to be tested.

For each variation in processing parameter (e.g. a change in temperature, particle size, wood species), a minimum of 30 specimens is required, derived from at least 3 produced items (e.g. boards) sampled at random from 3 different batches. A minimum of 5 specimens from each batch should be tested.

If the material contains both sapwood and heartwood, care has to be taken that both sapwood and heartwood are used to produce the test specimens.

5 General principles for testing and classification

5.1 General principles for testing wood specimens

When testing a wood species, an identification of the tree or the wood species shall be done. Wood species shall be specified according to EN 13556.

In order to get a homogeneous set of samples in terms of moisture content, the test specimens shall be conditioned prior to testing in a ventilated conditioning chamber at controlled temperature and relative humidity, until their weight and moisture content are stabilized.

The sample selection requirement for reference specimens shall follow the instructions of the relevant test method. If several wood species are tested at the same time, one set of reference specimens is sufficient.

Test timber used to determine the durability of a wood species should not be oven-dried at temperatures above 60 °C prior to the test.

If laboratory test vessels are used, reference specimens and test specimens shall be tested in separate vessels.

EN 73 or EN 84 are ageing procedures which might be required prior to biological testing.

The properties of the test specimen shall, as far as possible, be representative for the wood species being tested even if this does not follow the instruction given on sample selection in the relevant test

standard. However, the results still cannot be expected to take into account the full range of variation of properties within a species.

EXAMPLE 1: If the test method excludes the use of "wood of resinous appearance", but the species to be tested normally has a naturally resinous appearance, this exclusion is ignored.

EXAMPLE 2: If the test method requires a certain number of growth rings per centimetre, this restriction is ignored if growth rings do not exist or are too widely spaced. This is of importance for some tropical timbers, because it is sometimes impossible to see the growth rings; the rings can also correspond not to the annual growth but to the alternation of dry and wet seasons.

5.2 General principles for the classification of durability

The durability of a wood species or a wood-based material to various wood destroying organisms is tested using methods described in relevant European Standards. The use of replicate specimens is a requirement in all test methods.

For wood species, durability classes refer only to heartwood. Sapwood is always regarded as not durable, unless test data provide different information.

Based on test results, the durability of a wood species or a wood-based material to the various wood-destroying organisms is classified within:

— a five grade scale for decay basidiomycete fungi and soft rotting micro-fungi

Table 1 — Durability classes (DC) of wood and wood-based materials to attack by decay fungi

Durability class	Description
DC 1	Very durable
DC 2	Durable
DC 3	Moderately durable
DC 4	Slightly durable
DC 5	Not durable

NOTE 1 This five-grade scale was initially designed in order to inform on the expected levels of performance of wood when used in contact with ground (service conditions as described for use class 4 in EN 335). Most of the data on biological durability against fungi, reported in Annex B, are derived from field tests, mainly performed according to the EN 252 standard. In other use classes, the service conditions can result in wood performance which differs from that implied by this classification.

— a two grade scale for beetles (*Hylotrupes bajulus*, *Anobium punctatum*, *Lyctus brunneus* and *Trichoferus holosericeus* Rossi (= *Trichoferus holosericeus cinereus*)

Table 2 — Durability classes (DC) of wood and wood-based materials to attack by wood-boring beetles

Durability class	Description
DC D	Durable
DC S	Not durable

Durability to *Hylotrupes bajulus* is only given for softwoods (see Annex B, Table B.1) as hardwoods are not attacked.

Durability to *Lyctus brunneus* is not mentioned in the list (see Annex B, Tables B.2 and B.3) as only the wood of starch-containing hardwood species with pores of suitable width is susceptible. For species with highly susceptible sapwood a specific note appears in the 'Remarks' column. Softwoods are not attacked.

Durability to *Trichoferus holosericeus*, which only attacks hardwoods in Southern Europe, is mentioned in the 'Remarks' column if a wood species is known as highly susceptible.

NOTE 2 The classification of a wood species or wood-based material as 'not durable' does not necessarily indicate that different products made with this material will be equally destroyed during their life in service. Susceptibility to insect attack may change over time through chemical changes in extractives, such as the fate of starch, which is the main source of food. Additionally, susceptibility of any commodity to biological attack may be influenced by other factors, such as its moisture content, design, maintenance and presence of surface coatings.

— a three-grades scale for termites

Table 3 — Durability classes (DC) of wood and wood-based materials to attack by termites

Durability class	Description
DC D	Durable
DC M	Moderately durable
DC S	Not durable

— a three-grades scale for marine organisms (or marine borers)

Table 4 — Durability classes (DC) of wood to attack by marine organisms

Durability class	Description
DC D	Durable
DC M	Moderately durable
DC S	Not durable

6 Test methods and classification system

NOTE Annex G provides a template form presenting the information which is required for adding new data to the standard.

6.1 Durability to wood-destroying fungi

6.1.1 General

Durability to a well-defined set of wood-destroying fungi can be assessed by performing laboratory tests (6.1.2.l and 6.1.2.2).

NOTE Field tests allow determining the durability of a wood species or a wood-based material in different end-uses (above-ground, in-ground) and expose it to a wider range of wood colonising and destroying organisms and long term conditioning through exposure to weather. Laboratory tests are more specific as they are performed under fully controlled conditions.

6.1.2 Testing durability against basidiomycete and soft-rot fungi

6.1.2.1 For solid wood and solid wood-based material

Durability against wood decay fungi based on a laboratory test shall be determined using CEN/TS 15083-1 for basidiomycetes and CEN/TS 15083-2 for soft rotting micro fungi.

The criteria for determining durability classes (DC), based on the CEN/TS 15083-1 are presented in Table 5.

Table 5 — Durability classes (DC) of wood to fungal attack (basidiomycete fungi)

Durability class	Description	Percentage mass loss (ML)
DC 1	Very durable	ML ≤ 5
DC 2	Durable	5 < ML ≤ 10
DC 3	Moderately durable	10 < ML ≤ 15
DC 4	Slightly durable	15 < ML ≤ 30
DC 5	Not durable	30 < ML
ML = highest of the median mass losses (in %) determined for test specimens exposed to each of the used test fungi		

The criteria for determining durability classes (DC), based on the CEN/TS 15083-2 are presented in Table 6. In this test, preliminary DC is based on the median of the mass loss for hardwoods or the MOE (apparent modulus of elasticity measured in 3 point bending according to EN 317) for softwoods.

Table 6 — Durability classes (DC) of wood to fungal attack (soft rot)

Durability class	Description	x value
DC 1	Very durable	x ≤ 0,10
DC 2	Durable	0,10 < x ≤ 0,20
DC 3	Moderately durable	0,20 < x ≤ 0,45
DC 4	Slightly durable	0,45 < x ≤ 0,80
DC 5	Not durable	x > 0,80
Hardwoods: x = median value of mass loss for timber test specimens / median value of mass loss for reference timber test specimens Softwoods: Calculate the “x value” for the test timber but using loss of MOE.		

Wood species known to be not durable should be used to test the virulence of fungi. Commonly, *Pinus sylvestris* sapwood is used for testing softwoods and *Fagus sylvatica* for testing hardwoods.

The validity criteria of the test are given in the corresponding test method.

The durability classification is based on the highest median mass loss determined for all the test specimens exposed to each of the test fungi.

Additional information about the spread of individual mass loss values should be provided. If individual mass loss values are distributed over two durability classes (x and y) with at least 40 % of values being in each of them, the retained durability class should not be based on the median mass loss but expressed as falling between “x – y “. High levels of variability should be clearly mentioned in the test report, e.g. by “v” as in the example presented in Table 7.

The spread of individual values can be expressed in test reports based on fitted probability density functions, as presented in Table 7.

Table 7 — Example of distribution of classes of mass loss values of the tested material in different durability classes based on fitted probability density functions

Wood species	Median mass loss (%)	% DC1	% DC2	% DC3	% DC4	% DC5	Durability class
A	2,2	83,0	15,6	1,3	0,1	0,0	1
B	7,3	27,2	46,4	21,8	4,6	0,0	2v
C	8,9	23,5	33,2	23,7	19,0	0,6	2v
D	28,2	0,0	0,0	13,4	46,6	40,0	4–5
"v" indicates that the species exhibits an unusually high level of variability							

6.1.2.2 For wood-based material other than solid wood

The test procedure described in ENV 12038 applies to wood-based products panels and the classification shall be undertaken according to Tables 5 and 6.

NOTE 1 CEN/TS 1099 specifies this method for testing biological durability of plywood.

NOTE 2 EN 15534–1 specifies this method for testing biological durability of wood polymer composites.

6.1.2.3 Durability of wood and wood-based materials used in-ground

The EN 252 standard provides a method which is suitable for assessing the durability of wood and wood-based materials in direct contact with the ground (use class 4). At least 30 stakes of the test wood species or wood-based material shall be used in place of the impregnated test stakes described in this standard. Stakes of *Pinus sylvestris* sapwood and *Fagus sylvatica* shall be used as references to measure microbiological activity of the field soil throughout the test. They shall be replaced as necessary when they fail.

It is recommended to perform the test in more than one field site.

NOTE The field conditions can vary between different test sites and comparing the results can consequently be difficult.

In the absence of a specific standard providing a test method allowing the determination of durability classes, the average life of wooden stakes used in-ground can be expressed relative to the life of the reference stakes as given in Table 8.

Table 8 — Durability classes (DC) to fungal attack for wood used in-ground determined using field tests based on EN 252

Durability class (DC)	Description	Results of field tests expressed as x values
DC 1	Very durable	$x > 5,0$
DC 2	Durable	$3,0 < x \leq 5,0$
DC 3	Moderately durable	$2,0 < x \leq 3,0$
DC 4	Slightly durable	$1,2 < x \leq 2,0$
DC 5	Not durable	$x \leq 1,2$
x value = average life of stakes / average life of the more durable set of reference stakes		

6.1.2.4 Durability of wood and wood-based materials used above-ground

Different field test methods, standardized or not, have been developed in order to assess the durability of wood and wood-based materials in above-ground situations (use classes 3) and can be used for that purpose, such as the L-joint (EN 330), lap-joint (CEN/TS 12037), ground proximity and double-layer tests.

It is recommended to perform the test in more than one field site.

NOTE The climate can vary between different test sites and comparing the results can consequently be difficult.

6.2 Durability to larvae of dry wood-destroying beetles

The durability of wood and wood-based-materials to attack by *Hylotrupes bajulus*, *Anobium punctatum* and *Lyctus brunneus* shall be tested using procedures based on those in EN 46-1, EN 49-1 and EN 20-1 respectively.

If durability to *Trichoferus holosericeus* is required, tests shall be carried out as for *Hylotrupes bajulus*, but using *Fagus sylvatica* as the reference species.

Specimens of the test wood species (see clause 4) shall be used in place of the preservative treated wood specimens mentioned in those standards.

A wood species or a wood-based material is classified as “not durable” if one or more live insects of the respective test organism are found at the end of the test. If no live insects are found at the end of the respective test, and if the validity criteria for the respective test in the reference species are fulfilled, the test species is classified as “durable”.

NOTE If it is expected, that the durability of a specific wood or wood-based material is based on behavioural aspects of wood destroying adult beetles prior to egg laying, different test methods can need to be applied.

6.3 Durability to termites

The durability of wood and wood-based materials to attack by subterranean termites shall be tested using procedures based on EN 117 in the absence of any other more specific standard. The durability should be tested against the termite genus of major economic importance occurring in the area where the wood is meant to be used.

NOTE 1 Usually, durability is tested on Reticulitermes termites in Europe and most frequently on Coptotermes, Nasutitremes and Heterotermes in member state tropical regions outside the European continent, depending on their geographical areas.

Specimens of the test wood species or wood-based material (see section 4) shall be used in place of the preservative treated wood specimens mentioned in EN 117.

The test procedures described in EN 117 results in attack ratings on a scale 0 - 4. The test shall be considered valid if the reference not durable species has a rating of 4 in the test.

The durability of the species or wood-based material under test shall be classified in accordance with Table 9.

Table 9 — Classes of durability of wood species and wood-based materials to termite attack based on EN 117 ratings

Durability class	Description	Rating
DC D	Durable	≥ 90 % "0 or 1" and max 10 % "2" [a]
DC M	Moderately durable	< 50 % "3, 4"
DC S	Not durable	≥ 50 % "3, 4"
[a] 90 % of the test samples rated 0 or 1 and a maximum of 10 % of the test samples rated 2 and 0 % "3 and 4"		

NOTE 2 Durability class "DC M", derived from a laboratory test, is of informative value only. Other parameters like population size and dynamics of occurring termites in the intended geographical region, where the wood or wood-based material will be used, need also to be evaluated.

NOTE 3 So far, no standardized European methodology allowing assessing specifically the durability against drywood termites (*Kalotermes flavicollis* and *Cryptotermes spp*.) exists.

6.4 Durability to marine organisms

The durability of wood and wood-based materials to attack by marine organisms shall be tested using procedures based on those described in EN 275.

NOTE Durability to marine borers is best tested in geographical locations where the wood or wood-based material is intended for use to ensure their exposure to as wide a range of marine borers as can be encountered when in service.

Specimens of the test wood species shall be used in place of the preservative treated wood specimens in EN 275.

The reference specimens shall be *Pinus sylvestris* sapwood. Any other not durable species could be added for virulence control. They shall be replaced as necessary when they fail.

The test shall be used to determine the time needed for the test specimens to fail.

The durability of the species under test shall be classified in accordance with Table 10.

Table 10 — Classes of durability of wood or wood-based materials to attack by marine organisms using tests based on EN 275

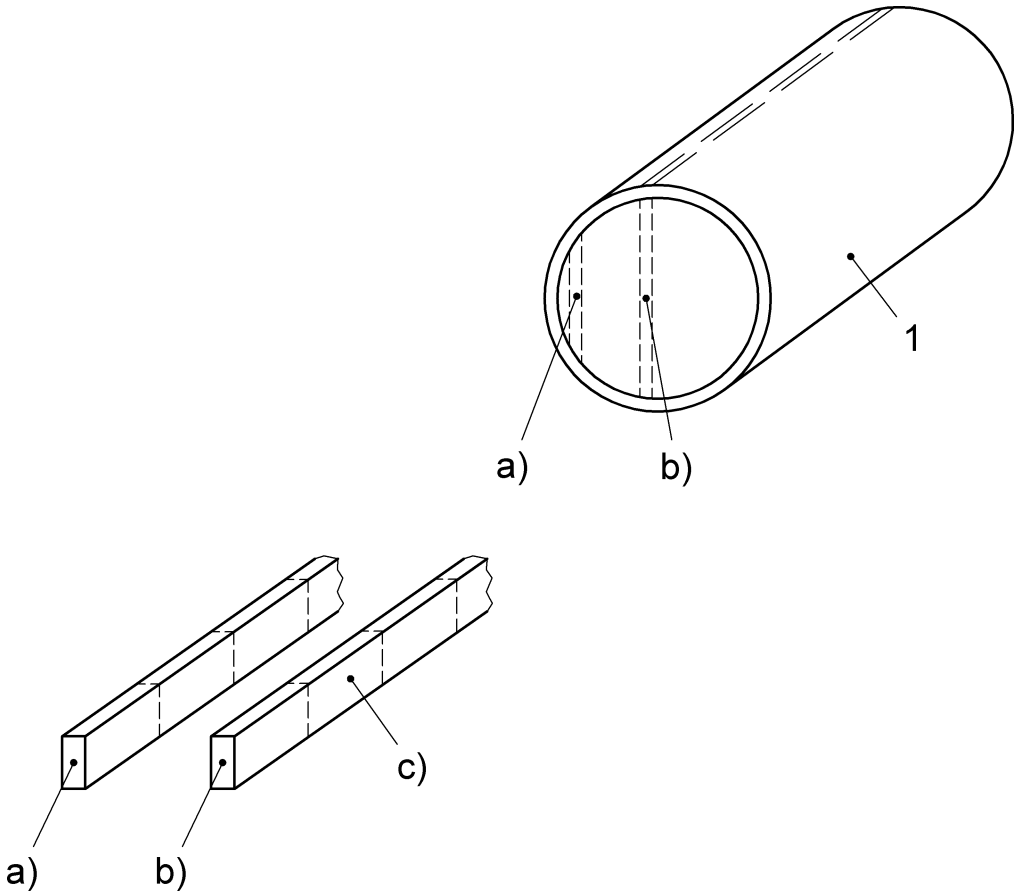
Durability class	Description	Results of field tests expressed as x
DC D	Durable	$x > 5,0$
DC M	Moderately durable	$3 < x \leq 5$
DC S	Not durable	$x \leq 3$
x = average life of test specimens/average life of the more durable set of reference specimens		

Annex A
(informative)

Example of scheme for sampling heartwood

A.1 Logs

A scheme for the cutting of laths from logs to represent the outer and inner heartwood is illustrated in Figure A.1. This also shows the cutting of the laths into test specimens. The length of the logs necessary for sampling depends on the amount of specimens required for the relevant test procedure.



Key

1 log

a laths from the outer part of the heartwood

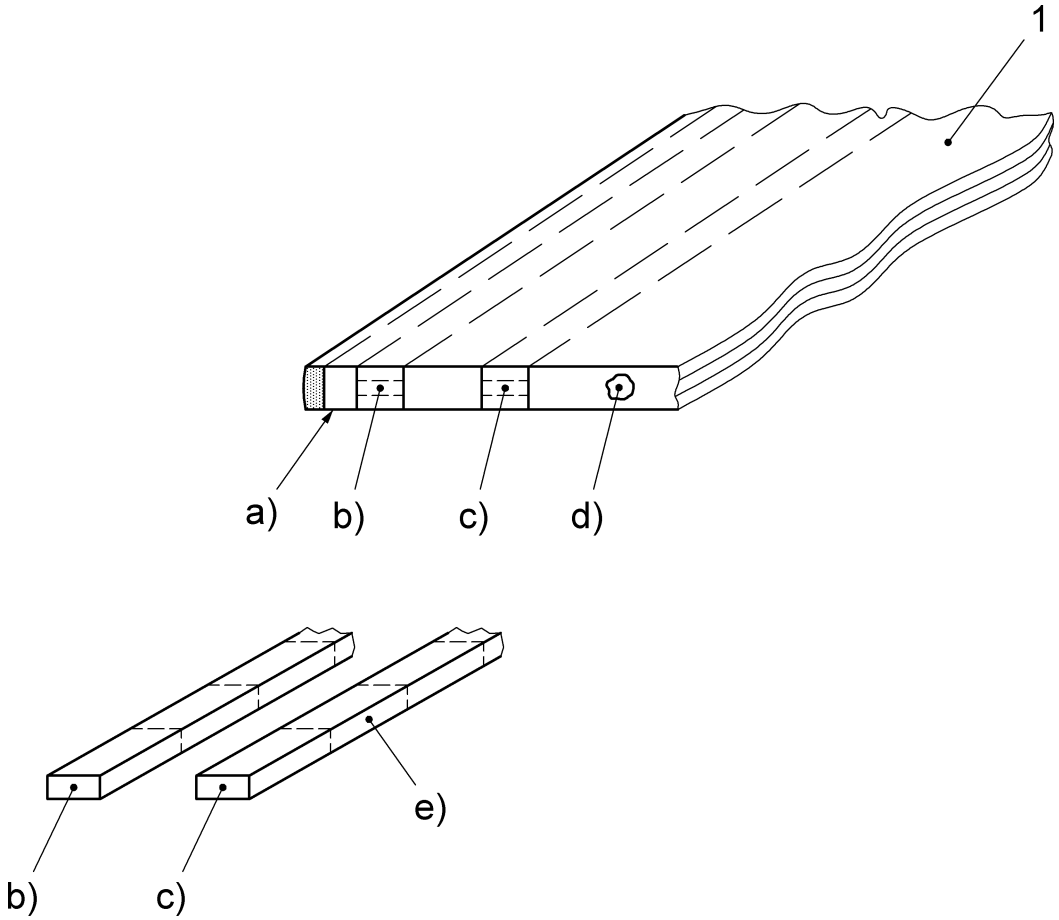
b laths from the inner part of the heartwood

c test specimen

Figure A.1 — Sampling from logs (1) - Taking laths from the outer (a) and inner (b) part of the heartwood and cutting them into test specimens (c)

A.2 Central boards

A scheme for the cutting of laths from centrally cut boards to represent the outer and inner heartwood is illustrated in Figure A.2. This also shows the cutting of the laths into test specimens. The length of the boards necessary for sampling depends on the amount of specimens required for the relevant test procedure.



Key

a sap
b outer part
c inner part
d pith
e test specimens

Figure A.2 — Sampling from central boards. Taking laths from the outer and inner part of the heartwood and cutting them into test specimens

Annex B
(informative)

Guide to biological durability and treatability of wood species marketed in Europe

B.1 General

Wood is a biological material. Its natural resistance to various forms of biological attack is affected by many factors. Consequently, definitive statements about biological durability cannot be made without having accurate and comprehensive test data. However, based on the information currently available, EN 350 gives guidance on the durability of the heartwood of selected wood species to degradation by a range of organisms.

The data given in the tables are based upon information drawn from various sources, including historical records, practical experience, laboratory tests, field tests and other data. Old data come from the previous version EN 350-2:1994. The omission of a species does not necessarily imply that it is unsuitable for use. A species can have been omitted because it was not considered of sufficient economic importance to be included, or because no or insufficient data were available to classify it.

For fungi, two durability classifications are listed, noted as follows: X *(Y)*. The first one is usually derived from the rating of heartwood stakes exposed half buried outdoors in soil and in some cases combined with the results of laboratory tests performed in-ground situation (soft rot test). The second one is based on the results of laboratory tests aiming to determine the resistance against basidiomycete fungi. Detailed guidance concerning the classification of wood species in relation to fungal degradation in other than ground contact situations is not given as this is a product of a complex interaction of parameters which is not fully mastered.

For wood-boring beetles, different wording is used and different information recorded in Tables B.1, B.2 and B.3:

— *Hylotrupes* appears in Table B.1 but not in Tables B.2 and B.3 because only softwood species are attacked;

— The wording “beetles” is used only for tropical species (Table B.3), because only general data with regards to the resistance against wood-boring beetles may be available but not specific data on *Anobium* (mentioned in Tables B.1 and B.2).

For termites, the classification is based on three resistance classes. However, the class M (moderately durable) is defined based on laboratory tests only, that means that wood species classified as M or S (not durable) will not necessarily perform very differently in real-use conditions. Their performance will depend on the importance of termite infestations, the termite species present and on the time of exposure. This intermediate classification is provided to help ranking wood species and selecting a wood species for a given application and given country (or area of exposure).

Information on other selected characteristics of each wood species is given for the guidance of users.

For end uses where durability is important, the lowest durability of the relevant classes listed for a wood species should be assumed unless specific source-related information is available.

B.2 Wood species

In Tables B.1 to B.4, wood species are listed alphabetically according to their botanical names.

— Table B.1 lists the data for softwoods;

— Table B.2 lists the data for temperate hardwoods;

— Table B.3 lists the data for tropical hardwoods;

— Table B.4 lists woods of different species which are sold together as commercial groupings.

For European species, common names are given in parallel in English, French, and German. For tropical wood species the ATIBT[1] name is given where possible. Other common names are given only if they are widely used.

The origins of common names are indicated as follows:

X	ATIBT pilot name
D	German name
E	English name
F	French name
O	Other names

Information on the origin of the wood species is given when available. Wood properties can vary according to the geographical origin.

Information on density (in kilogram per cubic meter) is included when available in order to provide an indication of physical and mechanical properties. However, no clear correlation exists between density and biological durability or treatability. The density is based on mass/volume at wood moisture content (MC) of 12 % mass fraction. The range refers to commonly encountered values and not to the total possible variation.

B.3 Sapwood/heartwood

In Tables B.1, B.2 and B.3 typical sapwood width is given to indicate its abundance in mature trees and is categorized as follows:

— vs very small (<2 cm);

— s small (2 cm to 5 cm);

— m medium (>5 cm to 10 cm);

— b broad (>10 cm);

— x no distinct differentiation between heartwood and sapwood;

— (x) generally no distinct differentiation between heartwood and sapwood.

B.4 Treatability

Treatability is the ease with which a wood can be penetrated by a liquid (for example a wood preservative).

[1] Association Technique Internationale des Bois Tropicaux.

In Tables B.1, B.2 and B.3 treatability of sapwood and heartwood is categorized as follows:

— 1 easily treated;

— 2 moderately easy to treat;

— 3 difficult to treat;

— 4 extremely difficult to treat;

— n/a insufficient data available;

— v the species exhibits an unusually high level of variability.

B.5 Additional notes in Tables B.1, B.2, and B.3

When necessary, the following additional notes are used:

— v the species exhibits an unusually high level of variability;

— n/a insufficient data available.

B.6 Convention on International Trade in Endangered Species (CITES)

When selecting a wood species for use listed in EN 350, consideration shall be given to whether the selected species is protected by the Convention on International Trade in Endangered Species (CITES) or listed as endangered or critically endangered by the IUCN Redlist. If it is CITES listed it should not be specified for use.

When sourcing a wood species, evidence of appropriate due diligence as required by the EUTR should be sought from suppliers.

B.7 Adding new wood species or adjust data in Table B.1

Annex G provides a template form presenting the information which is required for adding new data to Tables B.1 to B.3 in this standard.

Table B.1 —Durability of heartwood and treatability of softwood species

For fungi, two durability classifications is listed, noted as follows: X *(Y)*. The first one is usually derived from the results of laboratory or field tests simulating in-ground situation. The second one is based on the results of laboratory tests aiming to determine the durability against basidiomycete wood-decay fungi.

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density / kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	*Hylotrupes*	*Anobium*	Termites	Heartwood	Sapwood		
1	*Abies alba* Mill. (syn. *Abies pectinata*) *A. excelsior* Franco *[= A. grandis (*Dougl.) Lindl] *A. procera* Rehde	ABAL ABGR APGR	E: Fir F: Sapin D: Tanne, Weißtanne	Europe N America	440–460–480	4 *(4)*	S	S	S	2–3	2v	x	Prone to blue stain Not resistant to marine borers
2	*Agathis damara* (A.B. Lambe) L. *C. Rich* [= *A. alba* Foxw] *A. australis* (D.Don.) Salisb. *A. sp.pl.*	AGDM AGAS	X: Agathis E: Kauri F: Agathis D: Agathis	Australia New Zealand Malaysia Papua New Guine	430–490–550	3–4	D	D	S	3	n/a	x	Prone to blue stain Not resistant to marine borers
3	*Araucaria angustifolia* (Bertol.) O. Ktze.	ARAN	X: Pino do Parana E: Parana Pine F: Pin de Parana D: Brasilkiefer	Brazil	500–540–600	4–5	D	D	S	2	1	b	Prone to blue stain Not resistant to marine borers
4	*Calocedrus decurrens* (Torr.) Florin	CCDC	E: Incense cedar F: Libocèdre D: Kalifornische Bleistiftzeder	N America		1–2	n/a	n/a	n/a	n/a	n/a	n/a	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density / kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	*Hylotrupes*	*Anobium*	Termites	Heartwood	Sapwood		
5	*Cedrus atlantica* (Endl.) Manetti ex Carr. *C. deodara* (D. Don) G. Don *Cedrus atlantica* (Endl.) Manetti	CDDX	E: Cedar F: Cèdre D: Echte Zeder	Africa, Asia		1–2	D	D	M	3	n/a	n/a	Not resistant to marine borers
6	*Chamaecyparis nootkatensis*	CHNT	E: Yellow Cedar F: Yellow Cedar D: Scheinzypresse	N America	430–480–530	2–3	D	D	M	3	1	s	
7	*Cryptomeria japonica* (L.f.) D.Don.	CYJP	X: Sugi E: Sugi F: Cryptomeria D: Sicheltanne	E Asia and cultivated in Europe	280–320–400	5	D	n/a	S	2–3	1	s	Prone to blue stain Not resistant to marine borers
				La Reunion Island		2v	D	n/a	S	(2–3)v	1		Treatability and durability of heartwood highly variable
8	*Fitzroya cupressoides* (Mol.) F.M. Johnston	FICP	X: Alerce E: Alerce	S America		1	n/a	n/a	D	n/a	n/a	n/a	Endangered species (prohibited species in EN 13556)
9	*Juniperus procera* Hochst. Ex Endl.	JUPR	X: East African cedar E: East African pencil cedar F: East African cedar	Africa		2	D	D	M-D	n/a	n/a	n/a	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density / kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	*Hylotrupes*	*Anobium*	Termites	Heartwood	Sapwood		
			D: Afrikanische Bleistiftzeder										
10	*Juniperus virginiana* L.	JUVR	E: Virginian pencil cedar F:Eastern red cedar D: Virginische Bleistiftzeder	America		2	n/a	n/a	n/a	n/a	n/a	n/a	
11	*Larix decidua* Mill. (= *L. europaea* Lam. et DC) *L. kaempferi* (Lamb.) Sarg. [= *L. leptolepis* (Sieb. and Zucc.) Gord.] *L. x eurolepis* A. Henr. (= *L. decidua x kaempferi*) *L. occidentalis* Nutt.	LADC LAKM LAER LAOC	E: Larch F: Mélèze D: Lärche	Europe Japan Hybrid	470–600–650	3–4 *(3–4)*	D	D	S	4	2v	s	Not resistant to marine borers
12	*Larix sibirica* Ledeb. (=*L. russica* (Endl.) Sabine) *L. gmelinii*		E: Siberian Larch F: Mélèze de Sibérie D: Sibirische Lärche	Siberia Russia	680–700 > 700	*(3–4)* *(3)*	D	D	S	n/a	n/a	n/a	
13	*Picea abies* (L.) Karst.	PCAB	E: Norway Spruce F: Epicéa	Europe	440–460–470	4 *(4–5)*	S	S	S	3–4	3v	x	Not resistant to marine borers

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density / kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	*Hylotrupes*	*Anobium*	Termites	Heartwood	Sapwood		
			D: Fichte										
14	*Picea sitchensis* (Bong.) Carr.	PCST	E: Sitka Spruce F: Sitka D: Sitka Fichte	N. America and cultivated in Europe	400–440–450	4–5	D	S	S	3	2–3	(x)	Not resistant to marine borers
15	*Pinus* spp. *P. caribaea* Morelet *P. oocarpa* Schiede	PNCR PNOO	X: Pitch Pine (1) E: Caribbean Pitch Pine (1) F: Pitchpin (1) D: Karibischer Kiefer	C. America	710–750–770	3	D	D	S	4	1	m	Not resistant to marine borers
16	*Pinus* spp. *Pinus elliottii* Engelm. *P. palustris* Mill. *P. taeda* L. *P. echinata* Mill.	PNEL PNPL PNTD PNEC	X: Pitch Pine (1) E: American Pitch Pine (1) F: Pitchpin (1) D: Weihrauchkiefer	N. America	650–660–670	3	D	D	S	3–4	1	m	Not resistant to marine borers
17	*Pinus* spp. *Pinus elliottii* Engelm. *P. taeda* L.	PNEL PNTD	O:Southern Pine (2)	Cultivated in C/N America	400–450–500	4	D	D	S	3	1	m	Not resistant to marine borers
18	*Pinus contorta* Dougl. Ex Loud var. *contorta* Wats., var. *latifolia* Wats.	PNCN	E: Lodgepole Pine F: Pin de Murray	N America and cultivated in Europe	430–460–470	3–4	D	D	S	3–4	1	m	Not resistant to marine borers

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density / kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	*Hylotrupes*	*Anobium*	Termites	Heartwood	Sapwood		
			D: Contorta Kiefer										
19	a) *Pinus nigra* Arnold *ssp. nigra*, [= *P. laricio* (Hoess) Loud.] b) *P.nigra ssp. laricio* (Poir.) Maire	PNNN	E: a) Austrian Pine b) Corsican Pine F: a) Pin noir d'Autriche b) Pin laricio de Corse D: Schwarzkiefer	SE Europe and cultivated in UK	510–580–650	4v *(3)*	D	D	S	4v	1v	m-b	Not resistant to marine borers
20	*Pinus pinaster* Ait. [= *P. maritima* Lam. non Mill.]	PNPN	E: Maritime Pine F: Pin maritime D: Seestrand-Kiefer	S/SW Europe	530–540–550	3–4	D	D	S	4	1	b	Not resistant to marine borers
21	*Pinus pinea*	PNPI	E: Umbrella pine F: Pin parasol	Europe (Italy)	...- 584 - ...	5	D	D	S	n/a	n/a	n/a	Not resistant to marine borers
22	*Pinus radiata* D. Don	PNRD	X: Pin radiata O: Radiata Pine	Cultivated in Brasil, Chile, Australia, New Zealand, S Africa	420–470–500	4–5	D	S	S	2–3	1	b	Not resistant to marine borers

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density / kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	*Hylotrupes*	*Anobium*	Termites	Heartwood	Sapwood		
23	*Pinus strobus* L.	PNST	E: Yellow Pine Weymouth Pine F: Pin Weymouth D: Weymouthskiefer strobe	N America;	400–410–420	4	D	S	S	2	1	b	Not resistant to marine borers
24	*Pinus sylvestris* L.	PNSY	E: Scots Pine Redwood F: Pin sylvestre D: Kiefer, Föhre	Europe	500–520–540	3–4 *(2–5)*	D	D	S	3–4	1	s-m	This species exhibits a wide range of durability against basidiomycete fungi when tested under laboratory conditions
25	*Pseudotsuga menziesii* (Mirb.) Franco	PSMN	E: Douglas Fir F: Douglas D: Douglasie	N America	510–530–550	3	D	D	S	4	3	s	Not resistant to marine borers
				cultivated in Europe	470–510–520	3–4 *(3–5)*					2–3		
26	*Sequoia sempervirens* (D. Don) *Endl.*	SESM	E: Sequoia D: Küstenseqouie	N America;		2	n/a	n/a	M	n/a	n/a	n/a	
27	*Taxodium distichum* (L.) Rich	TADS	E: Southern cypress F: Cyprès chauve D:	N America;		2	n/a	n/a	n/a	n/a	n/a	n/a	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density / kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	*Hylotrupes*	*Anobium*	Termites	Heartwood	Sapwood		
			Sumpfzypresse										
28	*Taxus baccata* L.	TXBC	E: Yew F: If D: Eibe	Europe	650–690–800	2	D	D	n/a	3	2	vs	
29	*Thuja plicata* (D. Don)	THPL	E: Western Red Cedar F: Western Red Cedar D: Riesenlebensbaum	N America Cultivated in UK	330–370–390	2 3 (1)	D	D	S	3–4	3	s	Not resistant to marine borers
30	*Thuja occidentalis*(L.)	THOC	E*:* Eastern white cedar F: Thuya du Canada D: Eastern white cedar	Canada	...- 393 - ...	*(1)*	n/a	n/a	n/a	n/a	n/a	n/a	
31	*Tsuga heterophylla* (Raf.) Sarg.	TSHT	E: Western Hemlock F: Western Hemlock D: Western Hemlock	N America Cultivated in Europe	470–490–510	4	D	S	S	3 2	1 2	x	

Table B.2 — Durability and treatability of temperate hardwood species

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood			Treatability		Sap wood width	Additional data / information when available
						Fungi	*Anobium*	Termites	Heartwood	Sapwood		
1	a) *Acer pseudoplatanus* L. b) *A. platanoides* L.	ACPS ACPL	E: a) Sycamore, Maple b) Norway Maple F: Erable Sycomore D: a) Spitzahorn b) Bergahorn	Europe Israel	610–640–680	5	D	S	1	1	x	Not resistant to marine borers
2	*Aesculus hippocastanum* L.	AEHP	E: European horse-chestnut F: Maronnier d'Inde D: Roßkastanie	Europe	500–540–590	5	S	S	1	1	x	
3	*Alnus glutinosa* (L.) Gaertn *A. incana* (L.) Moench	ALGL ALIN	E: Alder F: Aulne D: Erle	Europe	500–530–550 (for *A. glutinosa*)	5	D	S	1	1	x	Not resistant to *Trichoferus holosericeus*
4	*Betula alleghaniensis* Britt. [= *B. lutea* Michx.f.]	BTAL	E: Yellow Birch F: Bouleau jaune d'Amerique D: Gelbbirke	E/N America	550–670–710	5	D	S	1–2	1–2	x	
5	*Betula papyrifera* Marsh.	BTPP	E: Paper Birch F: Bouleau à Papier	N America	580–620–740	5	D	S	1–2	1–2	x	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood			Treatability		Sap wood width	Additional data / information when available
						Fungi	*Anobium*	Termites	Heartwood	Sapwood		
			D: Papierbirke									
6	*Betula pubescens* Ehrh. *B. pendula* Roth	BTXX	E: European Birch F: Bouleau D: Gemeine Birke	Europe	640–660–670	5	D	S	1–2	1–2	x	
7	*Carpinus betulus* L.	CPBT	E: Hornbean F: Charme D: Hainbuche	Europe	750–800–850	5	n/a	S	1	1	x	
8	*Carya glabra* (Mill.) Sweet *C. ovata* (Mill.) K.Koch *C. tomentosa* Nutt.	CAXX	E/F/D: Hickory	N America	790–800–830	4	n/a	S	2	1	x	
9	*Castanea sativa* Mill.	CTST	E: Sweet Chestnut F: Châtaignier D: Edelkastanie	Europe	540–590–650	2 *(1)*	D	M	4	2	s	Sapwood not resistant to *Trichoferus holosericeus* Not resistant to marine borers
10	*Cedrela* spp. *C. angustifolia* C. DC. *C. fissilis* Vell. *C. odorata* L.	CEXX	E: American Cedar F: Cèdre D: Zeder	C/S America	450–490–600	2	n/a	M	3–4	1–2	s	
11	*Eucalyptus globulus* Labill.	EUGL	X: Blue gum E: Southern Blue	Cultivated in Europe	700–750–800	5	n/a	S	3	1	s	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood			Treatability		Sap wood width	Additional data / information when available
						Fungi	*Anobium*	Termites	Heartwood	Sapwood		
			Gum F: Eucalyptus bleu D: Blauer Eucalyptus	Galicia (Sp)	750–800–900	*(2)*	D		n/a	n/a		
12	*Eucalyptus grandis* Hill. Ex Maid.		X : Kamarere O : Flooded gum, Rose gum, Grandis	Spain	…- 587 -…	*(2–3)*	D	S	n/a	n/a	x	
				Italy		*(2–3)*	n/a	n/a	n/a			
				Argentina	…- 540 -…	*(3–4)*	D	S	n/a			
13	*Eucalyptus saligna* Sm.	EUSL	X : Saligna gum E: Saligna gum F: Eucalyptus saligna D : Sydney blue gum	Australia	…- 850 -…	3	n/a	n/a	n/a	n/a	n/a	
14	*Eucalyptus marginata* Sm.	EUMR	O: Jarrah	Australia	790–830–900	1	n/a	M	4	1	s	
15	*Eucalyptus x trabutii*			cultivated in Italy		*(1)*	n/a	n/a	n/a	n/a	n/a	
				S America		3–4						
16	*Fagus sylvatica* L.	FASY	E: European Beech F: Hêtre D: Buche	Europe	690–710–750	5 *(4–5)*	S	S	1v	1	x	Not resistant to *Trichoferus holosericeus* Treatability (4) refers to red-heart

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood			Treatability		Sap wood width	Additional data / information when available
						Fungi	*Anobium*	Termites	Heartwood	Sapwood		
												Not resistant to marine borers
17	*Fraxinus excelsior* L.	FXEX	E: European Ash F: Frêne D: Esche	Europe	680–700–750	5 *(4)*	S	S	2	2	(x)	Not resistant to marine borers
18	*Juglans nigra* L.	JGNG	E: American Walnut F: Noyer d'Amérique D: Amerikanischer Nussbaum, Schwarznuss	N America	550–620–660	3	n/a	n/a	3–4	1	s	
19	*Juglans regia* L.	JGRG	E: European Walnut F: Noyer D: Nußbaum	Europe	630–670–680	3	D	S	3	1	s	
20	*Liquidambar styraciflua* L.	LQST	E: American red gum F: Sweetgum D. Amerikanischer Amberbaum	N America		5	n/a	n/a	n/a	n/a	n/a	
21	*Liriodendron tulipifera*	LITL	E: American	N America	…- 614 -…	4	n/a	n/a	n/a	n/a	n/a	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood			Treatability		Sap wood width	Additional data / information when available
						Fungi	*Anobium*	Termites	Heartwood	Sapwood		
	L.		whitewood F: Tulipier D: Tulpenbaum			*(4)*						
22	*Malus sylvestris* L.	MLSY	E : Apple tree F : Pommier D : Apfelbaum	Europe		4	n/a	n/a	n/a	n/a	n/a	
23	*Nothofagus menziesii* Oerst.	NOMN	O: Silver Beech	New Zealand	540–550	5	n/a	n/a	4	1	n/a	
24	*Paulownia* sp.	-	E: Princess tree O: Paulownia	Europe		5	n/a	S	n/a	n/a	n/a	Not resistant to marine borers
25	*Platanus x hispanica* Muenchh.	PLXH	E: European plane F/D: Platane	Europe		5	S	S	n/a	n/a	n/a	Not resistant to marine borers
26	*Populus x canescens* (Ait.) Sm. *P. nigra* L. *P. alba* L. *P.* hybrids	POCN PONG POAL	E: Poplar F: Peuplier D: Pappel	Europe	420–440–480	5 *(5)*	S	S	3v	1v	x	Not resistant to *Trichoferus holosericeus* Not resistant to marine borers Prone to blue stain
27	*Prunus avium* L.	PRAV	E: European cherry F: Merisier D: Kirschbaum	Europe		3–5	S	D	n/a	n/a	n/a	
28	*Pyrus communis* L.	PYCM	E : Pear	Europe		4	n/a	n/a	n/a	n/a	n/a	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood			Treatability		Sap wood width	Additional data / information when available
						Fungi	*Anobium*	Termites	Heartwood	Sapwood		
			F : Poirier D : Birnbaum									
29	*Quercus alba* L. *Q. prinus* L. *Q. lyrata* Walt. *Q. michauxii* Nutt. *Q.* sp.pl.	QCXA	E: American white oak F: Chêne blanc d'Amérique D: Amerikanische Weißeiche	N America	670–730–770 649	2–3 *(2)*	D	M	4	2	s	Sapwood not resistant to *Lyctus*
30	*Quercus cerris* L.	QCCR	E: Turkey Oak F: Chêne chevelu D: Zerreiche	Europe	710–770–860	3	n/a	M	4	1	b	Sapwood *Lyctus* n/a, not resistant to *Trichoferus holosericeus*
31	*Quercus robur* L. *Q. petraea (Matt.)* Liebl	QCXE	E: European Oak F: Chêne rouvre D: Eiche	Europe	650–670–710–760	2–4 *(1–2)*	D	M	4	1	s	Sapwood not resistant to *Lyctus* and *Trichoferus holosericeus* This species exhibits a wide range of durability fungi when tested in in-ground conditions
32	*Quercus rubra* L. *Q. falcata* Michx. *Q. shumardii* Buck. *Q.* sp.pl.	QCXR	E: American red oak F: Chêne rouge d'Amérique D: Amerikanische Roteiche	N America	650–700–790 829	3–4 *(3)*	n/a	S	2–3	1	s	Sapwood not resistant to *Lyctus*

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood			Treatability		Sap wood width	
						Fungi	*Anobium*	Termites	Heartwood	Sapwood		Additional data / information when available
33	*Robinia pseudoacacia* L.	ROPS	E: Robinia F: Robinier faux-acacia D: Robinie	N America Europe	720–740–800	1–2 *(1–2)*	D	D	4	1	vs	Not resistant to marine borers
34	*Salix caprea, Salix* spp.	SAXX	E: Goat willow F: Saule des chèvres D: Weide	Europe N. Africa, W. Asia		*(5)*	n/a	n/a	n/a	n/a		
35	*Tilia cordata* Mill., *T. platyphyllos* Scop. *T. x europaea* L.	TIXX	E: European lime F: Tilleul D: Linde	Europe	520–540–560	5	n/a	S	1	1	x	
36	*Ulmus carpinifolia* Gled. [= *U. campestris* L.p.p.] *U. glabra* Huds. *[= U. montana* With.] *U. procera* Salisb. *[= U. campestris* L.p.p.] *U. x hollandica* Mill. *U. laevis Pall. [= U. effusa* Willd.*]*	ULGL ULPR ULXH	E: Elm F: Orme D: Ulme	Europe	630–650–680	4	S	S	2–3	1	s	

Table B.3 — Durability and treatability of tropical hardwood species

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heartwood	Sapwood		
1	*Acacia nigrescens* Oliv.	-	X: Namuno	E Africa (Mozambique)	820–880–930	1	n/a	D	n/a	4	2	s	
2	*Acacia* spp. *A. auriculiformis* A. Cunn. *A. mangium* Willd.	-	X: Acacia	SE Asia	400–500–600	3–4	S	S	S	3	n/a		
3	*Afzelia* spp. p.p. *A. bella* Harms *A. bipindensis* Harms *A. pachyloba* Harms *A. quanzensis* Welw. *Intsia cuanzensis* Oliv.	AFXX	X: Doussié E: Afzelia F: Doussié D: Afzelia	W Africa	730–800–830	1	D	D	S	4	2	s	Not resistant to termites under lab conditions.
4	*Afzelia* spp. p.p. *A. rhomboidea* S. Vidal *A. xylocarpa* Craib *Intsia bijuga* (Colebr.) O. Ktze. *I. palembanica* Miq. *Intsia* sp. pl.	INXX	X: Merbau O: Hintsy	SE Asia Australasia	730–800–830	1–2 *(1)*	n/a	D	S	4	2	m	Not resistant to termites under lab conditions
5	*Albizia* spp. p.p. *A. angolensis* Welw.	AZXX	X: Iatandza	W/ .Africa	500–600–650	2	D	D	S	3	3	s	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		
	A. antunesiana Harms *A. ferruginea* Benth. *A. glaberrima* Benth. *A. versicolour* Welw.												
6	*Amburana cearensis* A.C. Smith	AMCR	X: Cerejeira	S America	550–600–650	3	S	S	S	2	2	m	
7	*Amphimas* spp. *A. pterocarpoides* Harms. *A. ferrugineus* Pellegr. *Amphimas* sp. pl.	APPT	X: Lati E: Amphimas F/D: Lati	W Africa	730–750–770	3	n/a	S	S	4	2	m	
8	*Apuleia leiocarpa* J.F. Macbr.	-	X: Grapia O: Garapa	S America	700–800–900	3	D	M	D	3	3	m	
9	*Aspidosperma* spp. p.p. *A. album* R. Ben. *A. desmanthum* Muell. Arg.	ASXX	X: Araracanga	C/S America	800–950–1050	1	D	M	D	3	3	s-m	
10	*Astronium* spp. p.p. *A. fraxinifolium* Schott *A. gracile* Engl. *A. lecointei* Ducke	AVXX	X: Gonçalo alvez O: Muiracatiara	C/S America	650–800–950	1	n/a	D	n/a	4	4	m-l	
11	*Autranella congolensis* A. Chev.	AWCO	X: Mukulungu	W/E Africa	850–950–1100	1	D	D	D	3	3	s	
12	*Bagassa guianensis* Aubl.	BGGN	X: Tatajuba	S America	700–800–	1	D	D	D	3	3	s	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		
			O: Bagassa		900								
13	*Anisoptera* spp.	ANXX	X: Mersawa O: Krabak	SE Asia	520–650–740	4	S	S	S	3–4	n/a	x	
14	*Antiaris toxicaria* (Pers.) Lesch.	ATTX	X: Ako E: Antiaris F/D: Ako	W/E Africa	430–450–460	5	S	S	S	1	1	x	Not resistant to *Lyctus*
15	*Aspidosperma* spp. *A. polyneuron* F. Muell.	ASXX	X: Peroba rosa	S America	650–750–800	3v	n/a	S	n/a	3	1	s	
16	*Aucoumea klaineana* Pierre	AUKL	X: Okoumé E: Gaboon F/D: Okoumé	W Africa	430–440–450	4 *(4–5)*	D	S	S	3	n/a	s	
17	*Baillonella toxisperma* Pierre	BLTX	X: Moabi	W Africa	770–800–830	1	D	D	D	3–4	n/a	m	Not resistant to termites under lab conditions
18	*Bobgunnia fistuloides* J.H. Kirkbr. and Wiersema	SZXX	X: Pao rosa	W/E Africa	900–1000–1100	1	D	D	S	3	3	s	
19	*Brachylaena hutchinsii* Hutch.	BYHT	X: Mühühü	E Africa	830–910–960	1	n/a	S	n/a	4	n/a	s	
20	*Calophyllum* spp. *C. ferrugineum* Ridl. *C. inophyllum* L.	CLXX	X: Bintangor	SE Asia, *Australasia*	630–660–690	3 *(1–3)*	D	M	S	4	2	s	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		
	C. neo-ebudicum Guillaum. *C. papuanum* Lauterb. *C. teysmannii* Miq. *C. vitiense* Turrill												
21	*Canarium schweinfurthii* Engl.	CNSC	X: Aielé E: African Canarium F/D: Aiélé	W/E Africa	490–500–530	5	n/a	S	n/a	4	1	m	Sapwood not resistant to *Lyctus*
22	*Canarium* spp. *C. euphyllum* Kurz *C. strictum* Roxb. *Dacryodes costata* H.J. Lam *Garuga* sp. pl. *Protium* sp. pl. *Santiria* sp. pl.	-	X: Kedondong	SE Asia	500–650–750	5	S	S	S	3	n/a	s	
23	*Carapa guianensis* Aubl., *C. procera* Miq. *Carapa* spp.	CRGN	X: Andiroba	C/S America	610–620–640	3–4	S	M	S	3	n/a	s	
24	*Caryocar glabrum* Pers.	CQXX	X: Piquirana O: Piquia	S America	700–800–900	2	S	D	n/a	3	n/a	s	
25	*Cedrelinga catenaeformis* Ducke	CGCT	X: Tornillo O: Cedrorana	S America	370–520–660	3	S	S	S	2–3	n/a	s	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		
26	*Ceiba pentandra* Gaertn.	CBPN	X: Fuma (Africa) X: Fromager (S America) O: Ceiba O: Fromager	W Africa Tropical areas	290–320–350	5	S	S	S	1	1	x	Not resistant to *Lyctus*
27	*Chlorocardium rodiei* Rohwer, H.G. Richt. and van der Werff (also *Chlorocardium rodiaeii*)	CHRD	X: Greenheart	S America	980–1030–1150	1	D	D	D	4	2	s	
28	*Chrysophyllum* spp. p.p. *C. africanum* Baker *C. lacourtianum* De Wild. *C. perpulchrum* Mildbr. *C. subnudum* Baker	GAXX	X: Longhi	W Africa	700–730–800	4	S	S	S	1	2	x	Not resistant to *Lyctus*
29	*Chrysophyllum giganteum* A.Chev. *Pouteria* spp. p.p. *P. altissima* Baehni *P. pierrei* Baehni *P. superba* L. Gaut.	AQXX	X: Aniegré	W/E Africa	540–580–630	4–5	S	S	S	1	1	x	
30	*Cordia* spp. p.p. *C. goeldiana* Huber	COGL	X: Freijo	S America	520–540–550	2	D	M	S	1	3	s	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		
	C. trichotoma Arrab.												
31	*Cordia* spp. *p.p.* *C. dodecandra* DC *C. gerascanthus* L. *C. glabrata* L. *C. sebestena* L.	-	X : Canalete	S America	800–900–970	1	D	M	S	1	2	s	
32	*Cordia alliodora* (Ruiz and Pav.) Oken	COXA	X: Pardillo E: American light cordia	S America	520–540–550	2	D	M	S	1	3	s	
33	*Cordia* spp. *C. africana* Lam. *C. millenii* Baker *C. platythyrsa* Baker	COXB	X: Cordia d'Afrique E: African cordia D: Afrikanische cordia	W Africa	520–540–550	2	D	M	S	1	3	s	
34	*Coula edulis* Baill.		X: Coula	W Africa	900–1000–1100	1	D	D	S	3	n/a	s	
35	*Couratari* spp. *C. guianensis* Aubl. *C. macrosperma* A.C. Sm. *C. multiflora* Eyma	CIXX	X: Tauari O: Inguipipa	S America	550–600–700	5	S	S	S	1	n/a		

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		
	C.oblongifolia Ducke												
36	*Cylicodiscus gabunensis* Harms	CKGB	X: Okan	W Africa	850–920–960	1	D	D	D	4	3	s	
37	*Daniellia* spp. *D. klainei* Pierre *D. ogea (Harms)* Rolfe ex Holl. *D. soyauxii* Rolfe *D. thurifera* Benn.	DNXX	X: Faro E: Ogea O: Daniellia	W Africa	480–490–510	4–5	n/a	S	n/a	2–3	1	b	
38	*Desbordesia* spp. *D. insignis* Pierre *D. pierreana* V. T.	-	X: Alep	W/E Africa	950–1050–1150	1	D	D	D	4	n/a	m	
39	*Dialium* spp.. *D. dinklagei* Harms *D. pachyphyllum* Harms	-	X: Eyoum	W/E Africa	800–950–1050	1	D	D	S	4	n/a	s-m	
40	*Dicorynia* spp. *D. guianensis* Amsh. *D. paraensis* Benth.	DIXX	X: Basralocus O: Angélique	S America	720–750–790	2v *(1)*	D	M	D	4	2	s	
41	*Dinizia excelsa* Ducke	DEEX	X: Angelim vermelho	S America	1000–1050–1150	1	D	D	M-D	4	n/a	m	
42	*Dipterocarpus* spp. *D. borneensis* Slooten	DPXX	X: Keruing	SE Asia	740–750–780	3v	D	S	S	3v	2	s	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		Additional data / information when available
	D. caudatus Foxw. *D. grandiflorus* Blco. *D. verrucosus* Foxw.												
43	*Dipteryx* spp. *D. alata* Vogel *D. micrantha* Harms *D. odorata* Willd. *D. polyphylla* Huber	DXOD	X: Cumaru F: Gaïac de Cayenne	C/S America	1000–1050–1150	1	D	D	S	4	n/a	s	
44	*Distemonanthus benthamianus* Baill.	DTBN	X: Movingui O: Ayan	W Africa	690–710–740	3	D	M	S	4	n/a	s	
45	*Dryobalanops* spp. *D. aromatica* Gaertn. *D. lanceolata* Burck. *D. oblongifolia* Dyer	DRXX	X: Kapur	SE Asia	630–700–790	1–2	D	S	S	4	1	m	
46	*Endospermum* spp. *E. diadenum* Airy Shaw *E. medullosum* L.S. Sm. *E. peltatum* Merr.	EDXX	X: Sesendok	SE Asia Australasia	420–480–530	5	S	S	S	1	1	n/a	
47	*Entandrophragma angolense* C. DC. E. congoense A.Chev.	ENAN	X: Tiama O: Gedu nohor (Nigeria)	W/E Africa	550–560–570	3	D	S	S	4	3	b	
48	*Entandrophragma*	ENCN	X: Kosipo	W Africa	640–670–	2–3	D	M	S	3	1	s	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		Additional data / information when available
	candollei Harms		O: Omu		720								
49	*Entandrophragma cylindricum* Sprague	ENCY	X: Sapelli O: Sapele	W Africa	640–650–700	3 *(3–4)*	D	M	S	3	2	m	
50	*Entandrophragma utile* Sprague	ENUT	X: Sipo O: Utile	W/E Africa	590–640–660	2–3	D	M	M	4	2	m	
51	*Eperua* spp. *E. falcata* Aubl. *E. rubiginosa* Miq.	EPXX	X: Walaba O: Wapa	S America	800–900–950	1	D	D	D	4	3	s-m	
52	*Eribroma oblongum* Pierre	EROB	X: Eyong E: yellow sterculia	W Africa	700–730–800	4	S	S	S	3–4	1	x	Prone to blue stain
53	*Erythrophleum* spp. *E. ivorense* A. Chev. *E. suaveolens* Brenan	EYXX	X: Tali E: missanda	W/E Africa	800–900–1000	1	D	D	S-M	4	n/a	f	
54	*Eucalyptus cloeziana*	-	X: Blue gum	S Africa		1–2 *(1)*	D	D	n/a	n/a	n/a	n/a	
55	*Eucalyptus diversicolour* F. Muell.	EUDV	X: Karri	Australia	800–880–900	2	D	S	S	4	1	s	
56	*Eucalyptus marginata* Donn	EUMR	X: Jarrah	SE Asia	700–800–950	1	D	S-M	S	4	n/a	f	
57	*Eucalyptus* spp. p.p.	EUDG	X: Kamarere	SE Asia	550–650–750	3–4	D	S	S	3–4	n/a	f	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		Additional data / information when available
	Eucalyptus deglupta Blume *Eucalyptus grandis* W. Hill												
58	*Euxylophora paraensis* Hub.	EXPA	X: Pau amarello	S America	730–770–810	1	D	D	S	3–4	n/a	x	Not resistant to termites under lab conditions
59	*Fleroya (Hallea)* spp. *F. ledermannii* Y.F. Deng *F. rubrostipulata* Y.F. Deng *F. stipulosa* Y.F. Deng	HLCL	X: Abura O: Bahia	W/E Africa	550–560–600	5	S	S	S	2	1	m	
60	*Gilbertiodendron* spp. *G. dewevrei* J. Léonard *G. preussii* J. Léonard *G. splendidum* J. Léonard	GBDW	X: Limbali	W/E Africa	700–800–900	2	D	S-M	S	3	n/a	m	
61	*Gonystylus* spp *G. bancanus* Kurz *G. macrophyllus* Airy Shaw *G. maingayi* Hook. f.	GYBN	X: Ramin	SE Asia	560–630–670	5	S	S	S	1	1	x	Not resistant to *Lyctus* Very prone to blue stain
62	*Gossweilerodendron balsamiferum* Harms	GOXX	X: Tola O: Tola Branca O: Agba	W Africa	480–500–510	2–3	S	S	S	3	1	m	
63	*Goupia glabra* Aubl.	GPGL	X: Cupiuba	S America	800–850–	3	D	D	S-M	2	n/a	m	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		
			F: Goupi		900								
64	*Guarea* sp. pl. p.p. *G. cedrata* Pellegr. *G. laurentii* De Wild.	GRXX	X: Bossé clair O: Guarea	W Africa	570–580–630	2v	D	S	S	4	1	m	
65	*Guarea thompsonii* Sprague	GRTH	X: Bossé foncé	W Africa	600–690–850	2	n/a	S	n/a	4	1	m	
66	*Guibourtia arnoldiana* J. Léonard	GUAR	X: Mutényé	W Africa	760–820–880	3	D	M-D	S	3–4	2	s	
67	*Guibourtia* sp. pl. p.p. *G. demeusii* J. Léonard *G. pellegriniana* J. Léonard *G. tessmannii* J. Léonard	GUXX	X: Bubinga	W Africa	700–830–910	2	D	D	S-M	4	1	s	
68	*Guibourtia ehie* J. Léonard	GUEH	X: Ovèngkol O: Amazakoué	W Africa	720–780–820	2	D	D	S	3	1	m	
69	*Handroanthus* spp. *H. heptaphylla* Mattos *H. impetiginosa* Mattos *H. serratifolia* S.O. Grose	TBXX	X: Ipé F: ébène verte	S America	900–1050–1150	1	D	D	D	4	n/a	s-m	
70	*Heritiera* spp. p.p. *H. javanica* Kosterm. *H. simplicifolia* Kosterm. *H. sumatrana* Kosterm.	HEXM	X: Mengkulang	SE Asia	680–710–720	4	D	S	S	3	2	s	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		
72	*Heritiera* sp. p.p. *H. densiflora* Kosterm. *H. utiliz* Kosterm.	HEXN	X: Niangon	W Africa	670–680–710	3	D	M-D	S	4	3	m	
73	*Hymenaea* spp. *H. courbaril* L. *H. intermedia* Ducke *H. oblongifolia* Huber	HYCB	X: Jatoba O: Courbaril	S America	800–950–1100	2–3	D	S-M	S	4	n/a	s-b	
74	*Icuria dunensis* Wieringa	-	Ncurri	E. Africa (Mozambique)	800–850–940	2(h)-4(s)	n/a	S	n/a	3	2	m	
75	*Julbernardia pellegriniana* Troupin	-	X: Awoura	W Africa	700–750–850	3	D	S-M	S	3	n/a	b	
76	*Khaya* spp. a) *K. anthotheca* C. DC. b) *K. grandifolia* C.DC. a) *K. ivorensis* A. Chev. a) *K. senegalensis* A. Juss.	KHXX	X: Acajou d'Afrique O: African Mahogany O: Khaya O: Khaya Mahogany	W/E Africa	a) 490–520–530 b) 650–720 800	3	D	S	S	4	2	s	
77	*Klainedoxa gabonensis* Pierre	-	X: Eveuss	W/E Africa	1000–1050–1150	1	D	D	S	3	n/a	n/a	
78	*Koompassia malaccensis* Maing.	KOML	X: Kempas	SE Asia	850–860–880	2	S	S	S	3	1–2	s	Sapwood not resistant to

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		
													Lyctus
79	*Letestua durissima* O. Lecomte	-	X: Congotali	W Africa	1050–1100–1150	1	D	D	D	4	n/a	m	
80	*Lophira* spp. *L. alata* Banks *L. procera* A. Chev.	LOAL	X: Azobé O: Ekki O: Bongossi	W Africa	950–1060–1100	2v *(1–2)*	D	D	M-D	4	2	s	A broad transition wood between heartwood and sapwood has a natural durability to fungi of 3
81	*Lovoa* spp. *L. brownii* Sprague *L. swynnertonii* Baker *L. trichilioides* Harms	LVTR	X: Dibétou E: African Walnut	W/E Africa	450–550–650	3–4	D	S	S	3–4	2	s-m	
82	*Maclura tinctoria* D.Don	MCTT	X: Moral O: Fustic	C/S America	750–890–960	1	D	D	n/a	3–4	n/a	s	
83	*Manilkara* spp. *M. bidentata* A. Chev. *M. huberi* Ducke	MNXX	X: Maçaranduba F: Balata franc D: Massaranduba	S America	1000–1100–1150	1	D	D	D	4	n/a	s	
84	*Mansonia altissima* A. Chev.	MAAL	X: Bété	W Africa	610–620–	1	D	M	S	4	1	s	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		Additional data / information when available
					630								
85	*Mezilaurus* spp. *M. itauba* Taub. *M. navalium* Taub.	MZXX	X: Itauba	S America	800–850–950	1	D	D	D	4	n/a	s	
86	*Micropholis* spp. *M. gardnerianum* Pierre *M. melinoniana* Pierre *M. venulosa* Pierre	MPWW	X: Curupixa F: Balata blanc	S America	650–750–850	4	S	S-M	S	2	n/a		
87	*Milicia* spp. *M. excelsa* C. C. Berg *M. regia* C. C. Berg	MIXX	X: Iroko O: Kambala	W/E Africa	630–650–670	1–2	D	D	D	4	1	m	Sapwood not resistant to *Lyctus* Not resistant to termites under lab conditions
88	*Millettia* spp. *M. laurentii* De Wild. *M. stuhlmannii* Taub.	MTLR / MTST	X: Wengé O: panga panga	W/E Africa	780–830–900	2 *(1)*	D	D	S	4	n/a	s	Not resistant to termites under lab conditions
89	*Mora* spp. *M. excelsa* Benth. *M. paraensis* Ducke	-	X: Mora	C/S America	950–1000–1100	1	D	D	S	3	n/a	m-b	
90	*Morus mesozygia* Stapf	-	X: Difou	W/E Africa	750–850–	1	D	D	S	3	n/a	m	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		
					950								
91	*Nauclea* spp. *N. diderrichii* Merr. *N. gilletii* Merr. *N. xanthoxylon* Aubrév.	NADA	X: Bilinga E: Opepe O: Badi	W. frica	740–750–780	1	n/a	D	M-D	2	1	s	Not resistant to termites under lab conditions
92	*Nesogordonia* spp. *N. fouassieri* Capuron *N. leplaei* Capuron *N. papaverifera* (A. Chev.) Capuron	NEPP	X: Kotibé O: Danta	W/E Africa	710–730–760	3v	D	M-D	S	3–4	1–2	s	
93	*Nothofagus alpina* Oerst. (= *Nothofagus procera* (Poepp. and Endl.) Oerst.	NOPR	X: Rauli	S America	530–580–610	4	n/a	S	n/a	2	2	s	
94	*Nothofagus pumilio* Krasser	NOPM	X: Lenga	S America	530–540–550	5	n/a	S	n/a	4	n/a	s	
95	*Ongokea gore* Engl.	-	X: Angueuk	W/E Africa	800–900–950	2	D	D	S	3	n/a	m	
96	*Oxystigma oxyphyllum* J. Léonard	OXOX	X: Tchitola	W Africa	590–610–640	3	D	M	S	3–4	1	b	
97	*Peltogyne* sp. pl. *P. maranhensis* Huber *P. paniculata* Benth.	PGXX	X: Pau Roxo F: Amarante O: Purpleheart	C/S America	830–860–880	2–3	D	D	S	4	1	s	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		
	P. venosa Benth.												
99	*Pericopsis angolensis* Meeuwen	-	O: Muanga	E. Africa (Mozambique, Angola, RSA)	810–860–890	1	n/a	D	n/a	3	2	s	
100	*Pericopsis elata* Meeuwen	PKEL	X: Afrormosia	W.Africa	680–690–710	1–2	D	D	S-M	4	1	vs	
101	*Piptadeniastrum africanum* Brenan	PIAF	X: Dabéma E: Dahoma	W/E.Africa	600–700–800	3 (2)	D	D	S	2	n/a	m-b	
102	*Pometia pinnata* J.R. Forst. and G. Forst.	PMPN	X: Kasai E: Taun O: Pometia	SE.Asia, *Australasia*	650–710–750	3 *(3)*	S	M	S	3–4	2	m	
103	*Pseudolachnostylis maprounaefolia* Pax	-	X: Ntholo	E. Africa (Mozambique)	1000–1050–1150	1	n/a	D	n/a	4	3	s	
104	*Pseudosindora palustris* Symington *Sindora* spp. *S. leiocarpa* Baker *S. siamensis* Teijsm. *S. sumatrana* Miq. *S. velutina* Baker	SDXX / PEPL	X: Sepetir E: Swamp sepetir	SE Asia	650–660–670	2	n/a	S	n/a	4	2	b	
105	*Pteleopsis hylodendron*	-	X: Osanga	W/E Africa	700–800–	2	D	D	M	2–3	n/a	m	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		
	Mildbr. *P. myrtifolia* Engl.				900								
106	*Pterocarpus* spp. *P. osun* Craib *P. soyauxii* Taub. *P. tinctorius* Welw.	PTXX	X: Padouk d'Afrique E: African padauk D : Afrikanisches Padouk	W Africa	720–740–820	1 *(1)*	D	D	D	2	n/a	m	Not resistant to termites under lab conditions
107	*Pterocarpus erinaceus* Poir.	-	X: Vene	W Africa	800–900–950	1	D	D	S	4	n/a	s	
108	*Pterygota macrocarpa* K. Schum. *P. bequaertii* De Wild.	PGXX	X: Koto E: African pterygota	W Africa	510–560–630	5	n/a	S	n/a	1	1	x	Not resistant to *Lyctus* Prone to blue stain
109	*Pycnanthus angolensis* Warb.	PSAN	X: Ilomba	W/E Africa	440–480–510	5	S	S	S	1	1	x	
110	*Qualea* spp. *Q. coerulea* Aubl. *Q. dinizii* Ducke *Q. paraensis* Ducke *Q. rosea* Aubl. *Ruizterania* spp.	QUXX	X: Mandioquera F: Gonfolo O: Gronfolo	S America	650–750–850	3 *(1)*	S	S	S	2	n/a	m	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		
	R. albiflora Marc.-Berti *R. retusa* Marc.-Berti												
111	*Rhodognaphalon* spp. *R. brevicuspe* Roberty *R. schumannianum* Robyns	RHXX	X: Kondroti	W/E Africa	470–480–490	5	D	S	S	1	1	b	
112	*Sextonia rubra* van der Werff (also *Sextonia rubra*)	OCRB	X: Louro vermelho O: Red Louro	S America	600–620–650	2	D	D	D	4	2	m	
113	*Shorea* spp. subgen. *Eushorea* *S. glauca* King *S. laevis* Ridl. *S. maxwelliana* King *S. superba* Symington	SHBL	X: Yellow Balau O: Bangkirai	SE Asia	700–930–1150	2	D	D	D	4	1–2	s	Not resistant to termites under lab conditions
114	*Shorea* spp. *subgen. Rubroshorea* p.p. *S. balangeran* Blume *S. guiso* Blume *S. inaequilateralis* Symington *S. kunstleri* King	SHRB	X: Red Balau	SE Asia	750–800–900	3–4	S	S-M	S	4v	2	s	
115	*Shorea* spp. subgen. *Rubroshorea* p.p.	SHDR	X: Dark red Meranti (4)	SE Asia	600–680–730	2–4	D	M	S	4v	2	s	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		
	S. curtisii Dyer *S. pauciflora* King *S. platyclados* Slooten					*(2)*							
116	*Shorea* spp. subgen. *Rubroshorea* p.p. *S. johorensis* Foxw. *S. leprosula* Miq. *S. macrophylla* P.S. Ashtonon *S. parvifolia* Dyer	SHLR	X: Light red Meranti (4)	SE Asia	490–520–550 … - 514 - …	2–4 (3)	D	S	S	4v	2	m	
117	*Shorea* spp. *subgen. Richetia* *S. acuminatissima* Symington *S. faguetiana* Heim *S. longisperma* Foxw.	SHYM	X: Yellow Meranti (4)	SE Asia	560–630–660	4	S	S	S	3–4	2	m	
118	*Shorea* spp. subgen. *Anthoshorea* *S. assamica* Dyer *S. bracteolata* Dyer *S. javanica* Koord. and Valeton	SHWM	X: White Meranti (4)	SE Asia	600–630–670	5	S	S	S	3v	2	s	
119	*Staudtia kamerunensis*	SSST	X: Niové	W/E Africa	800–900–	1	D	D	S	4	n/a	m	

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		
	Warb.				950								
120	*Sterculia appendiculata* K. Schum	-	O: Metil	E Africa (Mozambique)	500–550–600	5	n/a	S	n/a	1	1	x	
121	*Sterculia rhinopetala* K. Schum.	-	X: Lotofa	W Africa	750–850–950	2	D	S-M	S	3	n/a	s	
122	*Swietenia* sp. pl. *S. macrophylla* King *S. mahogani* Jacq.	SWMC	X: Mahogany E: American Mahogany F: acajou d'Amérique D: Amerikanisches Mahagoni	C/S America	510–550–580 700–720–770	2	D	S	S	4	2–3	m	
123	*Tectona grandis* L.f.	TEGR	X: Teak F: Teck	Asia	650–680–750	1–3 *(1)*	D	M	M-D	4	3	s	
				Cultivated in Africa	... - 580 - ...	3v	D	M	M	4	3	s	
124	*Terminalia ivorensis* A. Chev.	TMIV	X: Framiré O: Idigbo	W Africa	520–550–560	2–3	S	S	S	4	2	(x)	
125	*Terminalia superba* Engl. and Diels	TMSP	X: Limba O: Afara O: Fraké	W Africa	550–560–600	4	S	S	S	2	1	(x)	Not resistant to *Lyctus*

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	Additional data / information when available
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		
126	*Testulea gabonensis* Pellegr.	TZGB	X: Izombe	W Africa		2–3 *(1)*	D	*D*	S	3	1	(x)	Not resistant to termites under lab conditions
127	*Tieghemella heckelii* Pierre ex A. Chev.	TGHC	X: Makoré	W Africa	620–660–720	1	D	D	D	4	2	m	
128	*Tieghemella africana* Pierre *[= Dumoria spp. = Mimusops* spp.]	TGAF	X: Douka	W Africa	620–660–720	1	D	D	D	4	2	m	
129	*Triplochiton scleroxylon* K. Schum.	TRSC	X: Ayous E: Obeche F: Samba/Obeche D: Abachi O: Wawa	W Africa	370–390–400	5 *(4)*	S	S	S	3	1	x	Not resistant to *Lyctus* Prone to blue stain
130	*Turraeanthus africanus* Pellegr.	TUAF	X: Avodiré	W Africa	540–550–560	4	S	S	S	4	1	x	Prone to blue stain
131	*Otoba* spp. *Virola* spp. *V. michelii* Heckel *V. multicostata* Ducke *V. surinamensis* Warb.	VIXX	X: Virola E: Light Virola O: Baboen	S America	400–440–480	5	S	S	S	1–2	1	x	Not resistant to *Lyctus*

N°	Scientific name	Code acc. to EN 13556	Common name	Origin	Density/ kg/m³ at 12 % MC	Durability of heartwood				Treatability		Sap wood width	
						Fungi	Beetles	Termites	Marine borers	Heart wood	Sap wood		Additional data / information when available
132	*Vouacapoua americana* Aubl. V. macropetala Sandw.	-	X: Wacapou	S America	800–900–1000	1	D	D	D	3	n/a	s	
133	*Vochysia* spp. *V. braceliniae* Standl. *V. maxima* Ducke *V. tomentosa* DC.	VOXX	X: Quaruba	C/S America	450–490–510	4v	S	S	S	3	2	m	
134	*Zanthoxylum heitzii* P.G. Waterman	-	X: Olon	W Africa	500–550–640	3	S	M	S	2–3	2–3	x	Prone to blue stain

For commercial purposes timbers which are of different species are sometimes grouped together and sold under a single name. These groups of species will not behave in the same way as a clearly defined single species. With respect to durability and treatability, the following table shows the lowest durability, and the highest resistance to preservative treatment normally found in species within the group. The species showing lowest durability is often not the same as the species showing the greatest resistance to treatment. Treatment for the most resistant species may result in overtreatment of more permeable species within the group.

Table B.4 — Classification of commercial groupings

Grouping name	Scientific name of wood species groups	Origin	Durability of heartwood				Treatability	
			Fungi	*Hylotrupes*	*Anobium*	Termites	Heartwood	Sapwood
Douglas Fir/Larch	*Pseudotsuga menziesii* (Mirb.) Franco *Larix occidentalis* Nutt	Canada and USA	3	D	D	S	4	3
European Whitewood[a]	*Picea* sp.pl. *Abies* sp.pl.	Europe	4	S	S	S	3–4	3
Picea sp.pl.	*Picea* sp.pl. *Abies* sp.pl.	C. Europe	4	S	S	S	3–4	3
Hem/Fir	*Tsuga* sp.pl. *Abies* sp.pl.	Canada and USA	4	S	S	S	3	2
Kiefer/Lärche	*Pinus sylvestris,* *Larix* sp.pl.	C. Europe	3–4	D	D	S	4	2v
Spruce/Pine/Fir (S.P.F.)	*Picea* sp.pl. *Pinus* sp.pl. *Abies* sp.pl.	Canada	4	S	S	S	3–4	3v
Western Whitewood	*Picea* sp.pl. *Pinus* sp.pl. *Abies* sp.pl. *Tsuga* sp.pl.	USA	4	S	S	S	3–4	3v

[a] In Scandinavia this term refers to spruce alone.

Annex C
(informative)

Classification of treatability with aqueous wood preservatives

Treatability is the ease with which a wood can be penetrated by a liquid applied during a process of wood impregnation. Depending on the formulation, the achieved penetration may be different.

The biological durability and the treatability of sapwood and heartwood are usually different with higher durability in the heartwood and better treatability in the sapwood. If the heartwood and sapwood cannot be distinguished, the component shall be regarded as being composed entirely of sapwood if its durability is being considered, and as being composed entirely of heartwood, if its treatability is being considered (worst case scenario).

When a laboratory test is used to determine the treatability class, the value to be reported in Annex B is an average of the individual values. Where significant variability is observed, the average value should be written followed by a “v” (i.e. 3v).

There is no standardized European protocol allowing defining treatability.

Table C.1 provides a set of broad descriptions for classifying treatability based on general observations associated with vacuum/pressure treatment processes. A four class system is used.

The treatability classes cannot be separated exactly from each other; this applies particularly to the treatability classes 2 and 3. Wood species assigned to these treatability classes often show very irregular penetration.

NOTE 1 CEN/TR 14734 describes a method for the assessment of treatability classes for preservative-treated wood.

NOTE 2 Information on treatability is included to assist in the interpretation of EN 351–1.

Table C.1 — Classification of the treatability of wood

Treatability class	Description[a]	Explanation
1	Easy to treat	Easy to treat; sawn timber can be penetrated completely by pressure treatment
2	Moderately easy to treat	Fairly easy to treat; usually, complete penetration is not possible, but after 3 h or 4 h by pressure treatment more than 6 mm lateral penetration can be reached in softwoods and in hard-woods a large proportion of the vessels will be penetrated
3	Difficult to treat	Difficult to treat; 3 h to 4 h by pressure treatment may not result in more than 3 mm to 6 mm lateral penetration
4	Extremely difficult to treat	Virtually impervious to treatment; little preservative absorbed even after 3 h to 4 h by pressure treatment; both lateral and longitudinal penetration minimal

[a] Historically treatability data may use other descriptive terms which approximate to the treatability classes as follows:

class 1 permeable
class 2 moderately resistant
class 3 resistant
class 4 extremely resistant

Annex D
(informative)

Classification of permeability to water

D.1 General

Permeability to water is the ease with which water penetrates a wood-based matrix (wood of a particular species, wood-based material) and is released by evaporation.

Permeability to water and rate of release can provide information that is relevant for wood's expected service life, mainly in use classes 2 and 3 as described in EN 335. The combination of water uptake (permeability - absorption) and release (desorption), taking into account time as a critical factor (moisture dynamics), allows to predict the time of wetness (ToW) of a wood product in service and as such provides a parameter indicating how prone it is to fungal decay. This parameter can also be called moisture resistance and can be regarded as a being complementary to biological durability based on the presence of components preventing functioning of decay fungi.

Wood anatomy and heartwood extractives can affect its permeability and biological durability. Permeability is likely to vary between regions of the stem (e.g. between sapwood and heartwood).

This term differs from treatability in the sense that treatability measures penetration of an aqueous solution following a defined treatment schedule whereas permeability to water reflects both the spontaneous uptake and release of water during defined exposure conditions.

D.2 Principles for classification of permeability to water

The permeability to water of the sapwood or heartwood of a wood species or a wood-based material is tested using method described in the prEN 16818[2].

Standardized tests used to assess the permeability to water of wood materials are EN 927-5 (floating test) and EN ISO 535 (Cobb method) for coated wood can also be used for measuring the permeability to liquid water of untreated wood for use class 3 conditions. The floating or submerged method has also been used to evaluate the performance of coated products (wetting and drying) having different edge and end grain sealing. This method is suitable especially for coated wood product, but can be used as modified also for uncoated wood products like sawn wood and plywood products.

The use of replicate specimens is a requirement in all test methods.

[2] In preparation.

Annex E
(informative)

Testing durability to disfiguring fungi

E.1 General

Wood-disfiguring fungi (sapstain and moulds) are of economic importance as they affect the aesthetic appearance of wood and wood-based materials in service.

These organisms normally have no significant effect on the mechanical resistance of wood.

Durability against blue stain varies between wood species.

Susceptibility to mould growth depends less on the wood species and is more related to environmental factors such as condensation, moisture.

E.2 Testing durability to disfiguring fungi

The test method described in the standard EN 152, which provides a basis for assessment of the effectiveness of a wood preservative or wood preservative systems in preventing the development of blue stain fungi in wood in service where disfigurement can be considered important, such as external decorative timber and joinery, can serve as a basis for assessment of the biological durability against blue stain.

E.3 Classification of durability to disfiguring fungi

No scale is given to classify the durability of wood against disfiguring fungi because no standardized European protocol exists.

In the absence of data, the sapwood of all wood species is regarded as prone to be colonized by disfiguring fungi when moisture of the surface of wood is increased.

Very little data on the resistance of heartwood to the development of these organisms are available.

Available information has been included in Annex B, Tables B.1, B.2 and B.3.

Annex F
(informative)

Classification of performance

F.1General

Performance is the ability of a wood species or a wood-based material to withstand deterioration over time.

Performance can depend on a number of factors which will vary in importance depending on the end use.

Performance of wood in service is affected by the relative proportion of sapwood, transition wood and juvenile wood which can be present, as sapwood and heartwood generally have different levels of durability.

In many cases the ease with which a wood product becomes and remains wet can have a significant effect on performance, as it is the major factor controlling the possibility or not of fungal decay. For woods having the same durability against decay fungi, the performance in service is expected to be better for wood species with lower permeability to water.

Most notably in use class 3, the permeability of the material, the design of the component/structure to shed water and avoid water trapping, and in some cases the maintenance of a component or structure can all greatly improve the performance of wood in use.

Performance within a use class may vary with and even within geographical location. This can be due to a number of factors such as difference in biological hazard, climate, micro-climate etc.

F.2Principles of the assessment of performance

Understanding the performance of wood in service is a combination of parameters fundamentally based on a combination of the durability class of the wood, its permeability to water and the availability of moisture in the end use application.

Performance can be determined either by an adequate set of laboratory tests including relevant ageing procedures or by field tests simulating in-service conditions. If field test data are available, they shall take precedence over the data from laboratory tests. If no data from field tests are available, a provisional classification using the data from laboratory tests is possible.

EN 252 standard provides a method which can be adapted to assess the performance of wood and wood-based materials to withstand bio-deterioration (decay fungi and subterranean termites) over time. At least 30 stakes of the test wood species or wood-based material shall be used in place of the impregnated test stakes described in that standard. Stakes of *Pinus sylvestris* sapwood and *Fagus sylvatica* (or any other non-resistant species) shall be used as references to measure termite activity of the field throughout the test. They shall be replaced as necessary when they fail. Comparison between the time before failure of the wood species or wood-based material under test and a reference wood species or material can be a possible assessment criterion.

However, no single reference test protocol has been designed so far.

F.3Principles of the classification of performance

The durability tests enable a classification of performance against 'benchmark' materials that have been tested in the same way.

The results do not express an absolute value of service life, but they allow ranking performance of different wood and wood-based materials for a given test field and defined use class.

Annex G
(informative)

Form to be used for the inclusion of new data on wood species / wood-based material

1 – IDENTIFICATION OF THE PROPOSED MODIFICATION

Wood species	**Matter of modification** *(Tick relevant boxes)*
a) Scientific name) **b) Common name** **c) Origin)**	Addition of wood species ☐ Addition of wood-based material ☐ Modification of existing data ☐ (reference in EN 350) softwood ☐ / hardwood ☐ **Durability** Proposal regarding natural durability to fungi based on laboratory test ☐ Basidiomycetes ☐ / Soft rot ☐ Proposal regarding natural durability to fungi based on field test ☐ Proposal regarding natural durability to insects ☐ Hylotrupes ☐ / Anobium ☐ / Lyctus ☐ Termites ☐ (please specify genus and species) Other ☐ (please specify genus and species) Proposal regarding natural durability to marine borers ☐ **Treatability** ☐ **Density** ☐ **Other** ☐

2 – PROPOSAL

Use symbols and durability classes according to EN 350 *test methods.*

General information on the wood species			
Density kg/m³		Range of mean values at 12 % mass fraction moisture content	
Durability			
Test organisms	**Proposal for durability class**	**Test method used**	**Comments/Additional information**
Durability to wood-decay fungi			
Basidiomycetes *(i.e. Coniophora puteana)* Soft rot Other: *(i.e. combination of different species in case of field testing)*		*(i.e.* CEN/TS 15083–1*)* *(i.e.* CEN/TS 15083–2*)* *(i.e.* EN 252, EN 330*))*	*(i.e. field test located in Malaysia)*
Durability to beetles			
Hylotrupes bajulus *Anobium punctatum* *Lyctus sp* Other: *(i.e. Trichoferus holocericeus)*		*(i.e.* EN 47*)* *(i.e.* EN 49–1*)* *(i.e.* EN 20–1*)* *(i.e.* EN 47*)*	
Durability to termites			
Reticulitermes (i.e. flavipes) Other: *(i.e. Coptotermes gestroi) (i.e. combination of different species)*		*(i.e.* EN 117*)* *(i.e.* EN 252*)*	*(i.e. at least two different species were recorded in the test field)*
Durability to marine borers			
Limnoria sp. (i.e.quadripunctata) Other: *(i.e. Teredo navales)*		*(i.e.* EN 275*)*	*(i.e. marine trial test located in Portugal)*
Treatability			
Treatability class	Heartwood		Sapwood width
	Sapwood		

3 – INFORMATION ON DATA

— origin of the data:

i.e. Results obtained in the Project "X", coordinated by "Y"

i.e. Tests carried out in the following research laboratory(ies):

— modifications to the test methods used (EN, CEN/TS, CEN/TR, national standard, other protocole);

— are results available/published?;

— are some tests currently on progress?;

— documents attached.

4 – ORIGIN OF INFORMATION

— name of proposer:

— company or organization:

— e-mail:

5 – COMMENTS

6 – Place and Date

This form has to be sent to CEN/TC38 secretariat

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[2] EN 351-1, *Durability of wood and wood-based products - Preservative-treated solid wood - Part 1: Classification of preservative penetration and retention*

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[5] EN 13556, *Round and sawn timber - Nomenclature of timbers used in Europe*

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