



**EU Ecolabel for wood-,  
cork- and bamboo-based  
floor coverings**

# User Manual

**European Commission**

**EU Ecolabel criteria for wood-, cork- and  
bamboo-based floor coverings**

**Commission Decision 2017/176/EC**

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## 1. Introduction

This manual guides the applicant and the competent bodies through the process of applying for an EU Ecolabel and verifying the compliance within the criteria, in accordance with the criteria requirements published in the Commission Decision (EU) 2017/176 of 25 January 2017 on establishing EU Ecolabel criteria for wood-, cork- and bamboo-based floor coverings.

**Table 1. List of EU Ecolabel criteria for Wood-, cork- and bamboo- based floor covering**

	<b>Criteria</b>
1	Product description
2	Wood-, cork- and bamboo-based materials
3	General requirements for hazardous substances and mixtures 3.a. Restriction of SVHCs 3.b. Restriction of CLP classified substances or mixtures used in the floor covering
4	Specific substance requirements 4. a. Contaminants in recycled wood, cork and bamboo 4.b Biocidal products 4.c. Heavy metals in paints, primers and varnishes 4. d. VOC content in surface treatment 4.e. VOCs content in other used substances and mixtures 4.f. Plasticisers 4.g. Halogenated organic compounds 4.h. Flame retardants 4.i. Aziridine and polyaziridine
5	Energy consumption in the production process
6.	Emissions of VOC from the floor coverings
7.	Emissions of formaldehyde from the floor coverings and the core board
8	Fitness for use
9	Reparability and extended guarantee
10	Consumer information
11	Information appearing on the EU Ecolabel







The specific assessment and verification requirements are indicated within each criterion in the Commission Decision 2017/176/EC, but this User Manual gives the applicant additional information to provide all the necessary documentation, declarations, analyses, test reports, and/or other evidence to show compliance with the criteria, which may be originated from the applicant or its supplier(s), as appropriate.

In the case of changes of supplier, formulation or an extension of a product range that could potentially affect the product compliance with one or more criteria, then the license holder shall, in advance of any change, submit the information to the Competent Body demonstrating how the product will remain meeting the affected criterion/a.

Where appropriate, test methods other than those indicated for each criterion may be used if they are considered as equivalent. The decision should be taken at EU Ecolabelling Board (EUEB) level. The applicant shall confirm, prior to the submission of the application the acceptance as equivalent of any alternative test method proposed.

This document is not aimed to duplicate the content of the criteria but is intended to serve as support for their interpretation, only focused on helpful explanations and clarifications. The criterion text appears only when additional information, clarifications and explanations are needed; if not, only the criteria name will appear as heading. The following symbols are used throughout this Manual

Table 2. Description of the symbols and criteria parts used throughout the document

Symbol	Description
	The exact text of the criterion (as published in the Commission Decision 2017/176/EC).
	Key points for each criterion, clarified in this user manual. It includes the list of key issues that are described later into the section for the interpretation of the criterion.
	Boxes with definitions or additional explanations of technical terms that could complement the definitions already included in the article 2 of the Commission Decision 2017/176/EC. Definitions included here are under the context of each criterion.
	Notable or important information
	If necessary for the interpretation of the criterion, subtitles with explanations, examples of calculations, documents accepted as a proof of verification, etc.
	Website where further information can be found

This User Manual includes three annexes:

**Annex I: Application form** – This part includes the application forms or templates to be completed by the applicant.

**Annex II: Declarations** – This part includes the declarations or templates to be completed as part of the application process. Two declaration templates are included:

- *Declaration A from the manufacturer of the wood-, cork- and bamboo- based floor covering product.* The applicant shall complete and submit a Declaration A for each product that applies for EU Ecolabel.
- *Declaration B from the manufacturer/supplier of each raw material.* The applicant shall submit a Declaration B by each raw material existing in the product that applies for EU Ecolabel, or by each raw material/s supplier. Each Declaration B can be completed by the applicant (if he/she has the required information) or by the raw material supplier.

**Annex III: Checklist** – This part includes a checklist listing/gathering all the documentary evidences needed to demonstrate compliance with each criterion. It serves to support the applicant in the data compilation.



**Please read this manual all the way through before completing and submitting the application forms, declarations and any other documentation.**

## 2. The role of the third-party testing

As defined in the EN ISO 17025, a third-party testing laboratory should demonstrate that it is impartial and that both the laboratory itself and its personnel are free from any undue commercial, financial and other pressures which might influence their technical judgement. Procedures have to be implemented to ensure that external persons or organisations to the testing laboratory cannot influence the results of tests carried out.

Keeping this in mind, a third-party testing laboratory shall be independent to the extent that is required with regard to the conditions under which they perform their services. It means, that a third-party testing laboratory and their staff responsible for carrying out the tests shall not be the designer, manufacturer,

supplier, installer, purchaser, owner, user or maintainer of the floorings which they test, nor the authorised representative or a subsidiary of any of these parties.

A third-party testing laboratory and their staff shall not engage in any activities that may conflict with their independence, judgement capability and integrity in relation to their testing activities. In particular they shall not become involved in the design, manufacture, supply, installation, use or maintenance of the items tested, or similar competitive items.

Testing by a third-party independent laboratory is a common practice in many sectors and required by several product certification schemes (product marking). Sometimes, it is a mandatory legislative requirement.

The responsibility of the third-party testing laboratory must be limited to the responsibility for correct test results and its decisions or recommendations made thereupon. The testing laboratory should not take any responsibility for the product, material, item, or services being tested since that responsibility belongs solely and unlimited to the manufacturer.

Competent Bodies shall preferentially recognise tests which are conducted by laboratory or testing bodies that fulfil the requirements shown below.

**Table 3. Ranking of preference to recognise test and testing bodies**

No	Description
1	Laboratory tests shall be performed by laboratories that are accredited for the specified test method according to ISO 17025 or GLP <sup>1</sup> , where possible. List of accredited laboratories per country is available at <a href="http://european-accreditation.org/">http://european-accreditation.org/</a> The Competent Bodies accept accredited laboratories in all Member States in the EU/EEA and in countries that have signed the mutual recognition agreement according to ILAC, the international accreditation organisation. If in the Member State where the applicant submits its dossier or where the company or the concerned production plant or service is based, one or more laboratories are accredited according to ISO 17025 or GLP, applicants shall use such a laboratory, either in that Member State or another.
2	Laboratories with an accreditation for other tests than those required by the criteria can be accepted if they submit a declaration that the tests are done following the same quality management procedures as the tests for which they obtained an accreditation. In case of doubt, the competent body or national board shall inspect the lab that carries out the tests or shall select an accredited auditor who will be charged to do so.
3	If neither point 1 or 2 is possible, applicants should call on a non-accredited independent laboratory certified or approved by a Government Department or other public body in a Member State. In case of doubt, the Competent Body or national board shall inspect the lab that carries out the tests or shall select an accredited auditor who will be charged to do so.
4	If none of points 1 - 3 are possible, applicants may have the tests performed by an independent laboratory that is neither accredited nor approved by authorities according to point 3. Laboratories with a quality management system shall be preferred. A laboratory situated in an organisation holding an ISO 9001- certificate, may be accepted if the scope of the certification includes the laboratory. The Competent Body or national board shall verify the competence of the laboratory that carries out the tests or shall select an accredited auditor who will be charged to do so.
5	If none of the above mentioned points can be fulfilled, the applicant may have the tests carried out in a company laboratory (that is not accredited ISO 17025 or GLP, as this would be covered by point 1). The Competent Body or national board shall ensure that the tests are properly carried out or shall select an accredited auditor who will be charged to do so. In this case, the laboratory shall have a quality management system. A laboratory within an organisation holding an ISO 9001- certificate is accepted as being under appropriate quality management, if the scope of the certification includes the laboratory. This option may also be used for continuous monitoring of the production, including discharges and emissions, and for testing fitness for use when no standard test method exists.

<sup>1</sup> GOOD LABORATORY PRACTICE (GLP) available at: <http://www.oecd.org/chemicalsafety/testing/goodlaboratorypracticeglp.htm>



## 3. Supporting the Product Assessment and Verification

### Criterion 1: Product description

#### Criterion text:

A technical description of the floor covering including drawings that illustrate the parts or materials that form the final floor covering product, its dimensions and a description of the manufacturing process shall be provided to the competent body. That description shall be accompanied by the bill of materials for the product that shall state the total weight of the product and how this is split between the different materials used.

Compliance with the scope of the product group as defined in Article 1 shall be demonstrated.

#### **Assessment and verification**

The applicant shall provide to the competent body a declaration of compliance, supported by the following information about the floor covering:

- brand/trade name<sup>2</sup>;
- a description of the product including technical drawings that illustrate the parts or materials used in the final product;
- the bill of materials: percentage composition of the raw materials, substances or mixtures in the final product in mass including any additive and surface treatment, when relevant;
- a list of all the component parts<sup>3</sup> of the product and the respective weight;
- a description of the manufacturing process. Suppliers of raw materials or substances shall be described with the legal name, production site, contact details and description of the production step(s) they carried out or are part of.

The product data sheet, environmental product declaration or equivalent document can be accepted as evidence of compliance with this criterion provided that it includes the listed information.

#### ① Key points of criterion 1

- *How to compile the bill of materials and their respective weight? Which documents could serve as a proof of compliance? Section C1.1*
- *What is a based material? How to demonstrate the minimum weight percentage requirement? Section C1.2*
- *How to classify the floor covering? Section C1.3*
- *Examples of compliance. Section C1.4*

#### Definitions (types of floor coverings)

- **Wooden flooring** is defined in accordance with prEN 13756 (revised in 2014) as the assembly of wood elements, pre-assembled boards or parquet panels which constitutes the wearing surface of the floor. This definition includes the following floorings:
  - *Solid wood flooring* means wood floorings made up of one solid plank of wood, which is removed as a

<sup>2</sup> Trade name means all names under which the substance is marketed within the Union market.

<sup>3</sup> Component part means each of the layers the floor coverings consist of whose material, shape and form provide a specific function. It includes, for example, the wear or scratch resistant layer, the pattern or veneer layer, the substrate or stability layer and the backing layer.

block right from the tree. They are then processed into flooring planks with tongue and grooves edges and are either pre-finished or finished on site (see below). According to the standards a distinction is made between:

- mosaic parquet (8mm),
- lamparquet (6-13mm): parquet strip of small dimensions without tongue and groove
- solid parquet (> 13mm).
- *Multi-layer wood flooring or engineered wood floorings* comprise either two or three layers of wood, which are laid at right angles. The top layer is hardwood and the layers below are also wood-based products, for example, high-density fibreboard.
- *Wood veneer floor covering rigid floor covering* consisting of a substrate made of a wood-based panel, with a top layer of wood veneer and possibly a backing.
- **Cork floor covering** means granulated cork mixed with a binder, and then cured or several layers of cork (agglomerated/veneer) can be pressed together with glue. There are two main classes of cork coverings:
  - *Cork tile flooring* in accordance with EN 12104.
  - *Engineered cork flooring* means flooring that consists of several layers including fibreboard the main component of which is agglomerated cork or has cork as technical solution intended to be used with a finishing wear layer.
- **Bamboo flooring** means floor coverings made of bamboo in solid pieces or in agglomerates mixed with a binder. No standard definition is available yet.
- **Laminate flooring means**, in accordance with the definition provided in the EN 13329, a floor covering with a surface layer consisting of one or more thin sheets of a fibrous material (usually paper), impregnated with aminoplastic, thermosetting resins (usually melamine), pressed or bonded on a substrate, normally finished with a backer. Two main classes of laminates are produced depending on the process of manufacture<sup>4</sup>.
  - *High pressure laminate (HPL)*: HPL classifies laminates consisting of core layer of papers, usually impregnated with phenol resins, and the outer layer of melamine or other resins. The high-pressure process requires the simultaneous application of heat ( $T > 120^{\circ}\text{C}$ ) and pressure ( $> 7\text{MPa}$ ) to provide flowing and subsequent curing of the thermosetting resins to obtain a homogenous non-porous material with increased density ( $> 135\text{g/cm}^3$ ). Some laminates are produced with a further protective surface overlay. HPL thickness usually varies between 0.5 and 1.0 mm with different categories of appearance (roughness, colour and gloss). EN 438 defines and classifies such materials.
  - *Direct pressed laminates (DPL)* means materials consisting of paper core layers impregnated with phenol or amino plastic resins and a paper surface layer impregnated with amino plastic (usually melamine). Layers are continuously bonded together by means of a laminating process utilizing heat and pressure. The outer layer on one side has decorative colours or design. They are produced in rolls with thickness around 0.2mm and weight around  $200\text{g/m}^2$ .

These sheets are either pressed and bonded on a substrate (HPL) or directly pressed on a substrate (DPL). The product is usually finished with a backing (e.g. HPL, DPL, impregnated papers and veneers), primarily used as a balancing material.

Laminate Floorings can also be classified depending on the thickness. The thickness varies from around 7-8 mm to 12 mm thick. The thicker planks should be more sturdy and durable, especially if the subfloor is not perfectly level.

<sup>4</sup> R Bulian nd JA Graystone, Wood coatings: theory and practice, Elsevier, first edition 2009, ISBN 9780444528407



**Out of the scope of this product group are the hybrid floorings and the resilient (excluding cork floorings) floorings.**

- **Hybrid flooring** means the next generation of floor coverings that combine several aspects of wood, laminate and resilient floorings. The hybrid floorings can be made of a wide range of materials depending on the properties and characteristics that want to be achieved. Among these materials are ceramic, vinyl layers or resilient plastics.
- **Resilient flooring** refers to floor coverings that occupy a middle ground between soft floors (like carpeting) and hard floors (like stone or hardwood). According to industry group Resilient Floor Covering Institute (RFCI)<sup>5</sup>, only six types of floor coverings can be called resilient flooring:
  - **Vinyl flooring:** Vinyl comprises the majority share of the resilient flooring market. This includes Vinyl Composition Tile (VCT), Solid Vinyl Tile (SVT) and Luxury Vinyl Tile (LVT).
  - **Linoleum:** This predecessor of vinyl flooring is a natural product made of linseed oil, wood, limestone, cork, and resins. Linoleum is relevant mainly as a retro or vintage item today.
  - **Cork flooring:** only category included into this product group.
  - **Rubber:** Once made of organic rubber from rubber trees, this category of flooring is now mainly produced from synthetic rubbers.
  - **Asphalt:** an "obsolete floor surfacing unit."
  - **Polymeric Poured Seamless Floors:** Rarely found in residences and never DIY-installed, these floors start out as liquid and, as the name suggests, this liquid is poured out to form a hard surface upon curing.

### C1.1 Guidance to compile the bill of materials and their respective weights



**This criterion essentially requires a list of component parts (layers), the materials they are made of and their respective weights.**

The bill of materials of the floor covering is needed to demonstrate compliance with the scope of the Commission Decision 2017/176/EC. The bill of materials can be found in certain documents (a) or should be elaborated and listed by the applicant (b).

#### a) Documents that can contain a bill of materials of the floor covering

- 1) *Product or technical data sheets (TDS)* are documents that give detailed technical description and area of use of the products.
- 2) *Environmental product declaration (EPD):* is an independently verified and registered document that communicates transparent and comparable information about the life-cycle environmental impact of products. The relevant standard for EPD is ISO 14025, where they are referred to as "Type III environmental declarations". The EPD are based on valid Product Category Rules (PCR) and they usually include a list of raw materials and/or ingredients used, although sometimes it comes in an aggregated way.
- 3) *Safety data sheet (SDS)* is a document that informs about the safety issues concerning the product. SDSs are regulated by the REACH Regulation and in its section 3, only those ingredients or raw materials classified are obliged to be displayed. This information should be completed by any other material present in the floor covering



**The above listed documents can provide the type and amount of material contented in the final product in mass either in absolute or relative values.**

<sup>5</sup> <http://rfci.com/>

## b) The bill of material of the floor covering should be compiled by the applicant:

When the applicant cannot provide any of the documents mentioned above (point a), or equivalent, s/he shall compile a list of all materials present in the final product and their respective weights. Each of the layers the floor covering is made of should be disaggregated into the different basic material and their weights. The suppliers of the different components/materials can be requested to complete any missing information.

See example in section C1.4 Examples



**For the sake of compiling declarations systematically, it would be helpful to assign a code number or name to each different type of component used in the product although this is not explicitly mentioned in the criterion text (see the Table 1. Data of the manufacturing process of the floor covering, in the Annex II, Declaration A).**

### C1.2 Guidance to demonstrate the minimum weight requirement



**The article 1 of the Commission Decision 2017/xxx/EC requires a minimum content of 80% of wood, cork, bamboo and/or wood-, cork- and bamboo- based materials**

A wood-, cork- and bamboo-based material is a material that has been fabricated from chips or fibres and resins or binders by different processes. To comply with this requirement the sum of the weight of chips and fibres plus the weight of the resins or binders included in the based materials should be higher than 80% of the weight of the whole floor covering. See example in section C1.4.1.



**Floorings cannot contain synthetic fibres in any of the composing layers.**

### C1.3 Guidance to classify the type of floor covering



**A proper classification of the type of floor covering is important because there are, along the criteria set, different thresholds to be complied with that depend on the floor covering type.**

The classification of the floor coverings (see Definitions above) is based on the technical description of the floor covering. The technical description should provide information about:

- 1) the parts and materials the floor covering consists of,
- 2) its dimensions (plank size) and
- 3) its installation requirements.

This information is completed by the description of the manufacturing process and the technical drawings. The manufacturing process indicates among other aspects if the floor covering is made of multi-layers or a solid element, if it is finished or un-finished and which surface treatment has received. In any case, the additional information required to properly characterize the type of floor covering is:

- 1) The brand/trade name that means all names the substance is marketed within the community market. This information prevents the confusion between the commercial name and the chemical or technical name.
- 2) The description of the product itself consists in technical drawings that illustrate the parts or materials used in the final product. A "Component part" means each of the layers the floor covering consists of whose material, shape and form provide a specific function. It includes, for example, the wear or scratch resistant layer, the pattern or veneer layer, the substrate or stability layer and the backing layer.
- 3) The description of the manufacturing process is detailed information of the procedures followed for manufacturing the floor covering and the information related to the suppliers of the raw materials and substances. This information should clearly indicate if the floor covering is made of solid

materials, chips or small pieces agglomerated with binder and if so, which type of binders or glues have been used and at which temperatures and pressures in each of the manufacturing steps.

**! Technical documents describing the product shall be provided to the Competent Body electronically and in a readily accessible file format, preferably as PDFs. Product TDS, EPD or equivalent document can be accepted as evidence of compliance.**

## C1.4 Examples

**! In the Annex II of this User Manual, the applicant can find a template to compile and report the technical description of the floor covering, including the bill of materials, technical drawings, manufacturing process, etc.**

The following tables and figures show some examples of the bill of materials included in the EPD of different products, and examples on how to report product drawings and manufacturing process.

### C1.4.1 Examples of bill of materials:

Table 4. Example of the bill of materials included in a cork tile flooring EPD6

<b>Base materials/ Ancillary materials</b>		
The product group has the following composition:		
<b>Component</b>	<b>Value</b>	<b>Unit</b>
Additives	11.4	%
Cork (broken, shred, veneer)	85.7	%
Lacquer	2.9	%
The declared recipes were checked with the REACH candidate list from June 18 <sup>th</sup> , 2012 and did not contain listed REACH substances.		

The floor covering of Table 4 complies with the minimum weight requirements as the amount of cork exceeds 80% in weight of the total floor covering. This value should also be reported as the total amount of cork in Criterion 10. **Consumer information**(See section C10.1)

<b>Base materials / Ancillary materials</b>
The composition of a DPL floor covering in mass % is:
<ul style="list-style-type: none"> <li>• 90-96 % High Density Fibre board (HDF): The core board is an HDF board composed of wood fibres and a thermosetting resin, mainly MUF (melamine-urea-formaldehyde) resin.</li> <li>• 2-4 % paper: The renewable resource wood is the main raw material for paper production.</li> <li>• 4-6 % resin: The used amino resins are melamine-urea formaldehyde resins. Amino resins are thermosetting resins that are cured using heat and pressure</li> <li>• &lt;1 % corundum: Bauxite is the mineral resource of corundum. By using aluminium oxide (Al<sub>2</sub>O<sub>3</sub>) the surface layer of a laminate flooring obtains abrasion and wear resistance.</li> </ul>
DPL floor coverings do not contain substances that are listed in the "Candidate List of SVHC for Authorisation" /REACH/.

Figure 1. Example of the bill of materials included in a DPL laminate flooring EPD7

The floor covering in figure 1 complies with the minimum weight requirement as the amount of HDF (which is a wood-based material) exceeds 80% in weight of the total floor covering. Additionally, the amount of wood

<sup>6</sup> [http://bau-umwelt.de/download/Cffb648dX13dea6483bcX24da/EPD\\_ERF\\_2013911\\_E.pdf](http://bau-umwelt.de/download/Cffb648dX13dea6483bcX24da/EPD_ERF_2013911_E.pdf)

<sup>7</sup> Direct Pressure Laminate Floor Covering (DPL Floor Covering) European Producers of Laminate Flooring e.V. [www.bau-umwelt.com](http://www.bau-umwelt.com) / <https://epd-online.com>

fibres included in the HDF board with respect to the total weight should also be calculated and reported as consumer information in Criterion 10. **Consumer information** (See section C10.1)

**C1.4.2. Example of manufacturing process description:**

Cork floor tiles are produced of cork and binders. The cork is produced by stripping the bark from cork oak trees every nine years. Primarily this cork is treated in a boiling process and used for wine cork stoppers. Leftovers from the wine cork stoppers industry and bark cork trees from pruning are granulate in different sizes. For the flooring production the cork granules are mixed with an adhesive. This mixture is cured under temperature and pressure. The cork flooring surface is finally decorated with colour and finished with a UV varnish in order to guarantee wear resistance of the surface.

Figure 2. Example of the basic manufacturing process description for cork tile floorings<sup>8</sup>

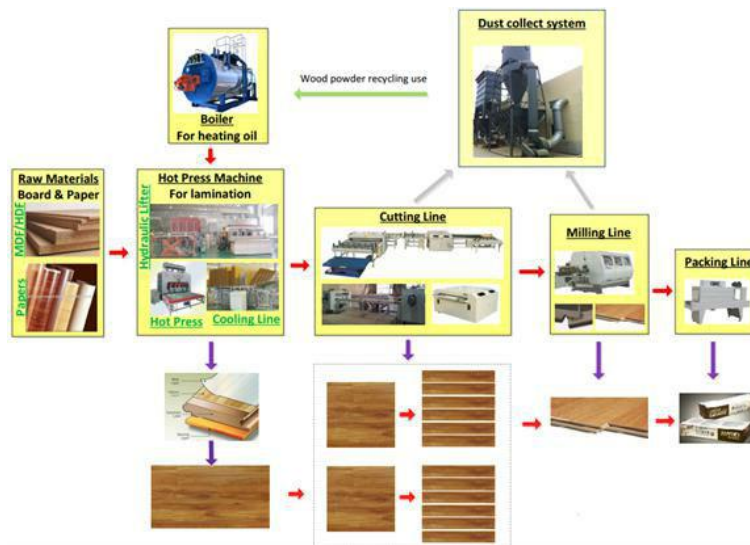


Figure 3. Example of the basic manufacturing process description for laminate floorings<sup>9</sup>

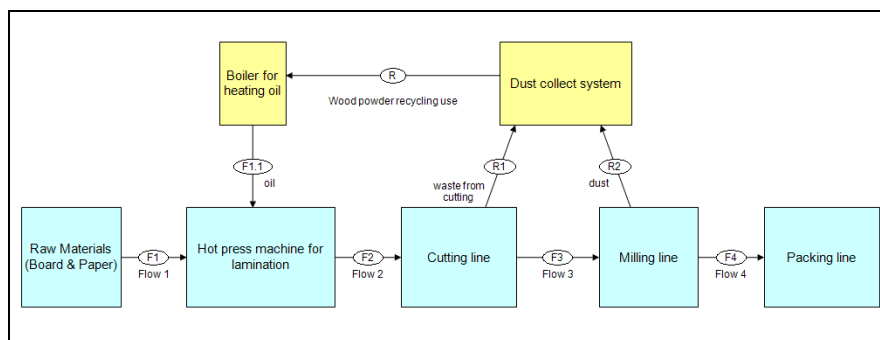


Figure 4. Example of drawing of the basic manufacturing process for laminate floorings (own source)

<sup>8</sup> [http://bau-umwelt.de/download/Cffb648dX13dea6483bcX24da/EPD\\_ERF\\_2013911\\_E.pdf](http://bau-umwelt.de/download/Cffb648dX13dea6483bcX24da/EPD_ERF_2013911_E.pdf)

<sup>9</sup> [http://www.alibaba.com/product-detail/Wooden-flooring-making-machine-timber-floor\\_1592378626.html](http://www.alibaba.com/product-detail/Wooden-flooring-making-machine-timber-floor_1592378626.html)

**C1.4.3. Examples of product drawings:**

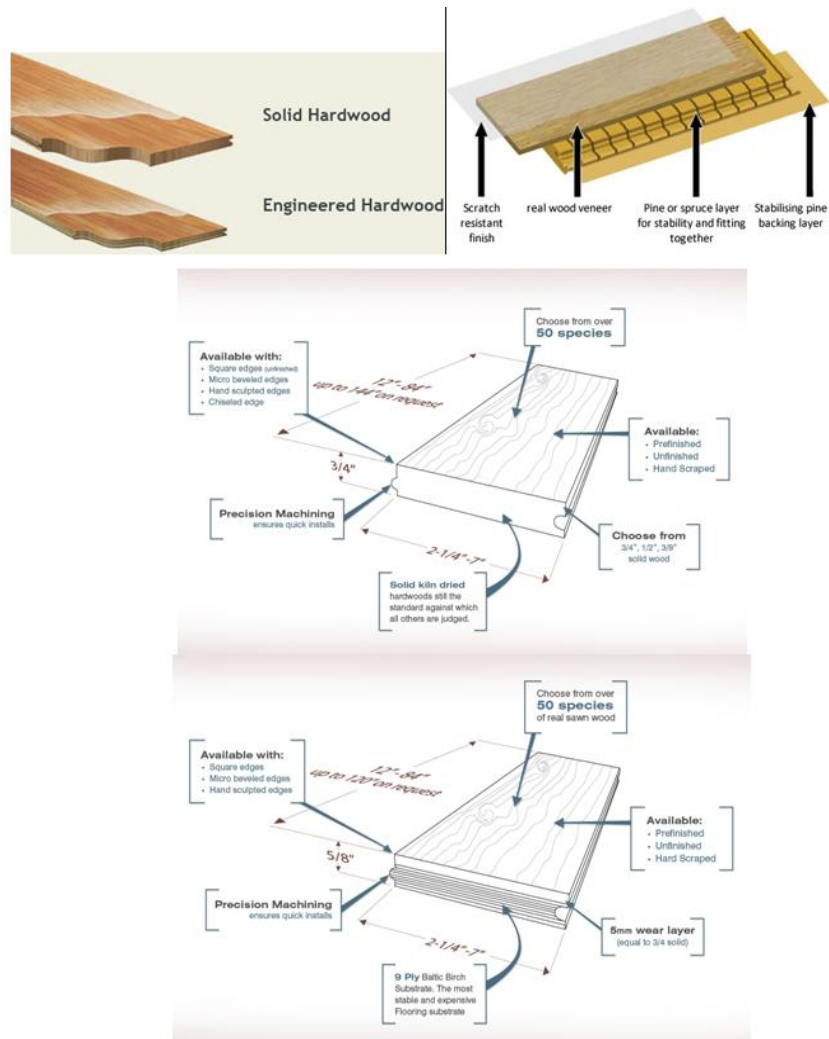


Figure 5. Example of product drawings of wood floorings<sup>10 11</sup>

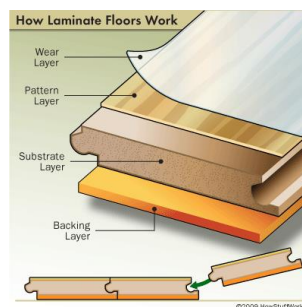


Figure 6. Example of product drawings of laminate floorings<sup>12</sup>

<sup>10</sup> <http://floorworld.com/engineered-wood-flooring-guide>

<sup>11</sup> <http://www.canterburyflooring.com/technology.php>

<sup>12</sup> <http://triauxenergy.com/cheap-laminate-flooring/>

## Criterion 2. Wood, cork and bamboo based material

### Criterion text:

This requirement is applied to wood, wood-based, cork, cork-based, bamboo, bamboo-based materials weighing more than 1% of the finished product.

All wood, wood-based, cork, cork-based, bamboo, bamboo-based materials shall not originate from genetically modified organisms (GMO) and be covered by chain of custody certificates issued by an independent third party certification scheme such as the Forest Stewardship Council (FSC), the Programme for the Endorsement of Forest Certification (PEFC) or equivalent.

All virgin wood, cork and bamboo shall be covered by valid sustainable forest management certificates issued by an independent third party certification scheme such as FSC, PEFC or equivalent.

Where a certification scheme allows the mixing of uncertified material with certified and/or recycled materials in a product or production line, a minimum of 70% of the wood, cork and/or bamboo shall be sustainable certified virgin materials and/or recycled material.

Uncertified material shall be covered by a verification system which ensures that it is legally sourced and meets any other requirement of the certification scheme with respect to uncertified material.

The certification bodies issuing forest and/or chain of custody certificates shall be accredited or recognised by that certification scheme.

### Assessment and verification

The applicant shall provide to the competent body a declaration of compliance supported by a valid, independently certified chain of custody certificate of the manufacturer for all wood, wood-based cork, cork-based, bamboo, bamboo-based material used in the product or production line and demonstrate that no virgin material is sourced from GMO. The applicant shall provide audited accounting documents that demonstrate that at least 70% of the materials originate from forests or areas managed according to Sustainable Forestry Management principles and/or from recycled sources that meet the requirements set out by the relevant independent chain of custody scheme. FSC, PEFC or equivalent schemes shall be accepted as independent third party certification.

If the product or production line includes uncertified material, proof shall be provided that the content of uncertified virgin material does not exceed 30% and is covered by a verification system which ensures that it is legally sourced and meets any other requirement of the certification scheme with respect to uncertified material.

### ① Key points of criterion 2

- *How to ensure that materials are originated from sustainable forest managed forests or areas? Section C2.1*
- *How to ensure that uncertified material meets any other requirement of the certification scheme with respect to uncertified material? Section C2.2*
- *How to ensure that materials are covered by chain of custody certificates? Section C2.3*
- *How to account the destination of the certified material? Section C2.4*
- *Examples of ways to demonstrate compliance with this criterion. Section C2.5*

### Definitions

- **Wood** means the hard fibrous material that forms the main substance of the trunks or branches of a tree or shrub beneath the bark and that can be used for timber (among other uses).
- **Cork** means a buoyant light brown substance obtained from the outer layer of the bark of the cork oak and is used especially for stoppers and insulation.
- **Bamboo** means the stem of any tall treelike tropical or semitropical fast-growing grass of the genus



Bambusa, having hollow woody-walled stems with ringed joints and edible young shoots.

- **Certification scheme:** Today the two largest international forest certification programs are the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC). It is generally agreed that the main features of certification schemes consist of the following three elements:
  - 1) **Standard:** The *content of the standard* (e.g. FSC or PEFC) sets out the requirements which must be met in the forest or area. There is no universally agreed set of detailed requirements defining SFM. However, there is general agreement that requirements need to address legal, technical, environmental and social issues.

The *standard setting*: this is the process of developing a standard, including the decision making process and representation from different stakeholder groups. Standards are developed by standard setting bodies (e.g. FSC members or working groups for national standard setting in PEFC). The different types of certificates of products can be related to the different origins of forest products, stages of production and subsequent progress of forest products through the value chain.
  - 2) **Certification process:** this is the process of establishing whether or not the standard requirements have been met, usually carried out by a certification body or certifier.
  - 3) **Accreditation:** this is the mechanism for ensuring that the organizations which undertake certification are competent and produce credible, consistent results. Accreditation is undertaken by an accreditation body. In addition, if the scheme is going to be used as a basis for identifying products from certified forests or areas and for making claims, then the mechanisms for controlling these are also required. This includes:
    - *Tracing*: a mechanism is required for tracing the materials from the certified forest through each stage. This is usually referred to as chain of custody (see below *Chain of custody certification*).
    - *Product labelling and claims*: rules about marking product labelling and claims, to ensure that claims on certified products are clear and accurate (see below *Chain of custody certification*).
- **Genetically modified organisms (GMO)** mean an organism, with the exception of human beings, in which the genetic material has been altered in a way that does not occur naturally by mating and/or natural recombination. Within the terms of this definition:
  - (a) genetic modification occurs at least through the use of the techniques listed in Annex I A, part 1 of the DIRECTIVE 2001/18/EC;
  - (b) the techniques listed in Annex I A, part 2 (DIRECTIVE 2001/18/EC), are not considered to result in genetic modification;
- **Sustainable forest management (SFM)** means the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems. This definition is however too broad for being easily assessed and shall be complemented by defining principles and/or criteria that guarantees its accordance with those defined by intergovernmental processes based on:
  - The three pillars of the sustainable development, namely the economic effectiveness, the environmental protection and the social protection.
  - The national laws and the international conventions (legality).
- **Chain of custody certification (CoC)** is a tool/system that verifies that certified material is identified or kept segregated from non-certified or non-controlled material through this chain. The CoC system must be in place from the forest unit of origin to the final point of sale, which provides a link between the SFM-certified material in the product or product line and certified forest unit. Mixing of SFM-certified and non-SFM-certified products must be done under controlled procedures that meet the CoC requirements.


CoC certification allows companies to label their products with the stamp of the certification scheme (eg FSC or PEFC), which in turn enables consumers to identify and choose products that support responsible forest management. The minimum rules for the use of logos and labels and the supervision of compliance shall be:

  - 1) Specification of the logos and labels.
  - 2) Unambiguous description of the claim that the logo or label represent, including the requirement to

communicate the actual or minimum percentages of SFM certified and post-consumer recycled material included in the product or product line.

- 3) Rights to logos and labels (copyright and registered as trademark).
- 4) Instructions regarding the use of logos and labels and the informative text they show.
- 5) There is a clearly defined mechanism for controlling all claims made about the certified nature of products, which ensures that claims are clear and accurate and that action is taken to prevent any false or misleading claims.

## C2.1 Guidance to ensure that materials are originated from forests or areas managed according to Sustainable Forestry Management (SFM)

 **Criterion 2 shall only apply to wood, cork, bamboo, wood-based, cork-based or bamboo-based materials that exceed 1% in weight of the final floor covering product.**

 **Where post-consumer recycled material (wood fibres, wood chips, etc) are used, they shall comply with the requirements of Criterion 4. Specific substance requirements**

Several points have been identified as key aspects for defining SFM principles and criteria at forest management unit level. These points are:

- 1) Legal framework
- 2) Forest health and vitality
- 3) Production function of forest resources
- 4) Protective function of forest resources
- 5) Biodiversity conservation
- 6) Extent of forest resources
- 7) Social requirements

When assessing the validity of a Certification scheme for complying with the principles of SFM, it is important to ensure that the criteria cover the seven aspects and the key/important requirements of each aspect. The Forest Stewardship Council (FSC), the Programme for the Endorsement of Forest Certification (PEFC), or other equivalent certification schemes accepted as independent third party certification, are considered valid.



**FSC** website: <https://us.fsc.org/en-us>

**PEFC** website: <http://www.pefc.org/find-certified/certified-certificates>



**The acceptance of an equivalent certification scheme shall be decided at EU Ecolabel Board level.**

## C2.2 Guidance to ensure that non-SFM-certified material meets any other requirement of the certification scheme

The certification schemes require certified organizations to avoid material from unacceptable sources and to not use them in certified products. The following types of materials are considered unacceptable and are avoided in FSC and PEFC labelled products through controlled material sourcing.

- 1) Illegally harvested wood;
- 2) Wood harvested in violation of traditional and civil rights;

- 3) Wood harvested in forests where High Conservation Values are threatened by management activities
- 4) Wood harvested from natural forests that were converted to non-forest uses
- 5) Wood from genetically modified trees



**Certified material and non-SFM-certified but controlled material of the same scheme can be mixed in a FSC or a PEFC labelled product as long as the quantity of certified material is higher than 70%.**

### C2.3 Guidance to ensure that materials are covered by chain of custody certificates (CoC) of a certification scheme

Between the forest and the final user, products may undergo many stages of processing, manufacturing and distribution. The CoC is a traceability system from the point of forest unit to the final point of sale as explained in the definitions. The CoC of a certification system needs to meet the following requirements:

- 1) Each individual organization in the CoC possesses an operational CoC system with a management system that provides sufficient guarantees that the requirements of the CoC standard are being met.
- 2) Each individual organization registers quantities and the names and certificate numbers of the organizations from which it purchases wood-, cork- or bamboo or wood-, cork- or bamboo-based materials and to which it sells wood-, cork- or bamboo or wood-, cork- or bamboo-based materials
- 3) If the system allows for mixing of SFM-certified and non-SFM-certified material, the non-SFM-Certified material is covered by a verifiable system to ensure that it is from non-disputed, at least legal sources. This applies to new, including pre-consumer recycled material and post-consumer recycled material.
- 4) SFM-certified material, material from other verified legal sources and material from non-verified legal sources are administratively separated. Material from non-verified legal sources is also physically separated from the other two sources.
- 5) If the system allows for mixing of SFM-certified and non-SFM-certified material, one of the following approaches shall be used:
  - *mass balance claim*: the proportion of the product sold as SFM certified material is equal to the proportion of SFM certified material entering in a process. This mechanism requires separating SFM certified and non-SFM certified raw material during all phases of the company's production/trading process to ensure that SFM certified raw material is not mixed with non-SFM certified raw material. When the physical separation method is used for product with percentage-based claims, every delivery must be processed or traded separately.
  - *percentage based claim*: the percentage of SFM certified material in a product or product line is reported. This mechanism allows mixing SFM-certified and non-SFM-certified raw material during the production or trading process. The percentage of the SFM-certified raw material must be known and communicated to the company's customers (average percentage). Alternatively, the company can sell as SFM-certified the proportion of its production which equals the percentage of SFM-certified raw material used (volume credit)



**Products with at least 70% of PEFC or FSC certified material and that have preserved the chain of custody shall be permitted to display their respective scheme certification logos.**

### C2.4 Guidance for accounting the SFM-certified and the non-SFM-certified (controlled) material

Accounted documents are required and audited in those organizations that hold a CoC certificate. This document is of importance for those producers that follow a percentage based method instead of a physical

separation method. The percentage based method applies to organizations that are mixing certified material with other material categories. The accounting should be associated to a single product type or a group of products which consist of the same or similar input material and have been produced or manufactured by the organization at one production site. The material entering the group of products shall have the same measurement unit or units that are transferable to the same measurement unit.

The percentage can be calculated as a simple percentage or rolling percentage considering, if any conversion ratios and methods are applied. The transfer of the calculated percentage to the outputs can be done by means of two methods:

- 1) the *average percentage method* in which the organization shall use the calculated certification percentage for all the products covered by the product group for which the calculation has been made, and
- 2) the *volume credit method* where the organization shall calculate the volume of credits using either:
  - the certification percentage and volume of output products: the volume credits are calculated by multiplying the volume of output products of the claim period by the certified percentage for the relevant claim period
  - input material and input/output ratio the organization demonstrates first a verifiable ratio between the input material and the output products and secondly calculates the volume credits directly from input certified material by multiplying the volume of input certified material by the input/output ratio

This volume of credits is included into the credit account. The total quantity of credits cumulated at the credit account shall not exceed the sum of credits entered into the credit account during the last 12 months. The 12 months maximum period can be extended where the production takes longer. The organization should distribute the volume of credits from the credit account for the output covered by the credit account either as containing 100% of certified material or as containing less than 100% certified material and meeting the requirements (>70%). The result of the volume of certified products multiplied by the output percentage of certified material included in the certified products shall be equal to the distributed volume credits withdrawn from the credit account.



**There is an important difference between the accounting documents required by the certification schemes FSC and PEFC and the EU Ecolabel scheme. The account document required by the EU Ecolabel shall contain the amount of certified wood, cork, bamboo or wood-, cork-, bamboo-based material that is uniquely labelled as an EU Ecolabel product and shall be deducted from the total credit account so that it cannot be sold twice (see Example 1 on double labelling and Example 2 on double labelling).**

## C2.5 Examples of ways to demonstrate compliance with this criterion

The applicant shall complete the information related to this criterion in the declarations of compliance included in the Annex II and ensure that all the documents mentioned in the check list of Annex III are provided. Here are shown several ways of showing compliance with this criterion:

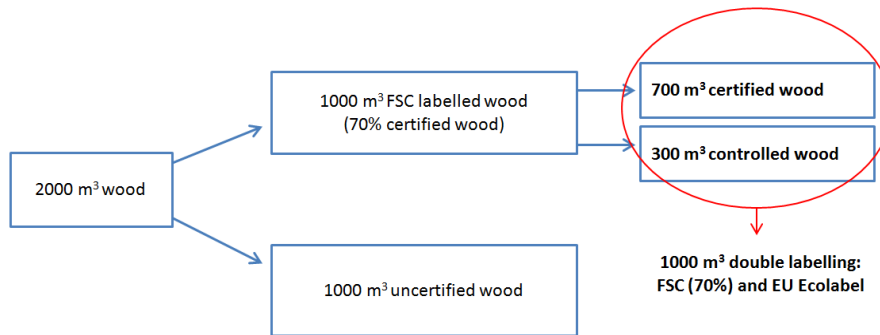
- a) *Double labelling*. If the Ecolabel products held the labels of FSC or PEFC, it means that all the requirements of this criterion have been met. Figure 7 shows several examples of the labels of these two schemes that can be used as proof of compliance with this criterion.



Figure 7. Examples of the FSC or PEFC labels that show compliance with criterion 2

**Example 1 on double labelling:**

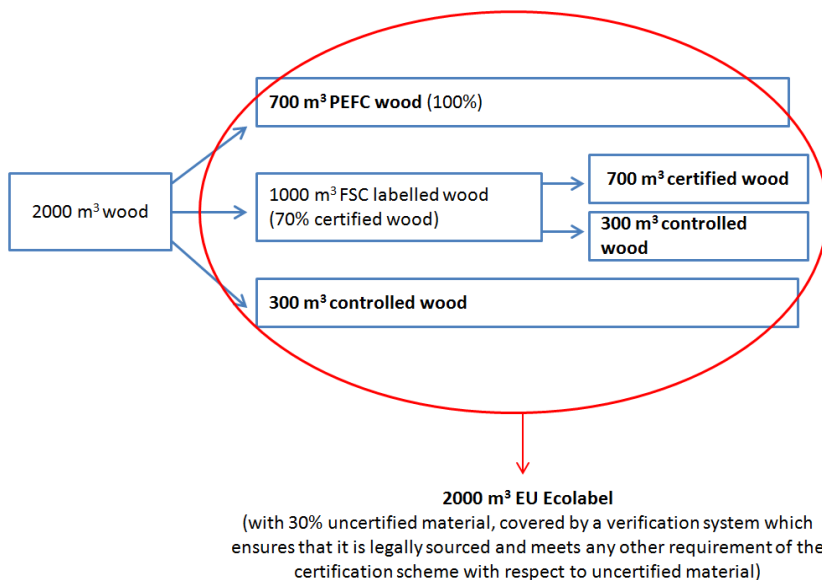
"A floor covering manufacturer is producing 2000 m<sup>3</sup> of wood-, cork- bamboo-based floor covering, and for that they are buying 2000m<sup>3</sup> of wood containing 700m<sup>3</sup> certified wood (100%): Of these 2000m<sup>3</sup> wood, 1000m<sup>3</sup> are FSC labelled wood (70% certified wood) (and all 700 m<sup>3</sup> certified wood are used for that) and the remaining part is controlled wood. Then the floor covering producer would also like to associate the EU Ecolabel to the rest of the production" Only 1000m<sup>3</sup> of the floor covering in output can be labelled FSC (70%) and EU Ecolabel, the "other" remaining 1000m<sup>3</sup> of floor covering in output cannot bear the EU Ecolabel Logo (considering a 1:1 conversion ratio).



**Example 2 on double labelling:**

"A floor covering manufacturer is producing 2000 m<sup>3</sup> of wood-, cork- bamboo-based floor covering, and for that they are buying 2000m<sup>3</sup> of wood containing 1400m<sup>3</sup> certified wood (100%): Of these 2000m<sup>3</sup> wood, 700 m<sup>3</sup> are PEFC wood (100%), 1000m<sup>3</sup> are FSC labelled wood (70% certified wood) (and all 700 m<sup>3</sup> certified wood are used for that) and the remaining part is controlled wood. Then the floor covering producer would also like to associate the EU Ecolabel to the rest of the production".

In this case, all 2000m<sup>3</sup> of the floor covering in output can be labelled EU Ecolabel.



b) Chain of custody certificate from FSC or PEFC of the manufacturer and a copy of the audited annual flow accountability system

This way of demonstration consists in providing:

- 1) A copy of the chain of custody from FSC or PEFC of the manufacturer. This document if issued by PEFC demonstrates also the compliance with the requirement that no virgin material is sourced from GMO species until 2020. Examples of this documentation:



Figure 8. Examples of chain of custody certificate of the producers

- 2) A copy of the flow accounting system. This document is a requirement of the Chain of Custody certification. The example in Table 5 shows how this document can look like for the percentage based method. The first part of the table shows the amount of PEFC certified material as input in the manufacturing process. This number shall be supported by the invoices of the raw material supplier. The second part of the table shows the amount of flooring that is delivered, the amount of credits needed to deliver both types of floorings and finally the remaining PEFC credits for each month.



**Chain of Custody of Forest Based Products** – Requirements (PEFC ST 2002:2013)  
<http://pefc.org/resources/technical-documentation/pefc-international-standards-2010/2006-chain-of-custody-of-forest-based-products-requirements-pefc-st-2002-2013-second-edition>

Table 5. Example of the flow accounting system for laminate floorings

<b>Purchased PEFC wood (figures from the invoices)</b>															
<b>Raw material</b>	<b>Supplier</b>	<b>unit</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Average</b>
Wood-A	A	m <sup>3</sup>	0	0	847	1,042	1,017	1,047	0	0	0	0	0	0	3,951
Wood-B	B	m <sup>3</sup>	<b>593</b>	<b>857</b>	<b>792</b>	<b>205</b>	<b>162</b>	<b>118</b>	<b>735</b>	<b>1,704</b>	<b>955</b>	<b>887</b>	<b>1,510</b>	<b>1,476</b>	<b>9,401</b>
Total input			<b>593</b>	<b>857</b>	<b>1,639</b>	<b>1,247</b>	<b>1,179</b>	<b>1,165</b>	<b>735</b>	<b>1,704</b>	<b>955</b>	<b>887</b>	<b>1,510</b>	<b>1,476</b>	<b>13,352</b>
<b>Produced laminate floor</b>															
<b>Conversion factor 2</b> <b>% of certified material in the flooring: 70%</b>															
<b>Account withdraws:</b>															
Delivery of PEFC label flooring		m <sup>3</sup>	184	500	503	506	548	564	513	550	500	538	587	524	5,833
Delivery of EU Ecolabel flooring		m <sup>3</sup>	90	120	500	520	440	250	150	100	210	500	500	556	3,846
Withdraw PEFC-flooring		m <sup>3</sup>	258	700	704	708	767	790	718	770	700	753	822	734	8,166
Withdraw EU Ecolabel - flooring		m <sup>3</sup>	126	168	700	728	616	350	210	140	294	700	700	778	5,384
Withdraw older >12 months			0	0	0	0	0	0	0	0	0	0	0	0	0
Balance PEFC account		m <sup>3</sup>	209	198	433	243	38	63	-130	664	625	59	47	11	11

c) *Chain of custody certificate from other certification scheme of the manufacturer and a copy of the annual flow accountability system*

This way of demonstration requires that the certification scheme is previously approved as a proof of compliance by the EUEB

## Criterion 3. General requirements for hazardous substances and mixtures

### Criterion text:

The presence in the product and any component parts thereof, of substances that have been identified according to Article 59 (1) of Regulation (EC) No 1907/2006 as substances of very high concern (SVHCs) or substances or mixtures that meet the criteria for classification, labelling and packaging (CLP) according to Regulation (EC) No 1272/2008 of the European Parliament and of the Council<sup>13</sup> for the hazards listed in Table 3.1 of this Decision, shall be restricted in accordance with points 3.a. and 3.b. For the purpose of this criterion, Candidate List SVHCs and CLP hazard classifications are grouped in Table 3.1 according to their hazardous properties.

**Table 3.1 Grouping of restricted hazards**

<p><b>Group 1 Hazards – SVHC and CLP</b></p> <p><i>Hazards that identify a substance as being within Group 1:</i></p> <ul style="list-style-type: none"> <li>- substances that appear on the Candidate List for SVHCs</li> <li>- carcinogenic, mutagenic and/or toxic to reproduction (CMR) category 1A or 1B: H340, H350, H350i, H360, H360F, H360D, H360FD, H360Fd, H360Df</li> </ul>
<p><b>Group 2 Hazards – CLP</b></p> <p><i>Hazards that identify a substance as being within Group 2:</i></p> <ul style="list-style-type: none"> <li>- category 2 CMR: H341, H351, H361f, H361d, H361df, H362</li> <li>- category 1 aquatic toxicity: H400, H410</li> <li>- category 1 and 2 acute toxicity: H300, H310, H330, H304</li> <li>- category 1 aspiration toxicity: H304</li> <li>- category 1 specific target organ toxicity (STOT): H370, H372</li> <li>- category 1 skin sensitizer H317</li> </ul>
<p><b>Group 3 Hazards – CLP</b></p> <p><i>Hazards that identify a substance as being within Group 3:</i></p> <ul style="list-style-type: none"> <li>- category 2, 3 and 4 aquatic toxicity: H411, H412, H413</li> <li>- category 3 acute toxicity: H301, H311, H331, EUH070</li> <li>- category 2 STOT: H371, H373</li> </ul>

### **3.a. Restriction of SVHCs**

The product and any component parts thereof shall not contain SVHCs at concentrations greater than 0,10 % (weight by weight).

No derogation from this requirement shall be given to Candidate List SVHCs present in the product or any component parts thereof at concentrations greater than 0,10 % (weight by weight).

#### **Assessment and verification**

The applicant shall compile declarations of absence of SVHCs above the specified concentration limit for the product and any component parts used in the product. Declarations shall be with reference to the latest version of the Candidate List published by ECHA<sup>14</sup>.

### **3.b. Restriction of CLP classified substances or mixtures used in the floor covering**

Substances or mixtures used by the floor covering manufacturer or his suppliers during the preparation of raw materials, manufacturing, assembly or any other treatment of the floor covering shall not be classified with any of the CLP hazards listed in Table 3.1. Restricted substances or mixtures shall include adhesives,

<sup>13</sup> Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (OJ L 353, 31.12.2008, p. 1).

<sup>14</sup> ECHA, Candidate List of substances of very high concern for Authorisation, <http://www.echa.europa.eu/candidate-list-table>.





paints, primers, varnishes, stains, resins, biocidal products, fillers, waxes, oils, joint fillers, dyes and sealants. However, the use of such restricted substances shall be permitted if at least one of the following conditions applies:

- the restricted substance or mixture was used in quantities that amount to less than 0,10% of the total weight of the floor covering and any component part thereof;
- the restricted substance changes its properties upon processing (e.g. becomes no longer bioavailable or undergoes chemical reaction) so that the restricted CLP hazards no longer apply and any unreacted residual content of the restricted substance is less than 0,10% of the total weight of the floor covering and any component part thereof.

#### **Assessment and verification**

The applicant and/or its suppliers shall provide to the competent body a declaration of compliance with criterion 3.b. supported, where appropriate, by a list of relevant substances or mixtures used together with declarations about their hazard classification or non-classification, their added quantities and if appropriate, statements whether the substances change their properties upon processing so that the restricted CLP hazards no longer apply. If so, the quantities of any unreacted residual content of the restricted substance shall be provided.

The following information shall be provided in relation to the hazard classification or non-classification for each of the substances:

- i. the substance's Chemical Abstract Service (CAS)<sup>15</sup>, European Community (EC)<sup>16</sup> or other list number (where available for mixtures);
- ii. the physical form and state in which the substance or mixture is used;
- iii. harmonized CLP hazard classifications;
- iv. self-classification entries in ECHA's REACH registered substance database<sup>17</sup> (if no harmonized classification available);
- v. mixture classifications according to the criteria laid down in Regulation (EC) No 1272/2008.

When considering self-classification entries in the REACH registered substance database, priority shall be given to entries from joint submissions.

Where a classification is recorded as "data-lacking" or "inconclusive" according to the REACH registered substance database, or when the substance has not yet been registered under the REACH system, toxicological data meeting the requirements of Annex VII to Regulation (EC) No 1907/2006 shall be provided that are sufficient to support conclusive self-classification in accordance with Annex I to Regulation (EC) No 1272/2008 and ECHA's supporting guidance. In the case of "data lacking" or "inconclusive" database entries, self-classifications shall be verified. For that purpose, the following information sources shall be accepted:

- i. toxicological studies and hazard assessments by ECHA peer regulatory agencies<sup>18</sup>, Member State regulatory bodies or intergovernmental bodies;
- ii. a Safety Data Sheet (SDS) fully completed in accordance with Annex II to Regulation (EC) No 1907/2006;
- iii. a documented expert judgment provided by a professional toxicologist, which shall be based on a review of scientific literature and existing testing data, where necessary supported by results from new testing carried out by independent laboratories using methods approved by ECHA;
- iv. an attestation, where appropriate based on expert judgment, issued by an accredited conformity assessment body that carries out hazard assessments according to the Globally Harmonized System (GHS) or CLP hazard classification systems.

Information on the hazardous properties of substances may, in accordance with Annex XI to Regulation (EC) No 1907/2006, be generated by means other than tests, for instance through the use of alternative methods such as in vitro methods, by quantitative structure activity models or by the use of grouping or read-across.

<sup>15</sup> CAS registry: <https://www.cas.org/content/chemical-substances>

<sup>16</sup> EC inventory: <http://echa.europa.eu/information-on-chemicals/ec-inventory>

<sup>17</sup> ECHA, REACH registered substances database: <http://www.echa.europa.eu/information-on-chemicals/registered-substances>.

<sup>18</sup> ECHA, Co-operation with peer regulatory agencies, <http://echa.europa.eu/about-us/partners-and-networks/international-cooperation/cooperation-with-peer-regulatory-agencies>.

### ① Key points of criterion 3

- Which is the concentration limit that apply to? Section C3.1
- How to show compliance with criterion 3.a? Section C3.2
- How to show compliance with criterion 3.b? Section C3.3

#### Definitions

- **Self-classification entries in the REACH:** Companies must classify the hazards of their chemicals in accordance with the criteria laid down in the CLP Regulation.
- **Joint submissions:** All companies registering the same substance need to agree on the data for their joint REACH registration procedure.
- **"Data-lacking":** When the registrant does not have relevant data that can be compared with the classification criteria.
- **"Inconclusive":** When the registrant have data but this data is not reliable (e.g. data of poor quality) or if the registrant have several equivocal study results. The available data can not be regarded as a firm basis for classification.
- **Toxicological studies and hazard assessments:** All relevant and available information on the intrinsic properties of a substance. This includes all physicochemical, toxicological and ecotoxicological information that may assist in identifying the presence or absence of hazardous properties of the substance.
- **Read-across:** Is a scientific method for filling data gaps on the effects of chemicals, predicting unknown properties of one chemical from known properties of similar chemicals. Is an alternative to testing chemicals on animals under REACH.

### C3.1 –Clarification regarding the concentration limit and how to show compliance

 **Criterion 3.a and 3.b apply to substances and mixtures present in the final product and any component parts thereof, as defined in the criterion 1, limiting their concentrations up to 0,10 % in weight.**

The applicant shall verify compliance with the limit of 0,10% w/w for each substance for all component parts used in the floor covering product and for the final floor covering product as a whole. The limit of 0,10% w/w refers to the total weight of the product or to the weight of the component parts of the product. Component parts are considered to be each of the layers that the floor covering consists of. The list of component parts shall be provided in criterion 1.

### C3.2 – Guidance to show compliance with criterion 3.a

This criterion requires that none of the SVHC Candidate List (Substances of Very High Concern) are present or if so, that the concentration of such substances is lower than 0,10 % in weight of the final product and of any component parts. Applicant should refer to the latest version of the Candidate List published by ECHA.



<https://echa.europa.eu/candidate-list-table>

### C3.3 – Guidance to show compliance with criterion 3.b

**!** Criterion 3.b requires that none of the substances or mixtures present in the final product are classified with any of the CLP hazards listed in Table 3.1 of the Commission Decision 2017/176/EC.

**!** It should be noticed that the use of a classified substance or mixture as raw material in the manufacture does not mean that the floor covering (as final product) contains that classified substance or mixture.

The possible approaches to demonstrate the compliance with this criterion are as follows:

- 1) *Testing of the final product*: this approach would require an enormous number of testing as the number of substances that are classified is large.
- 2) *Starting from the raw materials* used in the manufacturing of the product and check:
  - a. If substances or mixtures used do not possess any of the restricted hazards
  - b. If substances or mixtures used do possess restricted hazards but are used in quantities amounting to < 0,10% in weight of the product and any component part thereof
  - c. If substances or mixtures used do possess restricted hazards and are applied in quantities >0,10% w/w of the product and any component part thereof, but changes its properties during processing so that the restricted hazards no longer apply and any unreacted residual content of the restricted substance is < 0,10% w/w of the product and any component part thereof, and finally
  - d. check that the chemical reactions during the manufacturing process do not produce any classified substance with the restricted hazards.

## Criterion 4. Specific substance requirements

### C4.a. Contaminants in recycled wood, cork and bamboo

**Criterion text:**

**4.a. Contaminants in recycled wood, cork and bamboo**

Any recycled fibres or chips used in the manufacture of the final floor covering product shall be tested in accordance with the European Panel Federation (EPF) standard for delivery conditions of recycled wood<sup>19</sup> or with another equivalent standard that has equal or stricter limits, and shall comply with the limits for contaminants as listed in Table 4.1.

**Table 4.1. Limits for contaminants in recycled wood, cork, bamboo and their fibres or chips (mg/kg dry recycled material)**

Contaminants	Limit values	Contaminants	Limit values
Arsenic (As)	25	Mercury (Hg)	25
Cadmium (Cd)	50	Fluorine (F)	100
Chromium (Cr)	25	Chlorine (Cl)	1000
Copper (Cu)	40	Pentachlorophenol (PCP)	5
Lead (Pb)	90	Tar oils (benzo(a)pyrene)	0.5

<sup>19</sup> "EPF Standard for delivery conditions of recycled wood", October 2002 at: <http://www.europanel.org/upload/EPF-Standard-for-recycled-wood-use.pdf>.

### Assessment and verification

The applicant shall provide to the competent body:

- a declaration from the manufacturer or the panel supplier, as appropriate, that no recycled wood, cork, bamboo or their fibres or chips were used in the floor covering, or
- a declaration from the manufacturer or the panel supplier, as appropriate, that all recycled wood, cork, bamboo or their fibres or chips used have been representatively tested in accordance with the EPF standard for delivery conditions of recycled wood or with another equivalent standard that has equal or stricter limits, supported by test reports that demonstrate compliance of the recycled samples with the limits specified in Table 4.1.

### Key points of criterion 4.a

- Which materials apply to? Section C4.1 (a)
- What is an equivalent test? Section C4.1 (a)

### Definitions

- **Fibres or chips:** are processed post-consumer wood pieces formed by shredding, crushing, hammering or chopping originating, most of all, from sawmills and other similar factories. It has to be highlighted that fibres or chips delivered to the panel board manufacturer is considered waste, subject to the normal regulatory controls, and it should be treated appropriately until it is incorporated into a new wood-based panel. Once processed into panel board, the material is no longer waste, so that regulatory control would no longer apply. The recycled material shall comply with the provisions in the EPF standard or with another equivalent one, as reported in the criterion text.

## C4.1 (a) – Clarifications related to the criterion 4.a



**Criterion 4.a only applies when recycled wood, cork and bamboo has been used.**

If recycled fibres or chips are used, they shall comply with the limits of contaminants indicated in the Table 4.1 of Criterion 4.a and shall be tested in accordance with "European Panel Federation (EPF) standard for delivery conditions of recycled wood" of October 2002, or with another equivalent standard that has equal or stricter limits.



<http://europanel.org/upload/EPF-Standard-for-recycled-wood-use.pdf>

An alternative test method considered as a method with similar accuracy (repeatability and reproducibility) for recycled wood is RAL-GZ 428 (from Germany).

In case a standard different from EPF is to be used, the following aspects are proposed to be checked to decide if it can be considered as equivalent or stricter (not exhaustive list):

- Sampling and frequency of the testing;
- Types of unaccepted material;
- Quality and cleanliness;
- Moisture content;
- Delivery requirements;
- Reference test methods.



**The use of this or any other alternative method should be agreed at EU Ecolabel board level.**

## C4.b. Biocidal products

**Criterion text:**

**4.b. Biocidal products**

The treatment of wood, cork and/or bamboo of the floor coverings with biocidal products shall not be permitted.

The following active substances shall not be permitted for in-can preservation of water-based mixtures such as adhesives or lacquers:

- blend (3:1) of chloromethylisothiazolinone and methylisothiazolinone (CMIT/MIT CAS No 55965-84-9) at a concentration above 15 ppm;
- methylisothiazolinone at a concentration above 200 ppm;
- other isothiazolines at a concentration above 500 ppm.

**Assessment and verification**

The applicant shall provide to the competent body a declaration of non-use of biocidal products or, if applicable, a declaration supported by an SDS from the water-based mixtures' suppliers stating what active substances have been used as in-can preservatives for the water-based mixtures.

**Key points of criterion 4.b**

- When and why can biocidal products be used? Section C4.2 (b)
- Where to find information to show compliance? Section C4.2 (b)

### C4.2 (b) – Clarifications related to the criterion 4.b

Although the use of biocidal products, preservatives and active substances to treat wood, cork and bamboo is not permitted in criterion 4.b, these substances can be used if they are part of in-can water-based mixtures used during the manufacturing process and if they comply with the requirements described in the criterion 4.b.

In-can water-based mixtures used during the manufacturing process such as adhesives or lacquers are susceptible to microbiological contamination and spoil-age and require the inclusion of an in-can preservative to provide protection during manufacture and an appropriate shelf life.

Definitions of biocidal products, preservatives and active substances in accordance with the Biocidal Products Regulation (BPR, Regulation (EU) 528/2012) can be found in the Commission Decision 2017/176/EC text.

The verification of the requirements for the active substances for in-can preservation of water-based mixtures should be carried out by checking the ingredients included in the SDS of the water-based mixtures used during the manufacturing process. For example, if an in-can water-based solution has 15 ppm or more of the mixture CMIT/MIT the whole solution will be classified with H317 (Skin Sens 1) and the mixture CMIT/MIT will appear in the ingredients included in the SDS of the solution.

To demonstrate compliance with this criterion 4.a the SDS of the water-based preparations should be provided.

## C4.c. Heavy metals in paints, primers and varnishes

## C4.d&C4.e. VOC content in surface treatment (C4.d) & VOC content in other used substances and mixtures (C4.e)

**Criterion text:**

**4. d. VOC content in surface treatment**

Surface treatment products used on wood, wood-based, cork, cork-based, bamboo or bamboo-based materials shall have either of the following:

- a total VOC content of less than or equal to 5% weight by weight (in-can substance concentration);
- a total VOC content greater than 5% weight by weight provided that they are shown to be applied in quantities that amount to less than 10 g/m<sup>2</sup> of treated surface area.

The criterion relates to the total VOC in the surface treatment products with the chemical composition they have in wet form. If the products require dilution before use, the calculation is to be based on the content in the diluted product.

For the purpose of this criterion, VOC means volatile organic compound as defined in Article 2(5) of Directive 2004/42/CE of the European Parliament and of the Council<sup>20</sup>.

This criterion does not apply to mixtures used for repairing (e.g. knots, checks, dents, etc.) during the manufacturing process.

#### **Assessment and verification**

The applicant shall provide to the competent body a declaration of compliance with this criterion supported by the SDS of any surface treatment substances or mixtures used on wood, wood-based, cork, cork-based, bamboo or/and bamboo-based materials. If the SDS states that the VOC content of the surface treatment substances or mixtures used is less than or equal to 5% weight by weight, no further verification shall be necessary.

Should the VOC content information not be included in the SDS, the VOC content shall be calculated from the list of substances in the surface treatment mixture. The concentration of each VOC ingredient shall be stated as a percentage by weight.

Alternatively, if the VOC content is higher than 5% weight by weight, the applicant shall provide a calculation demonstrating that the effective quantity of VOC applied per m<sup>2</sup> of the treated surface area of the floor covering is less than 10 g /m<sup>2</sup>, in accordance with the guidance provided in Appendix I.

#### **4.e. VOCs content in other used substances and mixtures**

VOC content shall be less than:

- 3% weight by weight in both in-can adhesives and resins used in manufacturing of the floor coverings;
- 1% weight by weight in other substances apart from in-can adhesives, resins and surface treatment (criterion 4.d) used in manufacturing of the floor coverings.

Free-formaldehyde of liquid aminoplast resins used in the manufacturing of the floor coverings shall be less than 0,2% weight by weight.

The criterion relates to the total VOC in the substances with the chemical composition they have in wet form. If the mixtures require dilution prior to use, the calculation is to be based on the content in the diluted product.

For the purpose of this criterion, VOC means volatile organic compound as defined in Article 2(5) of Directive 2004/42/CE of the European Parliament and of the Council.

This criterion does not apply to mixtures used for repairing (e.g. knots, checks, dents, etc.) during the manufacturing process.

#### **Assessment and verification**

The applicant shall provide to the competent body a declaration of compliance with the criterion supported by the SDS of any in-can adhesive, resin or other substances used or equivalent documentation that supports the declaration of compliance, together with a complete recipe with designation of quantities and CAS numbers.

If the SDS states that the VOC content is less than 3% weight by weight of the in-can adhesive and resin used or less than 1% weight by weight of other substances used, no further verification shall be necessary.

<sup>20</sup> Directive 2004/42/CE of the European Parliament and of the Council of 21 April 2004 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products and amending directive 1999/13/EC (OJ L 143 30.4.2004 p. 87).

Should the VOC content information not be included in the SDS, the VOC content shall be calculated from the list of substances. The concentration of each VOC ingredient shall be stated as a percentage by weight. The applicant shall provide test reports demonstrating that the free-formaldehyde content in the liquid aminoplast resins is less than 0,2% weight by weight in accordance with standard EN1243.

**① Key points of criterion 4.d and 4.e**

- Which are the VOC limits depending on the function of the substance/mixture used in the FC? Section C4.3 (d/e)
- Where to find information regarding VOC content? Section C4.4 (d/e)
- How to calculate the VOC content from the list of ingredients? Example. Section C4.5 (d/e)
- How to show compliance with criterion 4.d by using the effective rate? Example. Section C4.6 (d/e)

**Definitions**

- **VOC content:** VOC standing for volatile organic compounds is defined in Article 2(5) of Directive 2004/42/CE of the European Parliament and of the Council<sup>21</sup> as any organic compound having an initial boiling point less than or equal to 250°C measured at a standard pressure of 101,3 kPa.
- **Surface treatment:** refers to all the techniques that aim to provide a twofold basic functionality:
  - a) to protect the underlying material (wood, cork, bamboo-based materials) against deterioration by the adjacent environment and
  - b) to decorate or improve the aesthetic aspect of the surface.

Protection should be given against physical and chemical attacks, including water, chemical agents, UV-light and dirt. The aesthetic aspects refer to characteristics like colour performance, gloss and desired surface structure. The basic principle relies on the fact that most of the wood species, cork and bamboo are hygroscopic and absorb stain and lacquer in different ways depending on their porosity and the cell structure. In order to make the application easier, the surface treatment is VOC containing.
- **Mixtures used for repairing (e.g. knots, checks, dents, etc.):** During the manufacturing of the floor coverings as well as the final smoothing of any piece of wood, cork or bamboo, imperfections and accidents invariably appear. This can be simple dings and dents as a result of collisions or defects in the wood, cork or bamboo such as checks, knots or bark inclusions. All these problems can be repaired during the manufacturing process by using different mixtures. For example, a damaged piece of wood, cork or bamboo that has voids or knots in it can be repaired by adding wood putty (mixture widely used for repairing the logs). This treatment would not retain the look of the knots. But, if a smooth surface is desired while keeping the look of the knots, the solution is to fill the wood, cork or bamboo knots and voids with epoxy. In order to allow this repairing process during the manufacturing, substances and mixtures used for repairing are exempted from criterion 4.d and 4.e. The basic principle relies on the fact that the products used for repairing the materials during the manufacturing process contain high amounts of VOCs to make easier their application in the knots, checks, bark inclusions, dents and any other deformation of the desired shape of the final product. However, they undergo a curing process becoming a solid matrix.
- **Effective applied VOC quantity:** In case the VOC content in the surface treatment product is higher than 5% w/w the applicant must show compliance with the Criterion 4.d demonstrating that the effective applied VOC quantity is less than 10 g/m<sup>2</sup>. The effective applied VOC quantity is the result of the formula indicated in Appendix I of the Commission Decision 2017/176/EC. It depends on the technology used for the application of the treatment product. Each technology has an attributed efficacy factor in accordance with Table 4.2 of the Appendix I.

Table 4.2 Surface treatment technologies are described below:

<sup>21</sup> Directive 2004/42/CE of the European Parliament and of the Council of 21 April 2004 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products and amending directive 1999/13/EC (OJ L143 30.4.2004 p. 87).

Method/technology	Description
Automatic spray application without recycling	Most automatic spray systems use a device that moves the spray guns and controls application. Programmable logic controllers (PLCs) use part recognition systems to trigger guns on, initiate color change, and adjust the equipment for optimum efficiency. In addition to control of paint application, PLCs are used for paint mixing, color changes, and other control tasks.
Automatic spray application with recycling	The system is identical to the one above, but the spray liquid that does not move is collected to be re-sprayed.
Spray application, electrostatic:	The differences between this and air spraying are that the electrostatic gun has an electrode at the nozzle and the object to be painted is grounded. The electrode runs 60,000 volts through the paint at 225 microamperes. The charged paint is attracted to the grounded object. This requires less pressure, produces little overspray, and uses relatively little paint. Electrostatic guns are good for painting oddley shaped objects. They also produce a uniform coat because the paint itself acts as an insulator; once the object is covered, it can take no more paint. The disadvantages are: only one coat is possible, only conductive materials can be painted; it's more expensive, slower, has higher maintenance costs, is limited to chargeable paints, and the surface of the object must be extremely clean. Because the gun uses electricity, this method presents a possible shock hazard.
Spray application, bell/disc	One method is to use the electrostatic force created by a high voltage differential between a paint dispenser and the grounded work. This force tears the material apart creating atomization and deposits the material on the object to be coated. No air or hydraulic force is used. This method is sometimes referred to as "true electrostatic painting". The material is fed to a rotating disc or bell. A set speed will cause the material to flow by centrifugal force to the edge, but not disperse. The disc or bell is charged to 120,000 volts D.C. Negative (excess of electrons). As the object to be coated passes by the rotating disc or bell, the material is pulled off by a current exchange between the emitter and the product and is attracted to the work.
Roller coating	Paint is applied to auxiliary rollers, which then transfer the paint to the application rollers, which run across the part. This method has a high transfer efficiency and high production rates, but is limited to flat work.
Curtain coating	Instead of many streams of paint, curtain coating uses a waterfall flow of paint to coat parts on a conveyor belt. Curtain coating has a high transfer efficiency and covers parts uniformly, but is suitable only for flat work. The quality of the finish is highly dependent on the viscosity of the paint.
Vacuum coating	In vacuum treatment, the coating is pumped into the coating chamber. The coating is then atomized using suction air and suctioned out of the chamber from above and allowed back into circulation. In this way, an even paint mist is formed inside the chamber; the item to be coated is then feeded through the mist. During this process, it will be coated all-over. The object then exits the coating chamber through a precisely measured opening, which wipes the extra coating off the object's surface. The suction air flowing into the chamber along the object's surface carries the extra coating with it, back into the chamber and into circulation. <sup>22</sup>

- **Free-formaldehyde:** There is no standard definition for "free-formaldehyde", it depends on the testing methodology. Criterion 4.e requires that if liquid aminoplast resins are used in manufacturing of the floor coverings, their free-formaldehyde should be less than 0,2% w/w. This should be demonstrated in accordance with standard EN 1243.

<sup>22</sup> [https://www.tikkurila.com/files/3394/Industrial\\_wood\\_finishing\\_2009.pdf](https://www.tikkurila.com/files/3394/Industrial_wood_finishing_2009.pdf)



### C4.3 (d/e) – Guidance for the VOC content limit values required by criterion 4.d and 4.e

**!** These sub-criteria establish the requirements for the VOC content in surface treatment (4.d) and in other substances and mixtures used in the manufacture (4.e) of the floor coverings.

Restrictions of VOC content are limited depending on the function of the substances and/or mixtures as shown in Table 6.

Table 6. Restrictions of VOC content in substances and mixtures used in the floor covering manufacturing

Function	Criterion	Restriction in wet form	
		VOC	Free-formaldehyde
Surface treatment	4.d	≤5% w/w or Applied <10 g/m <sup>2</sup>	NA
Adhesives and resins	4.e	<3% w/w	<0.2% w/w for liquid aminoplast resins
Other apart from adhesives, resins and surface treatment	4.e	<1% w/w	NA
Mixtures for repairing during the manufacturing process	4.d 4.e	No restriction	NA

**!** The VOC content refer in all the cases to the wet form. If the substance or mixture needs dilution prior to be used, the VOC content should be calculated based on the ready-to-use form (after dilution).

### C4.4 (d/e) – Guidance to assess the VOC content

VOC content should be assessed based on the information included in the SDS of the substances or mixtures used in the manufacture of the floor coverings and the dilution ratio prior to use (if needed). If so, it should be noted that the information in the SDS will refer to the concentrated product and the data for verification of the criteria refer to the diluted product.

Two possible approaches to assess the VOC content of substances or mixtures are as follows:

- 1) The information regarding VOC content may be included in the SDS, where the total amount of ingredients classified as VOC is specified. This information, if included in the SDS, is available in section 9.2, although it is not mandatory.
- 2) If the VOC content information is not included in the SDS, it should be calculated based on the bill of materials or the list of ingredients of the chemical product. In this case, the initial boiling point value of each ingredient should be reported according with VOC definition that apply to criterion 4.d and 4.e: "If initial boiling point ≤ 250°C measured at a standard pressure of 101,3 kPa, the ingredient is considered as VOC". See example in section C4.5

### C4.5 (d/e) – Example on calculations for assessment and verification of the VOC content from the list of ingredients

*The manufacturer of flooring uses the product Y as an adhesive. The product contains four ingredients (A, B, C, D) and requires a dilution of 5 parts water to 1 part product (5:1) before being applied.*

In accordance with criterion 4.e, the VOC content of the mixture shall be less than 3% w/w to be used in a EU Ecolabel floor covering.

Step 1: Collection of the information

The following table should be filled:

Ingredient	CAS no	Boiling point	Content in mass (g)	Content in %
A	Xxxxx	320 °C	20	10
B	Xxxxx	150 °C	40	20
C	Xxxxx	300 °C	60	30
D	Xxxxx	200 °C	80	40
<b>Total</b>			<b>200</b>	<b>100</b>
Water	Dilution rate for RTU* products: 5:1			

\*RTU: Ready-to-use

Each ingredient should be identified by the CAS no or similar. The amount used of each ingredient should be recorded either in the column 'content in mass' (eg in grams) or 'content in %' (in mass percentage).

Step 2: Identification of the VOC substances

The boiling point allows the classification as VOC should be in accordance with "If boiling point  $\leq 250^{\circ}\text{C}$  measured at a standard pressure of 101,3 kPa, the ingredient is considered as VOC". Accordingly,

Ingredient	CAS no	VOC?	RTU in mass	VOC Content in %
A	Xxxxx	--	20	= (40+80)/(1200) *100 =
B	Xxxxx	yes	40	
C	Xxxxx	--	60	
D	Xxxxx	yes	80	
water		no	1000	
Total (as RTU product): 1200units				VOC (% in mass) = <b>10%</b>

As shown, the calculated VOC content for product Y used as an adhesive is higher than 3% and consequently it could not be used in a EU Ecolabel floor covering.

### C4.6 (d/e) – Example on calculations for assessment and verification of the VOC content in surface treatment by using the effective rate (Criterion 4.d)

The manufacturer of flooring uses 3 products to provide the surface treatment and the roller coating technique (efficiency rate 95 % in accordance with Table 4.2 in Appendix I of the Commission Decision 2017/ccc/EC).

The products contain:

- Product A has a VOC content of 6% and is applied with 10 g/m<sup>2</sup> in two coats;
- Product B has a VOC content of 7% and is applied with 20 g/m<sup>2</sup> just one coat;
- Product C has a VOC content of 5,5% and is applied with 10 g/m<sup>2</sup> for one coat.

Table 7 is filled in with the data provided in the example above. As the products used in the surface treatment exceed the limit of 5% of VOC, the quantity applied method shall be used. The information of this table includes:

	<b>Term</b>	<b>Description</b>
1	Short description of the surface treatment	Brief summary of the steps and procedures carried out to provide the surface treatment to the flooring. This description even if short shall be enough to determine the surface treatment process
2	Number of coats	Numbering of the coatings given to the flooring
3	Surface treatment product	Brand or chemical name of the substances and chemicals used in each coat
4	VOC content (%)	% in mass of the VOC content of the substance or mixture used in the respective coating
5	Quantity applied per	The amount in mass of substance or chemicals applied in each coat in g/m <sup>2</sup>

coating (g/m <sup>2</sup> )	
6	Application method(s) Name of the technology used in each coat. Each type of application method has attributed an efficiency rate as reported in Table 4.2 of the Appendix I of the decision. In this example all the layers are applied by using the same method but several methods could be used
7	Effective applied quantity (g/m <sup>2</sup> ) per coating <i>Quantity of surface treatment product x % VOC x surface treatment efficacy</i>
8	Total amount of VOC (g/m <sup>2</sup> ) in the surface treatment Is the sum of all the coatings applied: $\sum_{n=1}^i \text{Effective applied quantity (g/m}^2\text{) per coating}$

Table 7. Example of the data needed and calculations for calculating the VOC content in surface treatment

1	Short description of the surface treatment	The surface treatment consists of four layers. All layers are applied by roller coating being used product A in the first and second one, product B in the third one and product C in the last one			
2	Number of coats	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
3	Surface treatment product	A	A	B	C
4	VOC content (%)	6	6	7	5,5
5	Quantity applied (g/m <sup>2</sup> ) per coating	10	10	20	10
6	Application method(s)	roller coating (95%)			
7	Effective applied quantity (g/m <sup>2</sup> ) per coating	0,6	0,6	1,3	0,5
8	<b>Total amount of VOC in the surface treatment system (g/m<sup>2</sup>)</b>	<b>3 g/m<sup>2</sup></b>			

The surface treatment system has therefore applied a weighted total VOC content of 3 g/m<sup>2</sup> which is lower than the limit value of 10 g/m<sup>2</sup>. The surface treatment then complies with criterion 4.d.

## C4.f. Plasticisers

### Criterion text:

#### 4.f. Plasticisers

Any adhesive, resin or surface treatment substance or mixture shall not contain any phthalate plasticisers that are referred to in Article 57 of Regulation (EC) No 1907/2006. The non-presence of these phthalates shall be considered as the total sum of the listed phthalates amounting to less than 0,10% of the adhesive, resin or surface treatment substance or mixture weight (1000 mg/kg).

#### Assessment and verification

The applicant shall provide to the competent body either:

- a declaration of compliance with the criterion from the supplier or the floor covering manufacturer stating that phthalate plasticisers were not used, or
- a declaration of compliance with the criterion from the supplier or the floor covering manufacturer stating that phthalate plasticisers were used and that none of the phthalates meeting the criteria of Article 57 of Regulation (EC) No 1907/2006 have been used in the adhesive, resin or surface treatment substance or mixture. In the absence of a suitable declaration, adhesive, resin or surface treatment substance or mixture materials shall be tested for the presence of these phthalates according to the ISO 8214-6 standard.

**① Key points of criterion 4.f**

- Which substances apply to? Section C4.7 (f)
- How to show compliance? Section C4.7 (f)

## C4.7 (f) – Guidance to show compliance with the criterion C4.f

**⚠ Criterion 4.f applies to phthalate plasticisers with hazard classifications described in Article 57 of the REACH Regulation.**

The list of ingredients of the adhesives, resins and surface treatments shall be screened to demonstrate that they do not contain any phthalate plasticisers meeting the criteria of Article 57 of REACH Regulation (EC) No 1907/2006 or if so, the total sum of the listed phthalates is lower than 0.10 % in weight of the adhesive, resin or surface treatment.

Article 57 of the REACH Regulation lays down the criteria to identify SVHCs. The wording of Article 57 is the following:

**Article 57**

**Substances to be included in Annex XIV**

*The following substances may be included in Annex XIV in accordance with the procedure laid down in Article 58:*

- (a) substances meeting the criteria for classification in the hazard class carcinogenicity category 1A or 1B in accordance with section 3.6 of Annex I to Regulation (EC) No 1272/2008;*
- (b) substances meeting the criteria for classification in the hazard class germ cell mutagenicity category 1A or 1B in accordance with section 3.5 of Annex I to Regulation (EC) No 1272/2008;*
- (c) substances meeting the criteria for classification in the hazard class reproductive toxicity category 1A or 1B, adverse effects on sexual function and fertility or on development in accordance with section 3.7 of Annex I to Regulation (EC) No 1272/2008;*
- (d) substances which are persistent, bioaccumulative and toxic in accordance with the criteria set out in Annex XIII of this Regulation;*
- (e) substances which are very persistent and very bioaccumulative in accordance with the criteria set out in Annex XIII of this Regulation;*
- (f) substances such as those having endocrine disrupting properties or those having persistent, bioaccumulative and toxic properties or very persistent and very bioaccumulative properties, which do not fulfil the criteria of points (d) or (e) for which there is scientific evidence of probable serious effects to human health or the environment which give rise to an equivalent level of concern to those of other substances listed in points (a) to (e) and which are identified on a case-by-case basis in accordance with the procedure set out in Article 59.*

To verify if the phthalate plasticisers used meet or not the criteria of classification described in Article 57 of REACH Regulation, an important source of information is the ECHA Classification and Labelling (C&L) Inventory:



<https://echa.europa.eu/information-on-chemicals/cl-inventory-database>

In order to provide **examples** of phthalates that meet the criteria of Article 57 of REACH Regulation, the phthalates included in the SVHC Candidate List at the time of writing this manual are the following:

- di-n-butyl phthalate (DBP),
- benzyl butyl phthalate (BBP),
- bis-(2-ethylhexyl) phthalate (DEHP),
- diisobutyl phthalate (DIBP),
- dihexyl phthalate (DnHP),
- dipentyl phthalate (DPP),
- diisopentyl phthalate (DIPP),
- bis(2-methoxyethyl) phthalate (DMEP)



**Note that this may not be an exhaustive list. The criterion could affect further substances. The applicant shall check the use of ingredients of the adhesives, resins and surface treatments meeting the criteria of Article 57 of REACH Regulation, to demonstrate compliance with the absence of phthalates.**



**Each prohibited phthalate plasticisers in the adhesive, surface treatment or resins shall be lower than 0.10 % w/w. The use of any plasticiser (as single substance) shall comply with criterion 3a and 3b**

When information on the phthalates content is insufficient and it is not possible to obtain a suitable declaration of compliance with the criterion, the adhesive, resin or surface treatment shall be tested in accordance with ISO 8214-6 standard. This standard specifies a method for the determination of di-n-butyl phthalate (DBP), benzyl butyl phthalate (BBP), bis-(2-ethylhexyl) phthalate (DEHP), di-n-octyl phthalate (DNOP), di-iso-nonyl phthalate (DINP), and di-iso-decyl phthalate (DIDP) in toys and children's products which are made of plastics, textiles, and coatings, etc.

## C4.g. Halogenated organic compounds

### Criterion text:

#### **4.g. Halogenated organic compounds**

Halogenated organic compounds shall not be permitted in the substances used in the manufacture of floor coverings (e.g. as binders, adhesives, coatings, etc.).

#### **Assessment and verification**

The applicant shall provide to the competent body a declaration of compliance supported by a declaration of non-use of halogenated organic compounds from the manufacturer of the substances. In addition, the respective SDS of the substances shall be provided.

### **Key points of criterion 4.g**

- *What is a halogenated organic compound? Section C4.8 (g)*

## C4.8 (g) – Clarification regarding halogenated organic compounds

Halogenated organic compounds are chemicals in which one or more halogens (F: fluorine; Cl: chlorine; Br: bromine or I: iodine) are combined with carbon and other elements, resulting in the formation of organofluorine, organochlorine, organobromine, and organoiodine compounds.

Examples of halogenated organic compounds are benzyl bromide, vinyl chloride, vinylidene chloride, methylene chloride, iodoacetic acid, vinylidene fluoride. More information about these compounds, their chemical properties, risk assessments and uses, along with a list (*not necessarily an exhaustive list*) can be found in:



<https://cameochemicals.noaa.gov/react/17>

<https://cameochemicals.noaa.gov/search/results>

## C4.h. Flame retardants

### Criterion text:

#### 4.h. Flame retardants

Flame retardants shall not be permitted in the substances used in the manufacture of floor coverings.

#### Assessment and verification

The applicant shall provide to the competent body a declaration of compliance supported by a declaration of non-use of flame retardants from the manufacturer of the substances. In addition, the respective SDS of the substances shall be provided.

### Key points of criterion 4.h

- *What is a flame retardant?* Section C4.9 (h)

## C4.9 (h) – Clarification regarding flame retardants

Flame retardant (FR) is a term which is not scientifically or legally defined. However it gathers a wide range of chemicals which have a common function: they are added to manufactured materials to increase their fire safety. FRs inhibit or delay the spread of fire by suppressing the chemical reactions in the flame or by the formation of a protective layer on the surface of a material.

More than 175 different types of FRs exist, commonly divided into four major groups: inorganic FRs, organophosphorus FRs, nitrogen-containing FRs and halogenated organic FRs. Inorganic FRs comprise metal hydroxides, boron salts, inorganic antimony, tin, zinc and molybdenum compounds among other substances. Inorganic FRs are added as fillers into the polymers and are considered immobile, in contrast with the organic FRs. Organophosphorous FRs are primarily phosphate esters that may also contain bromine or chlorine. Organophosphorous FRs are widely used both in polymers and textile cellulose fibers. Nitrogen-containing FRs inhibit the formation of flammable gases and are primarily used in polymers containing nitrogen, such as polyurethane and polyamide. The most important nitrogen-based FRs are melamine and melamine derivatives. Halogenated organic FRs are usually based on chlorine and bromine. Brominated FRs are more



numerous than chlorinate FRs due to their efficiency and because at high temperatures, the decomposition products of brominated compounds are less volatile than those structure<sup>23</sup>.

### C4.i. Aziridine and polyaziridine

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<sup>23</sup> Segev et al., 2009. Environmental Impact of Flame Retardants (Persistence and Biodegradability). *Envi. Sci. Technol.*, Vol. 25, p.117-122. *Int. J. Environ. Res. Public. Health.* 6(2): 478–491.

## Criterion 5. Energy consumption in the production process

### Criterion text:

The average annual energy consumed during the production of the floor coverings shall be calculated as indicated in Table 5.1 and Appendix II and shall exceed the following limits (E = score):

Product	E score
Solid wood floorings	> 11,0
Multi-layer wood floorings Wood veneer floor covering Cork floor coverings and cork tile floorings Bamboo floor coverings Laminate floorings	> 8,0

**Table 5.1. Calculation of the scoring point**

Formula	Environmental parameter		Maximum requirements
$E = \frac{A}{20} + \left(5 - \frac{B}{3}\right) + \left(5 - \frac{C}{7}\right)$	A	Proportion of renewable energy in the total annual energy consumption	%
	B	Annual electricity purchased	kWh/m <sup>2</sup>
	C	Annual fuel consumption	kWh/m <sup>2</sup>
			15 kWh/m <sup>2</sup>
			35 kWh/m <sup>2</sup>

Where A = Ratio between the energy coming from renewable energy sources and the total energy.

In the numerator of the A ratio shall read the purchased RES fuels as (amount of fuel x standard value), plus the heat generated on-site from non-fuel RES, plus 2,5 x electricity on-site generated non-fuel RES and plus 2,5 x purchased electricity from RES.

In the denominator of the A ratio shall read the purchased RES fuels as (amount of fuel x standard value), plus the purchased non-RES fuels as (amount of fuel x standard value), plus the heat generated on-site from non-fuel RES, plus 2,5 x electricity on-site generated non-fuel RES, plus 2,5 x purchased electricity from RES and plus 2,5 x purchased electricity from non-RES.

B = Annual electricity purchased means the sum of the electricity purchased from an external supplier. If the electricity purchased is electricity from RES, a factor of 0,8 shall be applied.

C = Annual fuel consumption means the sum of all fuels purchased or sourced as by-products in the manufacturing of the floorings and used to generate energy on-site.

E scoring shall be calculated per m<sup>2</sup> of produced flooring and shall account the direct energy consumed in the production of the flooring. Indirect energy consumption is not considered.

The following is an indicative list of activities that shall be included and not included in the calculations of the energy consumption. Activities shall start at the reception of the fells (tree trunks), cork and bamboo in the manufacturer's or his suppliers facilities until the end of the manufacturing process.

Product	Conditions for the electricity and fuel consumption (indicative list)	
	Included	Not included
Solid wood floorings	<ul style="list-style-type: none"> <li>- drying, grinding and sawing</li> <li>- sizing and trimming</li> <li>- sanding</li> <li>- coating</li> <li>- packaging</li> <li>- and any other activity needed for manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>- manufacture of lacquers or any other in-can preparation</li> <li>- energy consumed in the quality control activities</li> <li>- indirect energy</li> </ul>



Multi-layer wood floorings	<ul style="list-style-type: none"> <li>- drying, grinding and sawing</li> <li>- sizing and trimming</li> <li>- sanding</li> <li>- pressing</li> <li>- coating</li> <li>- packaging</li> <li>- and any other activity needed for manufacturing</li> </ul>	consumption (e.g. heating, lighting, internal transportation, etc.).
Cork and cork tile floor coverings	<ul style="list-style-type: none"> <li>- drying, grinding and sawing</li> <li>- sizing and trimming</li> </ul>	
Bamboo floor coverings	<ul style="list-style-type: none"> <li>- sanding</li> <li>- pressing</li> <li>- or manufacturing of the core board if used in its structure</li> <li>- coating</li> <li>- packaging</li> <li>- and any other activity needed for manufacturing</li> </ul>	
Laminate floorings	<ul style="list-style-type: none"> <li>- manufacturing of the core board</li> <li>- impregnation process of the décor, overlay and backing paper</li> <li>- pressing</li> <li>- sizing</li> <li>- packaging</li> <li>- and any other activity needed for manufacturing</li> </ul>	

**Assessment and verification**

The applicant shall state and demonstrate:

- the type and quantity of electricity that has been, on average, purchased from an external supplier per year. Should electricity from RES be purchased, guarantees of origin in accordance with Directive 2009/28/EC shall be provided. Where Directive 2009/28/EC is not applicable in the country where the floor covering is manufactured, an equivalent means of proof shall be provided;
- the type(s) of fuels and quantities that have been used in the manufacturing of the floor coverings by means of the contracts, bills or equivalent documentation that includes dates, quantity delivered/purchased and specifications of the fuel (e.g. physic-chemical properties, Low Heating Value (LHV), etc.). Declaration of which of those used fuels are coming from RES in accordance with Directive 2009/28/EC shall be included;
- the quantity of energy that has been used in the manufacturing steps included in the calculation of the E score together with supporting documents (e.g. energy measurements at different manufacturing points, energy consumption of the equipment as reported in the product sheets, etc.);
- the type and quantity of energy that has been sold. The calculations shall include the type and quantity of fuels, if any, used for generating the energy sold, the dates or periods of time in which it was generated and the selling dates;
- a declaration of the quantity of flooring that applies for the EU Ecolabel (in m<sup>2</sup>) that has been, on average, annually produced.

The documents used to communicate the energy consumption, fuel purchase and energy generation as well as the documents to communicate flooring production to the national authorities may be used to demonstrate compliance with this criterion.

**① Key points of criterion 5**

- How to classify the fuels and electricity used for production? Section C5.1
- How to apply the E score formula? Section C5.2
- What is a guarantee of origin and a cancellation statement? Section C5.3
- What is the standard value and which alternative values can be used? Section C5.4

**Definitions**

- **Guarantees of origin:** means an electronic document which has the sole function of providing proof to a final customer that a given share or quantity of energy was produced from renewable sources as required by Article 3(6) of Directive 2003/54/EC.
- **Energy from renewable sources (RES):** means energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases.
- **Electricity from RES:** means electricity produced from renewable or non-polluting and non-hazardous technologies such as air turbines (windmills), geothermal power plants, solar-cells. The generation of green electricity can be on-site or off-site, in both cases, the generation of green electricity should come along the expenditure of guarantees of origin if several criteria are fulfilled.
- **Energy surplus:** is the exceed of energy in the form of electricity, heat or steam that is produced on the manufacturer's facilities, not used for manufacturing the floorings and sold/delivered to a third party.

### C5.1 Guidance for classifying, accounting and reporting the energy used in the manufacturing process

The energy used in the manufacturing process shall be carefully classify as depending on the origin it shall be accounted in one or another factor (eg Factors A, B or C)

The energy used in the manufacturing process can be heat/steam or electricity and both can be generated on-site or off-site (heat/steam is in most of the cases generated inside). The origin of the energy can also be classified as renewable energy sources or non-renewable energy sources. Figure 9 shows the possible sources of the energy.

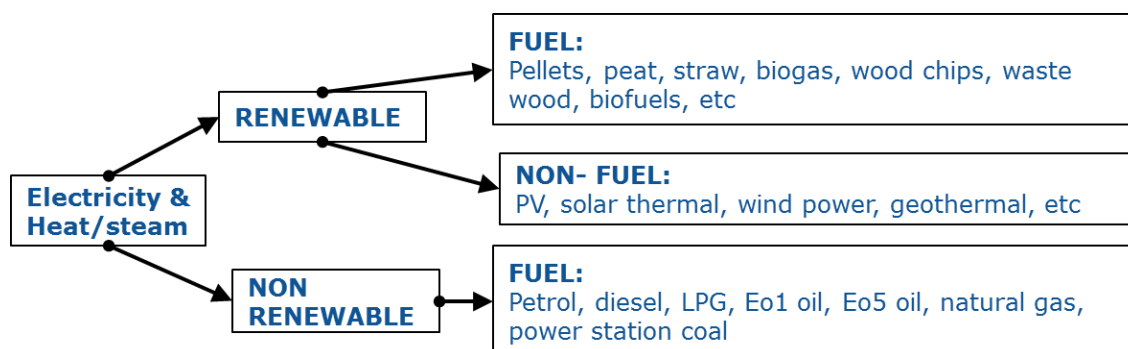


Figure 9. Sources of the energy

### C5.2 Guidance for calculating the E-score: Factors A, B and C

E-score consists of three factors. Further information on factor A and Factor B are provided below.

**Factor A**

The formula to be applied in the factor A is;

$$A = \frac{\sum(E_{RES\ fuel s} + Steam\ onsite_{non-fuel\ RES} + 2.5 (Elect\ onsite_{non-fuel\ RES} + Elect\ offsite_{RES}))}{\sum(E_{fuel s} + Steam\ onsite_{non-fuel\ RES} + 2.5 xElectricity)}$$

Where:

**E<sub>RES fuels</sub>** is the energy of the fuels coming from renewable sources.

**E<sub>fuels</sub>** is the energy content in all the fuels used in the manufacturing process. Fuels included are coming from renewable and non-renewable sources. The energy content into the fuels is calculated as:

$$E_{fuel} (kWh) = \sum (Fuel\ quantity\ (kg) \times standard\ value\ \left(\frac{MJ}{kg}\right) \times \frac{1}{3.6} \left(\frac{kWh}{MJ}\right))$$



**The standard value of the fuels can be found in Table 5.2 of appendix II. If the fuel used is not in that table, other values can be used as explained in section C5.3.**

**Steam onsite<sub>non-fuel RES</sub>** is the steam produced by renewable sources that do not use fuels (ie. Thermal solar).

**Elect onsite<sub>non-fuel RES</sub>** is the electricity generated onsite from renewable sources that do not use fuels (ie PV panels, wind power, geothermal, etc).

**Elect offsite<sub>RES</sub>** is the electricity generated off-site coming from renewable sources. This electricity can be purchased or generated by the same company.

**Electricity** is the total electricity produced onsite or purchased.



**Only the energy that is actually consumed during the manufacturing process shall be considered in the E scoring. Any surplus of energy (sold steam/heat or electricity) shall be deducted from the total fuel and electricity purchase.**

## Factor B

The formula to be applied in the factor B is:

$$B = 0.8 \times \sum Electr_{RES} + \sum Electr_{non-RES}$$



**The purchase electricity can be a mix of different origins. The electricity bills inform consumer about the different origins and percentages of the electricity that is supplied. Electricity from RES should come along the guarantee of origins (section C5.2).**

## C5.3 Guidance for the guarantees of origin



**The Guarantees of Origin (GOs) are electronic certificates issued for energy proven to be produced from renewable sources. GOs are issued for every 1 MWh of renewable energy produced.**

In compliance with the Directive 2003/54/EC concerning common rules for the internal market in electricity (article 3.6), "Member States shall ensure that electricity suppliers specify, in or with the bills and in promotional materials made available to final customers, the contribution of each energy source to the overall fuel mix of the supplier over the preceding year".

In addition, the Directive 2009/28/EC on the promotion of the use of energy from renewable sources states that "where energy suppliers market energy from renewable sources to consumers with a reference to

*environmental or other benefits of energy from renewable sources, Member States may require those energy suppliers to make available, in summary form, information on the amount or share of energy from renewable sources that comes from installations or increased capacity that became operational after 25 June 2009.*

Besides, where an electricity supplier is required to prove the share or quantity of energy from renewable sources in its energy mix for the purposes of Article 3(6) of Directive 2003/54/EC, it may do so by using its guarantees of origin.

Therefore **guarantees of origin (GO) and the respective cancellation statements** can be used to prove the renewable source of the energy generated and consumed onsite or electricity purchased from the grid for the manufacturing process. Other equivalent means of proof should be agreed at EU Ecolabel board level. A guarantee of origin shall specify at least:

- 1) the *energy source* from which the energy was produced and the *start and end dates of production*;
- 2) whether it relates to:
  - a. electricity; or
  - b. heating or cooling;
- 3) the *identity, location, type and capacity of the installation* where the energy was produced;
- 4) whether and to what extent the installation has benefited from *investment support*, whether and to what extent the unit of energy has benefited in any other way from a *national support scheme*, and the *type of support scheme*;
- 5) the *date* on which the installation became operational; and
- 6) the *date and country of issue* and a unique *identification number*.

The cancellation statement states:

- 1) the *cancellation date* which indicates a date when the allocation of the GO to consumption of beneficiary happened. "from" indicates who initiated the cancellation and "to" gives more details about the beneficiary
- 2) the *total GO* in MWh is the total energy produced by power plant and the *certificate Number* is an unique code for each MWh of GO (number of the unique codes should be same as Total GO)
- 3) *Domain* indicates country where GO was issued and *Issuing date* indicates when the GO was created
- 4) *Production device* public information informs about the details of power plant such as name, installed capacity, location, technology, fuels.

Example of cancellation statement is shown in Figure 10.



**The Cancellation statement is full of information, which might be communicated within end-customer corporate social responsibility campaigns.**



**The Guarantees of origin should be cancelled within one year of production of the corresponding energy unit.**

Alternatively, in the case of electricity purchased that comes from renewable sources, other documentation might be accepted as proof of compliance. This is the case of the information provided by the distributor of the electricity to the consumers. In this case, the applicant should, in accordance with the information provided by that document and the formula of the factor B, calculate the overall amount of energy consumed.

The European Energy Certificate System (EECS) offers a framework for creating and transferring electronic documents or EECS Certificates, with standard information on the source of the energy, and its method of production. This standardised system is promoted by the Association of Issuing Bodies (AIB), which is also responsible of approve the Domain Protocols for each country. More information about the AIB members and their specific protocols can be found in the following link:



**EU ECOLABEL USER MANUAL**  
**WOOD-, CORK- AND BAMBOO-BASED FLOOR COVERING**  
 Commission Decision for the award of the EU Ecolabel for Wood-, cork- bamboo-based floor covering (2017/176/EC)





[http://www.aib-net.org/portal/page/portal/AIB\\_HOME/FACTS/AIB%20Members/Domain\\_Protocols](http://www.aib-net.org/portal/page/portal/AIB_HOME/FACTS/AIB%20Members/Domain_Protocols)

Information related to GO can be found in the AIB members websites. See the SEMO Ireland Member, as an example:



<http://www.sem-o.com/guaranteesoforigin/Pages/go.aspx>

**Cancellation Statement**

With this Cancellation Statement the indicated Certificates are no longer tradable. Onward sale of this Cancellation Statement is prohibited.

<b>Transaction Type:</b>	<b>Cancel</b>
<b>Transaction Date:</b>	2012-10-10 13:38:54
<b>Transaction Number:</b>	2012101000010
<b>Transaction status:</b>	

From	To
<b>Name of Account Holder:</b> Power Company Limited	<b>Name of Beneficiary:</b> Beneficiary Limited
<b>Account:</b> [REDACTED]	<b>Cancellation Purpose:</b> Electricity disclosure
<b>Domain:</b> [REDACTED]	<b>Consumption Period:</b> 2011-01-01 to 2011-12-31
<b>Street:</b> Kukkakatu 8	<b>Country of Consumption:</b> Sweden
<b>Postal Code and City:</b> [REDACTED]	<b>Location of Beneficiary:</b> Beneficiary Limited
<b>Country:</b> [REDACTED]	<b>Usage Category:</b> [REDACTED]
	<b>Type of Beneficiary:</b> Energy supplier

<b>Total GO:</b>	175
<b>Total MWh:</b>	175

Certificate Number (From - To)	Volume	Domain	Fuel, Technology	Issuing Date	Production Period	Production Device (GSRN, installed capacity, name)	Trading schemes	Support Schemes
653210654321065432 106543210654 To 987654321987654321 987654321987	175	Sweden	F01050100, T020002	2012-01-09	2011-02-08 To 2011-02-08	550000550000550555 30MW Production Device 1	GO	Investment and production support

Production Device public information	
<b>Production Device Name:</b>	Production Device 1
<b>Production Device GSRN:</b>	550000550000550000
<b>Domain of Production Device:</b>	Sweden
<b>Installed Capacity, MW:</b>	30
<b>Date of Commissioning:</b>	2009-01-02
<b>Location of Production Device:</b>	00100 Helsinki, FI
<b>Operator Name:</b>	Power Company Limited
<b>Address of Operator:</b>	Kukkakatu 8, 0010 Helsinki, Sweden
<b>Technology:</b>	T020002 - Wind Offshore
<b>Fuel:</b>	REDACTED - Renewable Mechanical source or other/Wind

Figure 10. Example of cancellation statement

As stated before, for calculating the factor A, the consumption of electricity (generated onsite from non-fuel RES or purchased) must be multiplied by 2,5. This conversion factor comes from the Annex IV of the Directive 2012/27/EU: "For savings in kWh electricity Member States may apply a default coefficient of 2,5. Member

States may apply a different coefficient provided they can justify it.” The default coefficient is based on an average, European-wide conversion efficiency of 40%.<sup>24</sup> The most updated value of this factor should take precedent.

### C5.4 Guidance for the standard value

For the accomplishment of this criterion, the applicant shall provide a copy of the bills of fuels for the period included in the calculation. In the case of fuels that are included in the table 5.2 of the appendix II those values shall be used. In case of other fuels (not appearing on the table 5.2) standard values shall be estimated and approved to be used by the EU Ecolabel board.

There are bills of some fuels that provide the calorific value of the fuel. If this is the case, this value can be proposed as the standard value of the fuel to be used in the formula of the factor A. Sometimes this information can also be requested to the supplier of the fuel. In any case, the applicant can access to the energy content of fuels in the Annex IV of the Directive 2012/27/EU on energy efficiency: Annex IV Energy content of selected fuels for end use – conversion table.



<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:315:0001:0056:EN:PDF>

### C5.5 Example

Company A produces laminate floorings and wants to apply for the EU Ecolabel. The company had installed PV panels several years ago, but additionally it buys gas, gasoil and biomass every year to provide the production lines with electricity, heat and steam. Occasionally, it has energy surplus that sells to the national grid. The purchase of fuels and electricity as well as the energy consumption and production of flooring for the last three years is summarized in the Table 8.

Table 8. Electricity and fuel purchase, production and electricity generation of a company A

Year	Production floor (m <sup>2</sup> )	Electricity purchase (MJ)	Electricity produced on site (MJ)	Fuel purchase		
				Natural gas (Nm <sup>3</sup> )	Wood chip (f=20%) (kg)	Petrol (kg)
2013	205	6560	5125	170	9750	84800
2014	208	7904	5824	180	11000	81400
2015	209	8360	5434	110	3850	29500

*First step: Calculation of the annual production and annual electricity purchase in kWh/m<sup>2</sup> and reporting of the annual average values.*

Table 9. Floor production and electricity purchase in the last three years

Year	Production floor (m <sup>2</sup> /year)	Electricity purchase (MJ/year)	Electricity purchase per m <sup>2</sup> (MJ/m <sup>2</sup> year)		Electricity purchase (kWh/m <sup>2</sup> year)	
<b>2013</b>	<b>205</b>	6560	6560/205=	32	32/3.6=	8.9
<b>2014</b>	<b>208</b>	7904	7904/208=	38	38/3.6=	10.6
<b>2015</b>	<b>209</b>	8360	8360/209=	40	40/3.6=	11.1
<b>Average</b>	<b>207.3 m<sup>2</sup>/year</b>	<b>7608 MJ/year</b>	<b>36.7 MJ/m<sup>2</sup> year</b>		<b>10.2 kWh/m<sup>2</sup> year</b>	

Where:

<sup>24</sup> Anke Esser (FhG-ISI), Frank Sensfuss (FhG-ISI). 2016. Final report. Evaluation of primary energy factor calculation options for electricity. [https://ec.europa.eu/energy/sites/ener/files/documents/final\\_report\\_pef\\_eed.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/final_report_pef_eed.pdf)

- the second column reports the floor production in m<sup>2</sup> for each year, the last row shows the average value for the three years. This is the value to be reported:

**Declare the production quantity of the floor [m<sup>2</sup>]: 207.3 m<sup>2</sup>/year**

- the third column reports the electricity purchases for each year. Electricity is accounted in MJ in this example but bills can be provided in kWh. The last row of the table is the average value for the three years and the value to be declared. It is supposed that all the electricity purchased is going to be consumed in the manufacture process since it cannot be sold back to the grid.

**Declare the electricity purchased in the production of the floor [kWh or MJ]: 7608 MJ/year**

If the same calculation is done for the on-site generated electricity from PV panels a value of:

**Declare the electricity onsite generated in the floor production [kWh or MJ]: 5336.6 MJ/year**

- the fourth column divides the electricity purchased per floor produced getting the electricity purchased per m<sup>2</sup>. These values should not be reported

- the fifth column divides the electricity purchased per m<sup>2</sup> by the factor of 3.6 getting the value of kWh per m<sup>2</sup> (1 kWh=3,6 MJ). This value is the one to be used to calculate the B factor. The B factor of this example is the average of column five:

**B factor= 10.2 kWh/m<sup>2</sup>**

*If in any of the years the manufacturer had purchased electricity from RES (totally or partially), the share of electricity from RES bought should have been multiplied by a reduction factor of 0.8. For example, if during the two first years the manufacturer bought 4000MJ and 3000 MJ of electricity from RES respectively, the B factor would be:*

Table 10. Share of electricity purchased from RES in the last three years

Year	Electricity purchase (MJ/year)		Electricity purchase per m <sup>2</sup> (MJ/m <sup>2</sup> year)	Electricity purchase (kWh/m <sup>2</sup> year)		
	Non-green	Green				
<b>2013</b>	2560	4000	(2560+4000*0.8)/205=	28.1	28.1/3.6=	7.8
<b>2014</b>	4904	3000	(4904+3000*0.8)/208=	35.1	35.1/3.6=	9.8
<b>2015</b>	8360	--	8360/209=	40	40/3.6=	11.1
<b>Average</b>	<b>7608 MJ/year</b>		<b>34.40 MJ/m<sup>2</sup> year</b>		<b>9.6 kWh/m<sup>2</sup> year</b>	

**B factor: 9.6 kWh/m<sup>2</sup>**

*(This value is lower than the cap set at 15 kWh/m<sup>2</sup>)*

*Second step: Calculation of the annual fuel purchase in kWh/m<sup>2</sup>*

All the purchase fuels are going to be calculated in kWh/m<sup>2</sup>/year. The standard fuel value of natural gas is reported in Table 5.2 of the Appendix II of the Ecolabel criteria, expressed in MJ/kg; however, in this example the data is given in Nm<sup>3</sup>. The density assumed in this example is 0.72 kg/Nm<sup>3</sup>.

Table 11. Floor production and fuel purchase in the last three years

Year	Production floor (m <sup>2</sup> /year)	Gas purchase (Nm <sup>3</sup> /year)	Gas purchase (MJ/year)		Gas purchase (kWh/m <sup>2</sup> year)	
<b>2013</b>	205	170	170x0.72x47.2=	5777.3	5777.3/3.6/205=	7.8
<b>2014</b>	208	180	180x0.72x47.2=	6117.1	6117.1/3.6/208=	8.2
<b>2015</b>	209	110	110x0.72x47.2=	3738.2	3738.2/3.6/209=	5.0
<b>Average</b>	<b>207.3 m<sup>2</sup>/year</b>	<b>153.3 Nm<sup>3</sup>/year</b>	<b>5210.9 MJ/year</b>		<b>7 kWh/m<sup>2</sup> year</b>	

The wood chips have a standard fuel value that varies depending on the moisture content. In this example the moisture content is 20% and therefore the formula provided in the criterion Appendix II should be used firstly to calculate. The result is that wood chips (f=20%) has a standard fuel value of 14.71MJ/kg.

Table 12. Floor production and wood chips purchase in the last three years

Year	Production floor (m <sup>2</sup> /year)	Wood chips purchase (kg/year)	Wood chips purchase (MJ/year)		Wood chips purchase (kWh/m <sup>2</sup> year)	
2013	205	350	350x14.17=	5150.46	5150.46/3.6/205=	7.0
2014	208	380	380x14.17=	5591.93	5591.93/3.6/208=	7.5
2015	209	210	210x14.17=	3090.28	3090.28/3.6/209=	4.1
<b>Average</b>	<b>207.3 m<sup>2</sup>/year</b>	<b>313.3 kg/year</b>	<b>4610.9 MJ/year</b>		<b>6.2 kWh/m<sup>2</sup> year</b>	

Finally the petrol is calculated in a homogenous basis

Table 13. Floor production and petrol purchase in the last three years

Year	Production floor (m <sup>2</sup> /year)	Petrol purchase (kg/year)	Petrol purchase (MJ/year)		Petrol purchase (kWh/m <sup>2</sup> year)	
2013	205	120	120x44=	5280	5280/3.6/205=	7.2
2014	208	105	105x44=	4620	4620/3.6/208=	6.2
2015	209	110	110x44=	4840	4840/3.6/209=	6.4
<b>Average</b>	<b>207.3 m<sup>2</sup>/year</b>	<b>111.7 kg/year</b>	<b>4913.3 MJ/year</b>		<b>6.6 kWh/m<sup>2</sup> year</b>	

So, the values to be reported are the average values of each fuel as shown in the next table:

**Declare the fuel consumption for each fuel type used in the production of the floor [kWh]:**

Fuel	Gas	Wood chips	Petrol
kWh/m <sup>2</sup> year	7	6.2	6.6

The sum of the three fuel purchase in kWh/m<sup>2</sup>/year is the value to be used as C in the formula

**C factor:** 7 + 6.2+ 6.6 = **19.8 kWh/m<sup>2</sup>**. (This value is lower that the cap set at 35 kWh/m<sup>2</sup>)

**C factor= 19.8 kWh/m<sup>2</sup>**

Third step: Calculation of the electricity production on-site

The company produces PV electricity that is considered to be used in the manufacturing process. In order to integrate this value, the electricity produced should be multiplied by a factor of 2.5.

Table 14. Floor production and electricity production in the last three years

Year	Production floor (m <sup>2</sup> /year)	PV electricity on site (MJ/year)	PV electricity as primary energy (MJ/year)		PV electricity as primary energy (kWh/m <sup>2</sup> year)	
2013	205	5125	5125x2.5=	12812	12812/3.6/205=	17.36
2014	208	5824	5824x2.5=	14560	14560/3.6/208=	19.44
2014	209	5434	5434x2.5=	13585	13585/3.6/209=	18.06
<b>Average</b>	<b>207.3 m<sup>2</sup>/year</b>	<b>5461 MJ/year</b>	<b>13652.3 MJ/year</b>		<b>18.3 kWh/m<sup>2</sup> year</b>	

Fourth step: Calculation of the energy coming from renewable sources



Among the sources of energy purchase or produced onsite in the company, the energy coming from the wood chips and the PV panels is considered to be renewable, in accordance with the Renewable Energy Directive. Therefore the percentage can be calculated in MJ/year or kWh/m<sup>2</sup>/year as follows.

Table 15. Share of energy used coming from RES

<b>Fuel</b>	<b>Renewable source?</b>	<b>MJ/year</b>	<b>% renewable fuel</b>
<b>Gas</b>	no	5210.9	(4610.9+13652.3)/(35995.4)=
<b>Wood chips</b>	yes	4610.9	
<b>Petrol</b>	no	4913.3	
<b>PV electricity on site</b>	yes	13652.3	
<b>Purchased electricity</b>	no	7608	
<b>Total fuel purchase</b>		35995.4	50.74%

**A factor=50.74%**

*Fifth step: Calculation of the E score*

Once all the data have been calculated, the E score is:

$$E = \frac{A}{20} + \left(5 - \frac{B}{3}\right) + \left(5 - \frac{C}{7}\right)$$

$$E = \frac{50.74}{20} + \left(5 - \frac{10.2}{3}\right) + \left(5 - \frac{19.8}{7}\right)$$

**E = 6.31**

This value does not reach neither the threshold for the laminate, parquet, cork or bamboo floorings setting at 8.0 nor the value for the solid wood floorings set at 11.0. In order to comply with this criterion, the manufacturer should carry out actions to reach:

- a reduction of the overall energy consumption that can be materialized by a reduction in the fuel purchase or a reduction in the electricity purchase or both. The figure below shows that for the same % of variation in the reduction, decreasing electricity consumed a higher value of E score is reached.
- an increase in the share of renewable sources would affect the A factor and leads to an increase in the E scoring. This according to the sensitivity analysis would be the effect of lower impact.

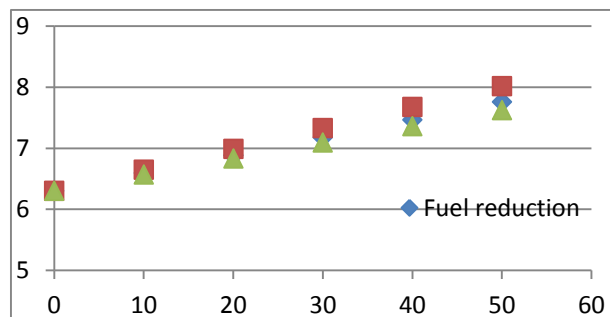


Figure 11. Effect of the increase of RES in the overall energy consumption

The improvements in the E-scoring due to the percentage of increase renewable energy or by percentage of fuel reduction or electricity reduction can be shown in this figure. The electricity reduction is the factor that mostly contributes followed by the fuel reduction and the increase in the percentage of renewable energies. The differences are not very significant.

## Criterion 6. Emissions of VOC from the floor coverings

**Criterion text:**

The floor coverings shall not exceed the emission values listed in Table 6.1 measured in a test chamber in accordance with testing standard CEN/TS16516. Packaging and delivery of samples sent for testing, their handling and conditioning shall follow the procedures described in CEN/TS 16516.

**Table 6.1. Emission requirements**

Products	Emission requirements	
	Compound	Limit value after 28 days storage in a ventilated test chamber (see CEN/TS16516) in mg/m <sup>3</sup> air <sup>d</sup>
Solid wood floorings Multi-layer wood floorings Wood veneer floor covering	Total VOC minus acetic acid (CAS 64-19-7)	< 0,3
Cork floor coverings Bamboo floor coverings	Total VOC	
Laminate floorings	Total VOC	< 0,16
All floor coverings	Total SVOC	< 0,1
Solid wood floorings Multi-layer wood floorings Wood veneer floor covering	R-value for LCI substances minus acetic acid (CAS 64-19-7)	≤1
Cork floor coverings Bamboo floor coverings Laminate floorings	R-value for LCI substances	≤1
All floor coverings	Carcinogenic substances	< 0,001

<sup>d</sup>The chamber test has to be carried out 28 days after the conclusion of the surface treatment. Up to this point in time the product to be tested is stored in a sealed package at the production site and thus delivered to the test laboratory.

For the purpose of this criterion, VOC means all volatile organic compounds eluting between and including n-hexane and n-hexadecane on a gas chromatographic column and having a boiling point in the range of approximately 68 °C and 287 °C, where the measurement has been carried out using a capillary column coated with 5 % phenyl/95 % methyl-polysiloxane.

**Assessment and verification**

The applicant shall provide to the competent body a declaration of compliance supported by the test reports from chamber tests carried out in accordance with CEN/TS16516 or an equivalent method showing that the limits in the Table 6.1 have been met. Test reports shall include:

- The test method used;
- The test results and needed calculations showings the limits in Table 6.1.

If the chamber concentration limits specified at 28 days can be met 3 days after placing the sample in the chamber, or any other time period between 3 and 27 days after placing the sample in the chamber, then the compliance with the requirements may be declared and the test may be stopped prematurely.

Test data from up to 12 months prior to the EU Ecolabel application shall be valid for products as long as no changes to the manufacturing process or chemical formulations used have been made that would be considered to increase VOC emissions from the final product.


A valid certificate from relevant indoor climate labels may also be used as proof of compliance if the indoor climate label fulfils the requirements of this criterion, and if it is judged by the competent body to be equivalent.

**① Key points of criterion 6**


- Definition of VOC for this criterion. Definitions
- How to demonstrate compliance? Under which circumstances can the test method be interrupted? Section C6.1
- What is an equivalent test? Section C6.2
- Which information should be provided by a test report? Section C6.3
- Example. Section C6.4

### Definitions

- **VOC:** means all volatile organic compounds eluting between and including n-hexane and n-hexadecane on a gas chromatographic column and having a boiling point in the range of approximately 68 °C and 287 °C, where the measurement has been carried out using a capillary column coated with 5 % phenyl/95 % methyl-polysiloxane (definition according to CEN/TS 16516, the European VOC emissions into indoor air testing standard for construction products).  
(Regarding other components to be measured, as **SVOC** and **R-value**, definitions can be found in article 2 of the Commission Decision)
- **LCI (Lowest Concentration of Interest):** The LCI concept was first developed by the 'European Collaborative Action on *Indoor Air Quality and its Impact on Man*' when considering the best way to evaluate emissions from solid flooring materials. It was defined (see ECA Report No.18, 1997) as "the lowest concentration above which, according to best professional judgement, the pollutant may have some effect on people in the indoor environment".<sup>25</sup>
- **Test data from up to 12 months.** The assessment and verification of criterion 6 includes a clause that allows the compliance with the criterion in the case of applicants that for whatever other reason got the test data within the last year before the application. However, manufacturer should demonstrate that no changes in the manufacture process of the flooring have been carried out. Changes in the manufacture process are considered a change in the formulation of the adhesive, resin, glue or surface treatment used, a change in the times and pressures used for binding the layers, changes in the size or thickness of the floor covering, etc.

 For the purpose of criterion 6, VOC definition is in accordance with CEN/TS 16516 (different from Criterion 4. Specific substance requirements).

 Criterion 6 limits the emissions of VOC from the floor coverings in the context of the European Collaborative Action (ECA) on Urban Air, Indoor Environment and Human Exposure.

 The floor coverings shall comply with the limits of compounds indicated in the Table 6.1 of the criterion depending on the type of flooring.

### C6.1 – Guidance to ensure compliance with criterion 6

The procedure to show compliance with this criterion requires a test chamber in accordance with CEN/TS 16516 or an equivalent method.

If the chamber concentration limits specified at 28 days can be met 3 days after placing the sample in the chamber, or any other time period between 3 and 27 days after placing the sample in the chamber, then the compliance with the requirements may be declared and the test may be stopped prematurely.

<sup>25</sup> [http://publications.jrc.ec.europa.eu/repository/bitstream/JRC83683/eca%20report%2029\\_final.pdf](http://publications.jrc.ec.europa.eu/repository/bitstream/JRC83683/eca%20report%2029_final.pdf)

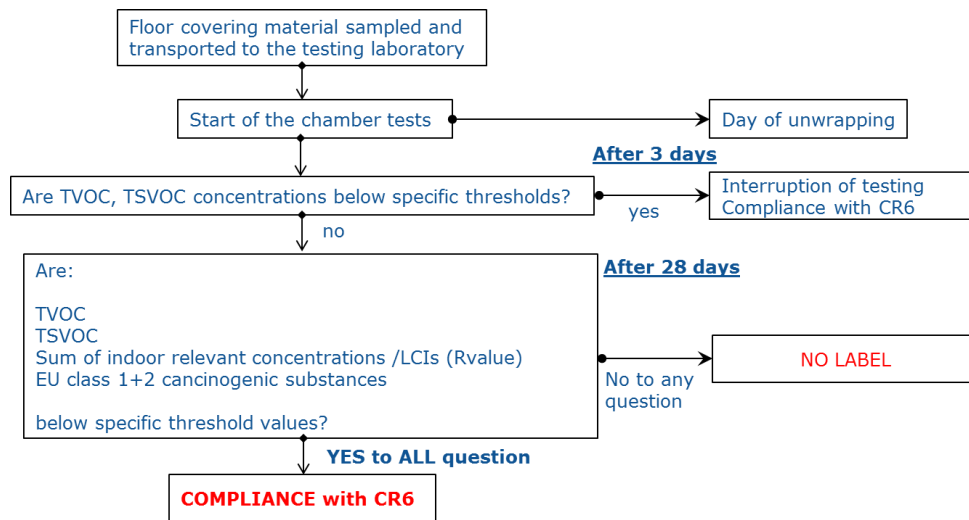


Figure 12. Process to demonstrate compliance with criterion 6

## C6.2 – Guidance to assess the equivalence of other test methods



**The acceptance of an equivalent test method shall be decided by the Competent Body that is in charge of the application.**

If a test different from CEN/TS16516 is used when showing compliance to criterion 6, the equivalence shall be assessed in terms of procedure (test method) and strictness of the limit values.

- 1) *Definitions and components to be measured:* VOCs are a mix of components; therefore the definition of VOCs and the sub-groups such as TVOC, TSVOC, R-value should be checked.
- 2) *Test methods:* there are several factors or parameters of the test methods that need to be assessed regarding their equivalence. Among these aspects are:
  - the chamber construction and operation including the chamber size, the chamber air mixing, the supply and chamber air quality/cleaning
  - *the choice of environmental parameters* including the temperature, the relative humidity, the ratio of air exchange rate and product loading or specific ventilation rate, the air exchange rate, loading factor or the air velocity across the emitting surface
- 3) *Test material collection/specimen collection, handling and preparation including the procedures followed for collecting the test material, packaging of the test material, transport and storage prior unpacking at the laboratory, test specimen preparation, conditioning of test specimens prior and between emission measurements and specimen location in the test chamber.*
- 4) *Chamber air sampling* is the selection of factors involved in the chamber air sampling. Among these aspects are the sampling locations, sampling lines and manifold, sample recovery and sampling times or duration, sample air flow rate and emission test duration.
- 5) *Chamber performance control* including the temperature and relative humidity, the air exchange rate, the efficiency of the air mixing in the test chamber and the background concentrations.

It is important to notice that depending on the testing conditions we could get different units that the ones indicated in Table 6.1 of the Commission Decision 2017/176/EC for the limits, and a conversion of units may be required.

## C6.3 – Information to be provided by the test report



**Test reports shall include:**

- 1) **The test method used;**
- 2) **The test results and needed calculations showing the limits in Table 6.1 of the Commission Decision 2017/176/EC.**

The test reports should be drafted in very detail. If this is the case, this information can also be used to assess the equivalence of the test methods. A comprehensive test report can contain (not exhaustive list).

- 1) *Test objectives:* describe the purpose of the test programme.
- 2) *Facilities and equipment:* describe the test chamber (volume, wall material, sealing material), clean air system, air sampling location, environmental measurement and control, sample collection (including sorbents if used), analytical instrumentation (eg GC/MS) and standards generation and calibration.
- 3) *Test materials/specimen descriptions:* describe the tested material/specimen including type of material/product, size or amount of the test specimen, product history, brand name (if appropriate) and the selection process of the test material. Also provide information on the preparation of the test specimen including edge sealing, its location in the test chamber and on test specimen conditioning i.e. duration and environmental conditions if the sample has not remained during the 28 days period in the test chamber.
- 4) *Experimental procedures:* give details of the sampling and analysis techniques and references to published methods
- 5) *Quality assurance and quality control:* describe the data quality objectives and discuss adherence to the acceptance criteria. In particular provide:
  - results of measurements to control appropriate chamber operation including chamber tightness and a report on overpressure and decay time
  - the results of measurements of environmental variables and of measurements aimed at verifying the appropriate performance of sensors used to control the variables including: temperature, relative humidity, air exchange rate, air velocity across the emitting surface,
  - the results of temperature measurements during transportation of the test specimen from the producer to the test laboratory
- 6) *Results of measurements to control chamber performance including*
  - *chamber background* before placement of the test specimen: report TVOC concentration and concentration of highest individual background peak. If concentrations of compounds originating from the analytical procedure are subtracted from analysis results, their names, average concentrations occurring and the respective standard deviations must also be reported.
  - *Efficiency of air mixing* report the difference between apparent and actual chamber volume in percent
  - *Chamber sinks* provide names and expected concentrations of the test compounds and for each test compound report the difference of the expected and measured concentrations after 72h testing, expressed as a percentage of the expected concentrations.
- 7) *Data reporting:* the final results of the chemical emission testing are emission factors for individual compounds and of the total VOC emission (TVOC).

## C6.4 – Examples of testing results and assessment of the criterion

### 1) **Assessment and verification of the testing results from a *multi-layer wood flooring***

The following table shows the experimental conditions, the preparation of the sampling, technical data of the equipment used and the testing results for multi-layer wood flooring.

<b>Experimental conditions</b>			
Chamber number	910	Volume	0.25 m <sup>3</sup>
Temperature	23 ± 2C	Relative humidity	50 ± 5%
Air exchange	0.5 /h	Air velocity	0.2 ± 0.1 m/s
Specimen area	0.10 m <sup>2</sup>	Loading factor	0.40 m <sup>2</sup> /m <sup>3</sup>
Absorption material:	Tenax TA		
<b>Preparation of the sampling</b>			
First air sampling	xx/03/2015	Duration	45 min
Sampling flux	0.073 l/min	Air volume xxx	3.28l
Second air sampling	xx/04/2015	Duration	45 min
Sampling flux	0.073 l/min	Air volume xxx	3.28l
<b>Equipment</b>			
Thermal desorber	Perking Elmer Turbomatrix 16		
Gas Chromatograph	Perking Elmer Clarus 500 GC		
Mass Spectrometer	Perking Elmer Clarus 500 MS		
Detection limit	1 µg/m <sup>3</sup>	Quantification limit	2 µg/m <sup>3</sup>
Quantification	Standard extern Calibration based in 5 points (linear regression)		
Capture efficiency	>95%		
<b>Testing results: TOTAL VOC</b>			
Volatile organic compound Name	CAS No	Concentration (µg/m <sup>3</sup> )	
		3 days	28 days
Toluene	108-88-3	<2	<2
Tetrachloroethylene	127-18-4	<2	<2
Xilene isomere	1330-20-7	0	<2
1, 2, 4 Trymethylbenzene	95-63-6	<2	<2
1, 4 dichlorobenzene	106-46-7	<2	<2
...	...	...	...
Propylene carbonate	108-32-7	3	2
Diethylenglycol manbutylether	112-34-5	516	88
di-ether-butylpresolo	128-37-0	3	<2
<i>Acetic acid</i>	<i>64-19-7</i>	<i>1953</i>	<i>1381</i>
<b>TOTAL VOC</b>		<b>4332</b>	<b>1861</b>
<b>Testing results: TSVOC, R-value and Carcinogenic</b>			
Total organic compounds within the range of > C16 to C22		na	72
R-value		na	< 1 mg/m <sup>3</sup>
Carcinogenic substances		na	< 1

For assessing the data provided is important to notice that the requirement for *multi-layer wood floorings* sets that the *Total VOC emissions minus the emissions of acetic acid* shall be less than 0.3 mg/m<sup>3</sup>. Also notice that the units are not the corresponding to the threshold units established in the EU Ecolabel criteria.

**Total VOC:**

Subtraction of the concentration of acetic acid from the total VOC value: The table above provides the testing results for two period of time 3days and 28days. Data after 3 days of testing can be considered if after they already comply with the EU Ecolabel criterion.

3 day testing: [Total VOC] – [Acetic acid] = 4332 – 1953 = 2378 µg/m<sup>3</sup>

28 day testing: [Total VOC] – [Acetic acid] = 1861 – 1381 = 480 µg/m<sup>3</sup>

Changing units

3 day testing:  $2379 \mu\text{g}/\text{m}^3 = 2.379 \text{ mg}/\text{m}^3$  this value is much higher than the threshold in the EU Ecolabel criteria ( $0.3 \text{ mg}/\text{m}^3$ ) and therefore the testing shall keep on until 28 days.

28 day testing:  $480 \mu\text{g}/\text{m}^3 = 0.48 \text{ mg}/\text{m}^3$  this value is higher than the threshold ( $0.3 \text{ mg}/\text{m}^3$ ) meaning that the applicant does not fulfil the requirements of the EU Ecolabel criteria.

**Total SVOC:**

28 day testing:  $72 \mu\text{g}/\text{m}^3 = 0.072 \text{ mg}/\text{m}^3$  this value is lower than the threshold ( $0.1 \text{ mg}/\text{m}^3$ ) meaning that the applicant does fulfil the requirements of the EU Ecolabel criteria.

**R-value and carcinogenic value:**

28 day testing:  $< 1 \mu\text{g}/\text{m}^3 = 0.001 \text{ mg}/\text{m}^3$  these values are lower than the threshold (1 or  $0.001 \text{ mg}/\text{m}^3$ , respectively) meaning that the applicant does fulfil the requirements of the EU Ecolabel criteria.

***Due to the non-compliance with the TVOC threshold, this multi-layer wood flooring cannot be awarded with the EU Ecolabel.***

**2) Assessment and verification of the testing results from laminate flooring**

Assuming that the testing conditions have been the same as in the previous example, the testing results are as follows:

<b>Testing results: TOTAL VOC</b>			
Volatile organic compound Name	CAS No	Concentration ( $\mu\text{g}/\text{m}^3$ )	
		3 days	28 days
Benzene	71-43-2	2	2
Dichloromethane	75-09-2	17	0
Hexane	110-54-3	1	0
1-butanol	71-36-3	9	3
Methylcyclohexane	108-87-2	4	1
Toluene	108-88-3	5	9
2-ethoxyethylacetate	111-15-9	24	5
cyclohexanone	108-94-1	159	74
...	...		
Acetic acid	64-19-7	20	5
<b>TOTAL VOC</b>		<b>289</b>	<b>153</b>
<b>Testing results: TSVOC, R-value and carcinogenic</b>			
Total organic compounds within the range of > C16 to C22		--	50
R-value		na	<1 $\text{mg}/\text{m}^3$
Carcinogenic substances		na	< 1

For assessing the data provided is important to notice that any subtraction shall be carried out for *laminat*e floorings and that the units are not the corresponding to the threshold units established in the EU Ecolabel criteria.

**Total VOC:**

3 day testing:  $289 \mu\text{g}/\text{m}^3 = 0.289 \text{ mg}/\text{m}^3$  this value is higher than the threshold in the EU Ecolabel criteria ( $0.16 \text{ mg}/\text{m}^3$ ) and therefore the testing should continue.



28 day testing:  $153 \mu\text{g}/\text{m}^3 = 0.153 \text{ mg}/\text{m}^3$  this value is lower than the threshold ( $0.16 \text{ mg}/\text{m}^3$ ) meaning that the applicant does fulfil the requirements of the EU Ecolabel criteria.

**Total SVOC:**

28 day testing:  $50 \mu\text{g}/\text{m}^3 = 0.05 \text{ mg}/\text{m}^3$  this value is lower than the threshold ( $0.1 \text{ mg}/\text{m}^3$ ) meaning that the applicant does fulfil the requirements of the EU Ecolabel criteria.

**R-value and carcinogenic value:**

28 day testing:  $< 1 \mu\text{g}/\text{m}^3 = 0.001 \text{ mg}/\text{m}^3$  these values are lower than the threshold (1 or  $0.001 \text{ mg}/\text{m}^3$ , respectively) meaning that the applicant does fulfil the requirements of the EU Ecolabel criteria

***Due to the compliance with all thresholds, this laminate flooring passes the EU Ecolabel criteria 6.***



## Criterion 7. Emissions of formaldehyde from the floor coverings and the core board

**Criterion text:**

The floor covering manufactured by using formaldehyde-based core boards, adhesives, resins or finishing agents and if used, the untreated core boards manufactured by using formaldehyde-based adhesives or resins shall have either of the following:

- formaldehyde emissions that are lower than 50% of the threshold value allowing them to be classified as E1 as defined in Annex B to EN 13986+A1 (applying to all floor coverings and non-MDF/non-HDF core boards);
- formaldehyde emissions that are lower than 65% of the E1 as defined in Annex B to EN 13986+A1 threshold limit applying to untreated MDF/HDF core boards;
- formaldehyde emissions that are lower than the limits set out in the California Air Resources Board (CARB) Phase II or the Japanese F-3 star or F-4 star standards.

**Assessment and verification**

The applicant shall provide to the competent body a declaration of compliance with this criterion. The assessment and verification of low formaldehyde emission floor coverings and core boards shall vary depending on the certification scheme it falls under. The verification documentation required for each scheme is described in Table 7.1.

**Table 7.1. Verification documentation of low formaldehyde emission floor coverings**

Certification scheme	Assessment and verification
E1 (as defined in Annex B to EN 13986+A1)	A declaration from the manufacturer and the core board supplier if applicable, stating that the floor covering and untreated non-MDF/non-HDF core boards are compliant with 50% of E1 as defined in Annex B to EN 13986+A1 emission limits <sup>26</sup> or, in the case of untreated MDF/HDF core boards, with 65% of E1 as defined in Annex B to EN 13986+A1 emission limits, supported by test reports carried out according to either EN 120, EN 717-2 or EN 717-1 or an equivalent method.
CARB: Phase II limits	A declaration from the manufacturer and the core board supplier if applicable, supported by test results according to ASTM E1333 or ASTM D6007, demonstrating floor covering compliance with the formaldehyde Phase II emission limits defined in the California Composite Wood Products Regulation 9312027.  The floor covering and the core board if applicable may be labelled in accordance with Section 93120.3(e), containing details in respect of the manufacturer's name, the product lot number or batch produced, and the CARB assigned number for the third party certifier (this part is not mandatory if the products are sold outside of California or if the products were made using no-added formaldehyde or certain ultra-low emitting formaldehyde-based resins).
F-3 or 4 star limits	A declaration from the manufacturer and the core board supplier if applicable, of compliance with the formaldehyde emission limits as per JIS A 5905 (for fibreboard) or JIS A 5908:2003 (for particleboard and plywood), supported by test reports according to the JIS A 1460 desiccator method.

**① Key points of criterion 7**

- Which materials/products should be tested? Section C7.1
- How I know if the FC has a core board? Section C7.1
- Which are the thresholds that apply in each case? Section C7.2
- Which is the equivalence between the schemes? Section C7.2
- Does Environmental product declaration (EPD) prove compliance with this criterion? Section C7.3

<sup>26</sup> The requirements apply to floor coverings with a moisture content of H=6,5%.

<sup>27</sup> Regulation 93120 "Airborne toxic control measure to reduce formaldehyde emissions from composite wood products" California Code of Regulations.

## C7.1 Guidance to identify the materials to be tested

**! Declarations of compliance and test reports shall be provided for both the core board and the final product, if appropriate.**

Laminate floorings and some cork floorings among other products consist of a core board and other layers. If so, both the core board of the flooring and the final product should comply with criterion 7.

Regarding how to identify what type of core board was used to manufacture the laminate flooring:

- 1) Technical name of the laminate flooring: The core panel can be made of different materials and by using different techniques, being generally speaking stated in the technical name of the laminate flooring; for example DPL, HPL for techniques, HDF, MDF, for type of core panel:
  - **HDF** is the abbreviation for High Density Fibreboard, also referred to as hardboard, giving its high material density, HDF can withstand particularly high levels of use;
  - **MDF** is the abbreviation for Medium Density Fibreboard; is lighter than HDF.
  - **DPL** is the abbreviation for Direct Pressure Laminate. This is a process in which the decorative layer and stabilising layer are pressed onto the core
  - **HPL** is the abbreviation for High Pressure Laminate. This is a process in which the decorative paper and overlay are first pressed with special kraft papers. It is only in the second step that this so-called high pressure laminate is glued to the core
- 2) List of components and bill of materials provided in Supporting the Product Assessment and Verification
- 3) Criterion 1: Product description: Compliance with criterion 1 requires providing the competent bodies with a clear description, technical drawing and the list of component parts and bill of materials of the floor covering.

## C7.2 - Explanations related to certification schemes

The assessment and verification of formaldehyde emissions from floor coverings and core board shall vary depending on the certification scheme and the type of flooring. Three certification schemes are allowed to show compliance:

- 1) the European E1 standard,
- 2) the American CARB (Californian Air Resources Board) Phase II standard, and
- 3) the Japanese JIS (Japanese Industrial Standard) F-star system.

Each standard has different conditions of testing procedures which make direct numerical comparisons between thresholds impossible. However, it is clear that the E1 standard equates to significantly higher (around double) limits than the American or Japanese requirements. For this reason, the EU Ecolabel establishes "stricter than E1" limits (i.e. 50% of E1 or 65% of E1).

If the compliance is shown by the E1 European standard, the thresholds to be applied for the floor covering as final product and for the core board are the following (being E1 the threshold value allowing classification E1 as defined in Annex B of EN 13986+A1 certification scheme):

Table 16. Thresholds for formaldehyde emissions according to European E1 standard

Scheme	Floor covering	Thresholds
50% or 65% E1	Flooring without core board	- floor covering < 50% E1
	Flooring with MDF/HDF core board	- floor covering < 50% E1 - core board < 65% E1
	Flooring with non-MDF/non-HDF core board	- floor covering < 50% E1 - core board < 50% E1

As mentioned before, a direct comparison of formaldehyde emission limits between the CARB, JIS F-star and E1 systems is difficult to make due to the fact that they each use different testing methods. However, research published in the literature where the same products are tested by different methods and the numerical values correlated can allow for an approximate comparison as illustrated in the following figure<sup>28</sup>

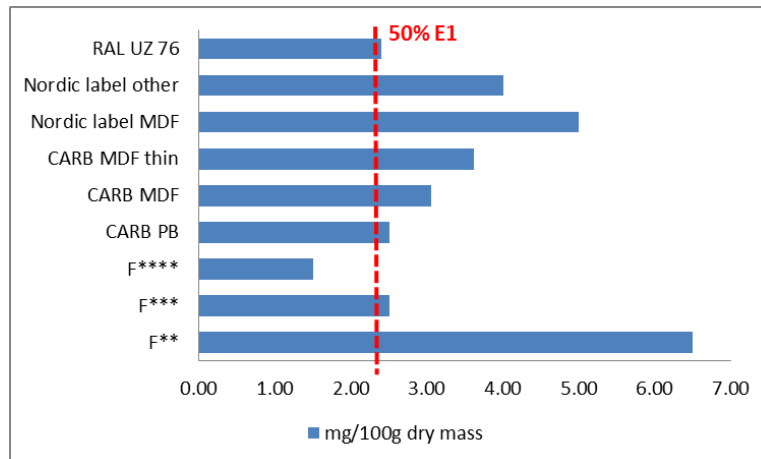


Figure 13. Comparison of formaldehyde emission ambition levels in different schemes for wood-based panels. MDF = Medium density fibreboard; PB = Particleboard

### C7.3 - Explanations related to EPD schemes

All type III environmental declarations always include a list of raw materials and/or ingredients used; they must include specification of materials and substances that may adversely affect the human health and the environment, at all stages of the life cycle.

If the floor covering has a verified EPD, compliance with this criterion could be done if the information included in the EDP is aligned with the requirements of the criterion.

**7.1 Formaldehyde**  
 No formaldehydes are used in manufacturing the product. (A basis for determining/measuring the formaldehyde values to EN 717-1 or EN 120 is not provided.)

Figure 14. Example of information appearing in EPD<sup>30</sup>.

<sup>28</sup> Groah et al., 1991. Comparative response of reconstituted wood products to European and North American test methods for determining formaldehyde emissions. *Envi. Sci. Technol.*, Vol. 25, p.117-122.

<sup>29</sup> Risholm-Sundman et al., 2007. Formaldehyde emission – Comparison of different standard methods. *Atmospheric Environment*, Vol. 41, p.3193-3202.

<sup>30</sup> Environmental Product Declaration Lindner Group – Raised Floor System, Type NORTEC

## Criterion 8. Fitness for use

### Criterion text:

Only the requirements associated with the specific type of flooring have to be fulfilled.

The floor coverings shall be tested and classified in accordance with the latest versions of the standards and indications included in Table 8.1.

**Table 8.1. Standards for testing and classifying the floor coverings**

Flooring	Test method	Classification
Wood veneer floor covering <sup>31</sup>	EN 1534 for Resistance to indentation EN 13329 for Thickness swelling Appropriate testing method for impact resistance <sup>32</sup> Appropriate testing method for wear resistance <sup>32</sup> ISO 24334 for Locking strength	EN ISO 10874 <sup>a</sup>
Factory lacquer solid and multilayer wood floorings	Thickness of the top layer Wood hardness of the surface layer <sup>b</sup>	EN 685 <sup>b</sup> CTBA
Factory oiled, uncoated wood and uncoated multilayer wood flooring		
Cork tile floor coverings	EN 12104	EN ISO 10874
Cork floor coverings	EN 660-1 for wearing group EN 425 for castor chair EN 425 for simulated movement of a furniture leg ISO 24343-1 for residual indentation	
Bamboo floor coverings	EN 1534 for resistance to indentation EN 13696 for top layer thickness or wear layer	--
Laminate flooring	EN 13329 EN 14978 EN 15468	EN ISO 10874

<sup>a</sup> The abrasion resistance test method used shall be declared and the thickness of the top layer, if appropriate.

<sup>b</sup> Classification of wood species regarding the wood hardness and correlations between the use classes in the EN 685 and the thickness of the wear top layer and the species of wood can be found in CTBA Revetements intérieurs Parquet 71.01.

Floor coverings shall achieve at least:

Flooring	Limits
Veneer wood flooring	- the level of use of class 23 for floorings intended for private use - the level of use of class 32 for floorings intended for commercial use.
Factory lacquer solid and multilayer wood floorings	- the level of use of class 23 for floorings intended for private use and for commercial use
Factory oiled, uncoated solid wood and uncoated multilayer wood flooring	
Cork tile floor coverings	- the level of use of class 23 for floorings intended for private use
Cork floor coverings	- the level of use of class 32 for floorings intended for commercial use.
Bamboo floor coverings	- Equilibrium Moisture Content: 8% at 20°C and 50% rel.

<sup>31</sup> Wood veneer floor covering means rigid floor covering consisting of a substrate made from a wood-based panel, with a top layer of wood veneer and possibly a backing.

<sup>32</sup> For the purposes of compliance, measurements and calculations shall be made using reliable, accurate and reproducible methods that take into account the generally recognised state of the art measurement and calculation methods, including harmonised standards that have their reference published in the Official Journal of the European Union. They shall meet the technical definitions, conditions and parameters as described in the Criteria User Manual.

	- Resistance to Indentation : $\geq 4 \text{ kg/mm}^2$ for plain and side pressed floor coverings $\geq 9,5 \text{ kg/mm}^2$ for high density floor coverings
Laminate flooring	- the level of use of class 23 for floorings intended for private use - the level of use of class 32 for floorings intended for commercial use.

**Assessment and verification**

The applicant shall provide to the competent body a declaration of compliance with the criterion. The declaration shall be supported by test reports that shall include:

- the type of flooring;
- the test method/s selected;
- the test results and the classification of the flooring according to the results and the appropriate standard, if applicable.

If the floor covering has been tested according to a test method other than what is specified above, this may be acceptable if the test methods are comparable in the opinion of the competent body.

**① Key points of criterion 8**

- Why wood veneer floor covering is different than wood flooring? Section C8.1
- Which is an appropriate testing method for impact and wear resistance? Section C8.1
- Why to specifically mention the abrasion method is important? Section C8.1
- Why the parameters “Thickness of the top layer” and “Wood hardness of the surface layer” are important? Section C8.2



**Classification of the floor covering comes from criterion 1 and should be used here to decide the testing to be done.**

**C8.1 - Explanations related to wood veneer floor covering**

Wood veneer floor covering, which has a thin top layer, are manufactured with a thicker surface treatment layer that other wood floorings and cannot be refurbished.

In the table 8.1 of the criterion, different testing methods are listed for this type of floorings. Examples of “appropriate testing method for impact resistance” and “appropriate testing method for wear resistance” are referred to the prEN 14354 (Annex C, D and E).

The abrasion resistance test method used shall be declared because there are several methods and direct comparison should be avoided. Additionally, the abrasion resistance is nowadays the main tool used by the industry and retailers to communicate the quality of the floor covering to the consumers (as abrasion resistance index (AC).

**C8.2 - Explanations related to wood flooring**

Wood floorings (both solid and multi-layer wood floorings) are characterized because they allow the refurbishment after several years of service. In order to guarantee that the wood floorings can be refurbished and consequently that their service life can be extended a proper combination of wood type and thickness of the top layer should be selected. These two characteristics are therefore the ones that should be measured for verifying this criterion.

CTBA Revêtements intérieurs Parquet 71.01 and the table of conversion can be found in the following link:



[http://www.cndb.org/live/produits\\_et\\_materiaux/revetements\\_interieurs/parquets.pdf](http://www.cndb.org/live/produits_et_materiaux/revetements_interieurs/parquets.pdf)

## Criterion 9. Reparability and extended guarantee

### Criterion text:

Only the requirements associated with the specific type of flooring have to be fulfilled.

For the purpose of undertaking repair and replacement of worn out parts, the floor covering shall meet the following requirements:

- Reparability: Information shall be included in the consumer instructions or the manufacturer's website to be accessible to the users and installers.

a) Design for repair and repair document: For floor coverings that are not glued down, the flooring shall be designed for disassembly with a view to facilitating repair, reuse and recycling. Simple and illustrated instructions regarding the disassembly and replacement of damaged elements shall be provided. Disassembly and replacement operations shall be capable of being carried out using common and basic manual tools. Information/recommendation of keeping spare floor covering elements in stock for possible event of repair shall be provided.

- Extended product guarantee:

b) The applicant shall provide at no additional cost a minimum of a five year guarantee effective from the date of delivery of the product. This guarantee shall be provided without prejudice to the legal obligations of the manufacturer and seller under national law.

### Assessment and verification

The applicant shall provide to the competent body a declaration of compliance supported by:

- a copy of the repair document or any other material where the information on design for repair is provided;
- a copy of the guarantee that indicates the terms and conditions of the extended product guarantee that are provided in consumer information documentation and that meet the minimum requirements set out in this criterion.

### Key points of criterion 9

- *What is a repair document?* Section C9.1
- *What could be covered under the extended guarantee?* Section C9.2

### Definitions

- **Repair document:** it should include the requirements on the design of the products, making easier its disassembly (non-destructive) into individual parts or components for replacement and substitution of damaged parts and on the information to carry out or to have this work performed.
- **Extended product guarantee:** The extended warranty of the products should be on the same basis of the mandatory limited guarantee in accordance with the CE marking. Information about the coverage should be indicated. The guarantee is preferable to contain information about who is covered, what the consumers responsibilities under the warranties are, what the company will do if any of the covered events occur, what is not covered and what should the consumers do if they have a problem.



The extended guarantee will increase the consumers confidence towards EU Ecolabel products purchase. The extended guarantee is a powerful tool to ensure and demonstrate the quality of a product and its excellent performance.

## C9.1 - Explanations on repair document

The criterion states that simple and illustrated instructions must be provided on the disassembly and replacement of damaged elements. Two important elements shall be included in the repair document:

- 1) The manufacturer of the floor covering includes such simple and illustrated instructions on how to disassemble and replace damaged elements, making easier the understanding of the process to the consumers. In this way, consumer can easily decide if they can replace the damaged elements by themselves or if they need professional help. If so, information on how to find professionals to carry out the replacement work should be provided.

Simple illustrations means mainly sketches or rough drawings that are lacking details but keeping the main figures and shapes to identify the elements and the type and directions of the movements to be done for replacing the elements. It is preferable that illustrations do not include words but that they do sign, arrows, etc.

- 2) Information on how to obtain professional repairs: If the consumer does not feel in the position to carry out the replacement by his/herself, s/he will need the help of a professional technician. Most of the companies that provide floor coverings have a customer service that is able to provide the needed services, if so, information on how to contact the customer service should be included in the document. The contact information refers to the phone, email address or even postal address.

If the floor covering provider does not have a customer service, a description of the skills of the professional that are needed to carry out the replacement works should be included or the name of the profession that can carry out the works. Any further piece of advice of relevance should be included.

## C9.2 - Examples on extended product guarantee



**The extension of the product guarantee must be free of cost and under the same conditions of the legal one.**

Table 17. Example of clauses to be included in the extended guarantees

### **Extended warranty**

#### 1. Who is covered?

*The extended warranty is given only to the original retail purchaser of the product and is our warranties*

#### 2. What are you responsible for under extended warranties?

*To be covered under the extended warrant, the consumer needs to retain the sales slip and make sure that the flooring is properly installed in accordance with the installation instruction provided with the flooring. The consumer must also properly care for the new flooring following the maintenance instructions that are provided with the flooring.*

#### 3. What is not covered by the extended warranties?

*The extended warranties do not cover conditions caused by improper use or maintenance, such as a) reduction in gloss, marks, scuffs, scratches, gouges, dents or cuts, including those caused by pets, b) damaged caused by negligence, accidents, misuse or abuse (eg dragging object across the floor without proper protection), c) wear caused by pebbles, sand or abrasives....*

#### 4. What should the customer do if s/he has a problem?



*contact either of the company or the retailers they have agreement with*

5. Other issues

*The number of years that the extended warranty covers should be indicated. The number of years should exceed five years and depends on the type of floor covering and finish. Eg residential finish engineered wooden floor coverings can vary between 50 and 15 years depending on the wood used as raw material and the finished applied. Solid wooden floor coverings can be twice and even three types sanding. If done by professionals this can extend the life of the floorings.*



## Criterion 10. Consumer information

### Criterion text:

The product shall be sold with the relevant consumer information on the packaging or any other documentation accompanying the product. Only the requirements associated with the specific type of flooring have to be fulfilled.

Instructions shall be legible and be provided in the language of the country where the product is placed on the market and/or include graphical representation or icons related to the following aspects:

- Information on the subgroup to which the product belongs (solid or multi-layer wood flooring, cork flooring, cork tile flooring, bamboo flooring, laminate flooring, etc.), the amount of wood, cork or bamboo material in the final product in mass percentage and if a surface treatment is still needed at user's place.

- Recommendations for the installation:

All relevant instructions referring to the best environmental installation practices shall be included:

- floating installation is recommended whenever possible. Reference shall be made to the necessary preparation of the underlying surface and the auxiliary materials needed;
- if a glued down installation is recommended due to the possible longer duration, recommendation of using an adhesive/glue certified with a Type I Ecolabel or a low emission adhesive complying with EMICODE EC1 or equivalent shall be included;
- illustrated assembly and disassembly instructions as per the requirements of criterion 9.a. (if applicable).

- Recommendation for the surface treatment for uncoated floor coverings and floorings needing an oiled surface:

- relevant information about the type and quantity of the coating products needed (e.g. oil or lacquer) to achieve the intended durability;
- relevant information about the coating of the floorings with low emitting coating products in accordance with the Directive 2004/42/EC;
- information about how the service life of the flooring can be extended through renovation e.g. sanding and surface treatment.

- Recommendations for the use, cleaning and maintenance of the product:

- relevant information for routine cleaning shall be included if applicable to the floor covering type, with a mention to cleaning products with a Type I ecolabel;
- maintenance instructions, including maintenance products, and products for renovation or intensive cleaning. If possible, maintenance products with a Type I ecolabel should be recommended;
- a clear statement of the flooring's areas of use and a statement of compliance with the relevant EN standards for the product as referred to in criterion 8.

- Information related to the reparability:

- a clear statement recommending the provision of spare parts as per the requirements of criterion 9.a.;
- relevant information regarding the terms and conditions of the product guarantee as per the requirements of criterion 9.b.

- Information related to the end-of-life of the product:

A detailed description of the best ways to dispose of the product (i.e. reuse, recycling, energy recovery, etc.) shall be given to the consumer, ranking them according to the impact on the environment.

### **Assessment and verification**

The applicant shall provide to the competent body a declaration of compliance with the criterion supported by a copy of the consumer information document that is to be provided with the product. The copy shall show compliance with each of the points listed in the criterion, as appropriate.

① **Key points of criterion 10**

- What means the amount of wood, cork or bamboo material in the final product in mass percentage? Section C10.1
- Examples of Type I ecolabel. Section C10.2
- Examples of information requirements for flooring installation. Section C10.3
- Examples of the minimum requirements depending on the types of flooring. Section C10.4.

**Definitions**

- **Amount of wood, cork or bamboo material in the final product in mass percentage:** This percentage refers to the amount of wood, cork or bamboo in the final product. This value can but must not be the same as the mass percentage of wood, cork, bamboo, wood-based, cork-based or bamboo-based material used for assessing the criterion 1. In this case, the percentage refers to the content of wood, cork or bamboo including before being mixed with any other material like adhesives to become a wood-based, cork-based or bamboo-based material.
- **Floating installation:** This works with engineered wood, laminate, cork, cork tile and bamboo floorings over a wood or concrete subfloor or existing flooring. Tongue-and-groove planks or tiles lock together mechanically. Some products must also be glued together at the joints. The material generally goes over a thin foam or cork pad, which fills minor flaws in the subfloor and absorbs sound. Installations over concrete require a thin plastic vapour barrier (see Table 19).
- **Glued down installation:** Engineered wood is typically glued. Other types of flooring can also be glued down. Adhesive onto a clean, flat, wood or concrete subfloor or existing flooring should be troweled and lay down the sheets, planks, or tiles. No vapour barrier is required. Some glue-down flooring is simply peel-and-stick, the easiest to install. Floorings should not be installed over a concrete sealer or painted concrete. If present, it should be removed by gridding or sanding. Floorings should not be installed over slick, heavily troweled or burnished concrete. For glued down floorings, when installing products wider than 8 cm, a bead of recommended wood glue to all the end grooves prior to installing into the adhesive should be applied (see Table 19).
- **Type I Ecolabel:** It is a voluntary, multiple-criteria based, *third party* program that awards a license that authorizes the use of environmental labels on products indicating overall environmental preferability of a product within a particular product category based on life cycle considerations.
- **EMICODE® EC1:** EMICODE® label categorises flooring installation materials, adhesives and building products into three emission classes. EMICODE® EC1 is the highest category which has proven its worth in practice as a standard for materials very low in emissions. The materials awarded this label comply with the strictest environmental and health requirements.<sup>33</sup>
- **Maintenance:** The process of retaining the appearance of the face and its treatment either by cleaning, lacquering, oiling, waxing or application of specialist products.
- **Coating:** means any preparation, including all the organic solvents or preparations containing organic solvents necessary for its proper application, which is used to provide a film with decorative, protective or other functional effect on a surface (Directive 2004/42/EC).<sup>34</sup>
- **Low emitting coating products in accordance with the Directive 2004/42/EC:** The purpose of this Directive is to limit the total content of VOCs in certain paints and varnishes and vehicle refinishing products in order to prevent or reduce air pollution resulting from the contribution of VOCs to the formation of tropospheric ozone. The Directive shall apply to the products set out in Annex I, among which many types of coating products are included (the maximum VOC content limit values are listed in the Annex II).

<sup>33</sup> <http://www.emicode.com/en/emicode-r/categories/>

<sup>34</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32004L0042&from=EN>



Consumers shall be provided with all the necessary information to extend the lifespan of the EU Ecolabel products and be encouraged to act environmental friendly at the end of life.

### C10.1 - Example related to the content of wood, cork or bamboo material in the final product in mass percentage

The EPD of this laminate gives the following list of materials<sup>35</sup>. The composition of a DPL floor covering in mass % is:

- 90% High Density Fibre board (HDF)
- 4 % paper
- 6 % resin
- <1 % corundum

Where the HDF board is described as composed of wood fibres and a thermosetting resin, mainly MUF (melamine-urea-formaldehyde) resin. Information about the list of materials used for manufacturing the HDF board should be collected.

An example of HDF boards covered by melamine is provided in Figure 15.

*MDF/HDF boards with thicknesses between 6 and 40 mm with an average density of 720kg/ m<sup>3</sup> consisting of (specified in mass-% per 1 m<sup>3</sup> of production):*

- Wood chips, primarily spruce and pine wood, approx. 82 %
- Water approx. 5-7 %
- UF-glue (urea resin) approx. 11 %
- Paraffin wax emulsion <1 %
- Decorative paper with a grammage of 60-120 g/m<sup>2</sup>
- Melamine formaldehyde resin

Figure 15. Information of the composition of HDF covered by melamine<sup>36</sup>

Therefore, assuming that both pieces of information would describe the product of this example, the total amount of wood in mass percentage to be reported in Criterion 10 would be:

90% (mass of the HDF in final product) x 82% (mass of wood in the HDF) = **74% wood in mass in the final product**

As minimum, a single consumer information document shall be provided with the product which includes information in the language of the country where the product is sold. This document should not prevent to supply the information in one piece of sheet with the FC and also in the website. Manufacturers have freedom to choose the best format/s and language/s to communicate the information requested to the end users.

### C10.2 - Examples of Type I ecolabel

The EU Ecolabel covers a wide range of product groups, concerning major areas of manufacturing. The use of these EU Ecolabeled products and other Type I Ecolabel products must be encouraged throughout the consumer information. In the following link, the applicant can access to the full EU Ecolabel Product Catalogue, classified under the different product categories included:



<http://ec.europa.eu/ecat/>

<sup>35</sup> <http://www.epfl.com/downloads/epfl.EPD-DPL-laminate-flooring-2015-en.pdf>

<sup>36</sup> [http://www.egger.com/downloads/bildarchiv/84000/1\\_84979\\_ZF\\_EPD\\_MDF-HDF\\_EN.pdf](http://www.egger.com/downloads/bildarchiv/84000/1_84979_ZF_EPD_MDF-HDF_EN.pdf)

Additionally, here is provided the list of other nationally or regionally officially recognised EN ISO 14024 type I ecolabelling schemes:

Table 18. List of Type I Ecolabel

<b>Ecolabel</b>	<b>Country</b>	<b>Webpage</b>
Österreichisches Umweltzeichen	Austria (AU)	<a href="http://www.umweltzeichen.at/cms/de/home/content.html">http://www.umweltzeichen.at/cms/de/home/content.html</a>
Environmentally friendly label, Prijatelj okoliša	Croatia (HR)	<a href="http://www.mzoip.hr/en/environment/eco-labels.html">http://www.mzoip.hr/en/environment/eco-labels.html</a>
Ekologicky Setrny Vyrobek	Czech Republic (CZ)	<a href="http://www1.cenia.cz/www/ekoznaceni/ekologicky-setrne-vyrobky">http://www1.cenia.cz/www/ekoznaceni/ekologicky-setrne-vyrobky</a>
Nordic Ecolabel	Sweden, Denmark, Finland, Iceland	<a href="http://www.nordic-ecolabel.org/">http://www.nordic-ecolabel.org/</a>
NF Environnement	France (FR)	<a href="http://www.ecolabels.fr/fr/l-ecolabel-europeen-qu-est-ce-que-c-est">http://www.ecolabels.fr/fr/l-ecolabel-europeen-qu-est-ce-que-c-est</a>
Blue Angel	Germany (DE)	<a href="https://www.blauer-engel.de/en/">https://www.blauer-engel.de/en/</a>
Hungarian Ecolabel	Hungary (HU)	<a href="http://www.kornyezetbarat-termek.hu/en/pages.php?aid=137&amp;pID=2#Vz2N1ORCeUk">http://www.kornyezetbarat-termek.hu/en/pages.php?aid=137&amp;pID=2#Vz2N1ORCeUk</a>
Waterlily	Lithuania (LT)	Not found
NL Milieukeur	Netherlands (NL)	<a href="http://www.milieukeur.com/">http://www.milieukeur.com/</a>
Znak EKO	Poland (PL)	<a href="http://www.pcbc.gov.pl/pl/znak-eko">http://www.pcbc.gov.pl/pl/znak-eko</a>
National Programme of Environmental Assessment and Ecolabelling in the Slovak Republic NPEHOW	Slovak Republic (SK)	<a href="http://ec.europa.eu/environment/archives/ecolabel/pdf/observers/slovakrep_geninfo.pdf">http://ec.europa.eu/environment/archives/ecolabel/pdf/observers/slovakrep_geninfo.pdf</a>
Aenor	Spain (SP)	<a href="http://www.aenor.es/aenor/certificacion/mambiente/medio_ambiente.asp#_VOVimeRCeUk">http://www.aenor.es/aenor/certificacion/mambiente/medio_ambiente.asp#_VOVimeRCeUk</a>
Distintiu de garantia de Qualitat Ambiental	Spain (SP)	<a href="http://mediambient.gencat.cat/ca/05_ambits_dactuacio/empresa_i_produccio_sostenible/ecoproductes_i_ecoserveis/etiquetatge_ecologic_i_declaracions_ambientals_de_producte/distintiu_de_garantia_de_qualitat_ambiental/">http://mediambient.gencat.cat/ca/05_ambits_dactuacio/empresa_i_produccio_sostenible/ecoproductes_i_ecoserveis/etiquetatge_ecologic_i_declaracions_ambientals_de_producte/distintiu_de_garantia_de_qualitat_ambiental/</a>
Good environmental choice	Sweden	<a href="http://www.naturskyddsforeningen.se/node/12484">http://www.naturskyddsforeningen.se/node/12484</a>
TCO certification (IT products)	Sweden	<a href="http://tcodevelopment.com/tco-certified/">http://tcodevelopment.com/tco-certified/</a>

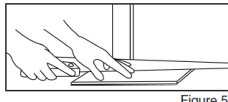
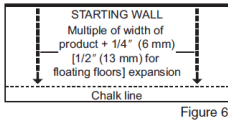
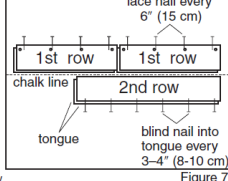
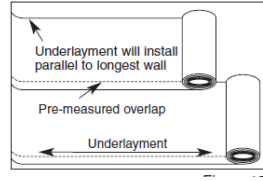
### C10.3 - Examples of information requirements for flooring installation

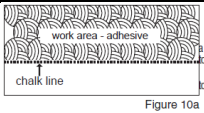
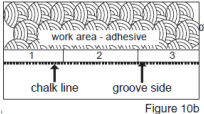
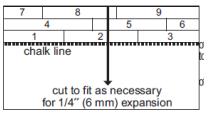
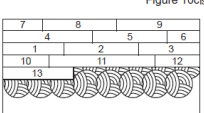


**Note that examples provided are only indicative guidelines; the applicant shall provide consumer information associated with the specific type of flooring.**

The different flooring materials require different installation techniques. Floated floors that go down without glue or fasteners are easiest. Planks or tiles are easier to install than sheets.

Table 19. Example of clauses related to the information requirements

<u>1. Floating installation</u>		
 <p style="text-align: center;">Figure 5</p>  <p style="text-align: center;">Figure 6</p>  <p style="text-align: center;">Figure 7</p>	 <p style="text-align: center;"><b>Underlayment installation</b></p>	<p><i>This works with engineered wood, laminate, cork, cork tile and bamboo floorings over a wood or concrete subfloor or existing flooring. Tongue-and-groove planks or tiles lock together mechanically. Some products must also be glued together at the joints. The material generally goes over a thin foam or cork pad, which fills minor flaws in the subfloor and absorbs sound. Installations over concrete require a thin plastic vapour barrier.</i></p>
<b>Examples of the sub-floor conditions or underlayment requirements</b>		
<u>1. Subfloor conditions:</u>		
<ul style="list-style-type: none"> <li>- subfloor must be free of wax, paint, oil, sealers or adhesives and other debris</li> <li>- the subfloor must be flat (within 5mm in 3m) and/or (3mm in 2m).</li> <li>- check and document moisture content of the subfloor using the appropriate moisture test</li> <li>- avoid sub-floors with excessive vertical movement. Optimum performance occurs when there is little horizontal or vertical movement of the sub-floor.</li> </ul>		
<u>2. Underlayment requirements</u>		
<ul style="list-style-type: none"> <li>- when installing unfinished engineered flooring allow a minimum of 72h adhesive curing time before applying seals, stains and finishes to unfinished flooring. Test the moisture content of the wood in accordance with the stain/finish manufacturer's recommendations.</li> <li>- do not staple or mechanically fasten products that exceed 13cm in width</li> <li>- floor should be installed from several cartons at the same time to ensure good colour and shade mixture</li> <li>- when possible, pre-select and set aside boards that blend best with all horizontally mounted mouldings used to assure a uniform final appearance. Install these boards adjoining the mouldings</li> <li>- be attentive to staggering the ends of the boards at least 10-15cm when possible, in adjacent rows. This will help ensure a more favourable overall appearance of the floor</li> <li>- when installing engineered products of uniform length, begin the rows with starter boards cut to various lengths. Avoid staggering the rows uniformly to prevent stair-stepping. Boards cut from the opposite end of the row may be used for the next starter boards</li> <li>- always allow a minim of 6mm expansion around all vertical obstructions. Allow 13mm for floating floors.</li> </ul>		
<u>2. Nail or staple-down installation</u>		
<p><i>These are the methods of choice with solid and engineered wood over a wood subfloor. Standard, 3/4-inch-thick solid-wood strip and plank flooring is traditionally nailed to the subfloor; thinner solid or engineered material is almost always stapled. The fasteners are usually driven diagonally through the tongue side of the material and into the subfloor (blind-nailed) so they are invisible once the floor is finished. Solid flooring can also be nailed straight through the surface (face-nailed) with decorative cut nails or fastened with screws, which are typically countersunk and concealed with wood plugs. Installers often sandwich a layer of 15-pound felt or rosin paper between the subfloor and floor to prevent moisture between the two and to deaden sound.</i></p>		
<u>3. Glued down installation</u>		

 <p style="text-align: center;">Figure 10a</p>  <p style="text-align: center;">Figure 10b</p>  <p style="text-align: center;">Figure 10c</p>  <p style="text-align: center;">Figure 10cs</p>	<p>Engineered wood is typically glued. Other types of flooring can also be glued down. Adhesive onto a clean, flat, wood or concrete subfloor or existing flooring should be troweled and lay down the sheets, planks, or tiles. No vapour barrier is required. Some glue-down flooring is simply peel-and-stick, the easiest to install.</p> <p>Floorings should not be installed over a concrete sealer or painted concrete. If present, it should be removed by gridding or sanding. Floorings should not be installed over slick, heavily troweled or burnished concrete.</p> <p>For glued down floorings, when installing products wider than 8 cm, a bead of recommended wood glue to all the end grooves prior to installing into the adhesive should be applied.</p>
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## C10.4 -Examples of the minimum requirements depending on the types of flooring

The Table 20 to Table 24 include a collection of examples of the minimum requirements depending on the types of flooring:

Table 20. Example of the minimum consumer information requirements for solid finished wood floorings

Requirement	Example
Flooring's area of use and compliance of the EN standards for fitness for use	<i>The flooring has a thickness of XX mm and meets the requirements of the use classes: XX – XX, according to EN XXXX.</i> - indication of the room type: eg ½ bath, basement, bedroom, dining room, full bath, kitchen, laundry room, living/family room - indication of the traffic: low, medium or high
Preparation of underlying, surface and auxiliaries needed for installing the floorings	<i>See example in Table 23</i>
Illustrated assembly/disassembly instructions	<i>See example in Table 23</i>
Routine cleaning	<i>Simply follow a regular sweeping or mopping routine to removed dirt and debris, and wipe up spills as soon as they happen. When mopping, spray a hardwood flooring cleaner (ecolabel Type I) and mop in the direction of the grain</i> <i>DON'T use: ammonia-based cleaners, wax-based products, detergents, bleach, polishes, oil soaps, abrasive cleaning soaps, or acidic materials like vinegar.</i>
Maintenance instructions	<i>To revive an older floor, apply one or more coats of Restore Finish product (type I Ecolabel if applicable)</i>
Repairing information	<i>Minor damage can be repaired with a touch-up kit or filler. Major damage will require board replacement, which can be done by a professional floor installer.</i>
Product guarantee	<i>See example in Table 17</i>
Company contact information	<i>Contact Customer Care</i> <b>XXXXX</b> <b>Customer Relations and Technical Services</b> <b>XXXXX, XXXXX, XXXX</b> <i>Phone: +00XX-XXX-XXX-XXX</i>

	<i>Monday-Friday XX:XX am - XX:XX pm CET</i>
Recommending the provision of spare parts	<i>When flooring is ordered, 5% must be added to the actual sweater footage needed for cutting and grading allowance (10% for diagonal installations) and keep X% for the unlikely event of repairing.</i>

Before starting the finishing treatment, the flooring should have been laying on the user's place at least for 72h.

Table 21. Example of additional minimum consumer information requirements for solid unfinished wooden floor coverings

<i>Sanding, Staining and Finishing</i>	
<ol style="list-style-type: none"> <li>1. Sink the heads of all visible nails with a nail punch. Dilute the latex floor filler with water and spread it over the entire floor with a rubber grouting float. Work it into all the gaps between boards. Let the filler dry overnight.</li> <li>2. Sand the floor with a drum sander and XX-grit sandpaper. Vacuum the floor when done</li> <li>3. Make two more rounds of sanding, using XX- and XX-grit sandpaper. Vacuum the floor and wipe it with a damp rag when sanding is finished.</li> <li>4. Stain the floor, if desired, by spreading stain with a paintbrush and wiping off the excess with a rag. Stain the floor in sections, brushing material on one section and wiping it off before moving on to the next. Let the stain dry overnight. Choose a stain fulfilling the criteria of an ecolabelled type 1 product.</li> <li>5. Apply a coat of sanding sealer with a flooring applicator. Let the sealer dry, then sand the floor with a floor buffer fitted with a XXX-grit sanding screen. Vacuum the dust when done.</li> <li>6. Apply two or three coats of clear finish (Choose a stain fulfilling the criteria of an ecolabelled type 1 product), screening the floor and vacuuming after each coat except the last one. Instead of screening the last coat, install a lambswool buffer on the floor buffing machine and buff it.</li> </ol>	

Table 22. Example of minimum consumer information requirements for cork floor coverings

Flooring's area of use and compliance of the EN standards for fitness for use	<p><u>Cork tile flooring</u>  <i>According to EN ISO 10874 (EN 685) the area of application for resilient floor coverings is indicated by use classes. The declared product group covers the use classes 23 and 31.</i></p> <p><u>Cork floorings</u>  <i>This flooring product meets the requirements of the usage classes 32 for commercial use and 23 for domestic use according to ISO 10874 standard.</i></p>
Preparation of underlying, surface and auxiliaries needed under the flooring	<p><i>The subfloor must be even, flat, dry and variations should not exceed 3 mm in 2 m. All type of concrete, wooden and ceramic surfaces must be completely dry. Never install floating floors without using a PE moisture barrier film with a minimum thickness of 0,2 mm</i></p> <p><i>Cork floorings can be either glued down or have a floating system. More information on installing the flooring product can be found in manufacturer's website.</i></p>
Illustrated assembly/disassembly instructions	<i>See example in Table 23</i>
Routine cleaning	<i>Regular cleaning with a vacuum, fine bristle broom, or a damp mop with a pH balanced cleaner (if possible fulfilling the criteria of an Ecolabelled Type 1 product). Avoid products with ammonia or abrasives. Periodically you should refresh the finish layer on the tiles. Never immerse a cork floor in water, and when spills happen wipe them up immediately.</i>
Maintenance instructions	<p><u>Cork floor tiles</u>  <i>The cork tiles arrive prefinished with a premium water-based finish and preglued. For best results and protection from moisture leeching into the seams, an additional coat of the same varnish is applied after the tiles are installed. Tiles must be clean and free of</i></p>

	<i>adhesive, dust and dirt before the final coat of varnish is applied. Either a new layer of the top coat of finish can be applied or use Floor Polish which produces a protective wear layer for Cork tiles. This application can be applied once every year or so depending upon the traffic on the floor.</i>
Repairing information	<i>See example in Table 20 and Table 23</i>
Product guarantee	<i>See example in Table 17</i>
Company contact information	<i>See example in Table 20</i>
Recommending the provision of spare parts	<i>See example in Table 20</i>
Recommendation on the EoL	<i>The product is mainly composed by cork, HDF (wood) and PVC. PVC layers can be shredded, granulated or powdered and then re-melted to make a secondary input material. Wood and cork can also be suitable for composting. Waste from this flooring product can be reused in the process as replacement of some of the raw materials. This type of flooring product can also be reused, although its service life is expected to be less than the original warranty from the manufacturer. Regarding energy recovery, wood, cork and PVC can be incinerated in order to produce thermal energy or electricity. However, incineration of PVC originates emissions of chlorine in waste streams, contaminated ash residue and eventual emission of dioxins. According to the /European Waste Catalogue Directive/ the used floor covering can be classified in the main category "17 Construction and Demolition Waste (including road construction)". Considering the specific constitution of this floor covering, and assuming that the layers cannot be separated at the end of life, the waste code applied is the following: 17 09 04 Mixed construction and demolition waste other than those mentioned in 17 09 01, 17 09 02 and 17 09 03</i>

Table 23. Example of minimum consumer information requirements for bamboo floor coverings

Flooring's area of use and compliance of the EN standards for fitness for use	<i>See example in Table 20</i>
Preparation of underlying, surface and auxiliaries needed under the flooring	<i>Bamboo offers a variety of installation methods (see examples above):</i> <ul style="list-style-type: none"> <li>- <i>Nail Down: Just like normal hardwood floor installation, the strips of wood are nailed into place atop a sub-floor (more accurately, special flooring staples are used nowadays).</i></li> <li>- <i>Floating: Strips of wood snap into each other on top of a foam underlayment: no nails, no glue.</i></li> <li>- <i>Glue-Down: Strips of wood snap into each other and are glued down for maximum stability.</i></li> </ul>
Illustrated assembly/disassembly instructions	<i>The installation method depends on the type of flooring purchased. Verify with the flooring company which type of installation method is appropriate for your flooring.</i>




	
<p>Routine cleaning:</p>	<p><i>Sweep or vacuum a bamboo floor regularly. There are a number of cleaning products which are specifically designed for cleaning bamboo floors. Most hardwood floor cleaners are also appropriate for bamboo, provided that they are non-alkaline, and are not a wax. Never wet mop a bamboo floor or immerse it in water for any reason. A damp mop can be used to remove surface stains and pick up small debris, but do not allow the bamboo to remain moist for more than a few minutes. If you are using a bamboo floor cleaning product that requires mixing with water you should carefully follow all manufacturer instructions.</i></p>
<p>Maintenance instructions</p>	<p><i>A wax coating is only recommended for a bamboo floor in certain commercial applications. A urethane finish is more appropriate for most installations. Once a wax treatment has been applied to bamboo no other type of coating can be used.</i></p>
<p>Repairing information</p>	<p><i>A minor chip or slight damage (eg. light scratches) may be minimized with a coloured wax. If the scratch is white, the finish has not been compromised and is repairable. Simply using a flooring cleaner should eliminate these blemishes. Wood fill products also work to reduce the appearance of deeper blemishes. If the scratch is deeper but the raw wood is not exposed, light buffing with a white polishing pad can shine up the dull area. Often the damage becomes less obvious. When removing stains from any wood floor, always begin at the outer edge of the stain and work toward the middle. If the damage is severe enough, board replacement is typically the best option. To match your floor repairs, either you take a sample of the flooring to your local hardware store or you use one of the spare parts.</i></p>
<p>Product guarantee</p>	<p><i>See example in Table 17</i></p>
<p>Company contact information</p>	<p><i>See example in Table 20</i></p>
<p>Recommending the provision of spare parts</p>	<p><i>See example in Table 20</i></p>
<p>Recommendation on the EoL</p>	<p><i>See example in Table 22</i></p>

Table 24. Example of minimum consumer information requirements for laminate floor coverings

<p>Flooring's area of use and compliance of the EN standards for fitness for use</p>	<p><u>Direct Pressured Laminate</u>  <i>The laminate floor covering has a thickness of XX mm and meets the requirements of the use classes: domestic 21-23 and commercial 31-34 according to EN 13329, EN ISO 10874.</i></p> <p><u>Pressure D Laminate</u>  <i>The laminate floor covering meets the requirements of the use classes domestic XX-XX</i></p>
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	<p><i>and commercial XX-XX according to EN 15468</i></p> <p><i>HPDL</i></p> <p><i>The laminate floor covering meets the requirements of the use classes</i></p>
Preparation of underlying, surface and auxiliaries needed under the flooring	<p><i>Laminate flooring is used for interior applications with floating installation on screed or other sub floors such as wood, tiles or PVC. Installation must be performed according to the installation instructions and state-of-the-art technology.</i></p> <p><i>a) Use an underlayment for laminate floating installations on concrete, wood underlayment and existing vinyl. Don't attach the underlayment to the flooring (use a moisture barrier under the laminate with attached underlayment)</i></p> <p><i>b) Use an adhesive for glued down laminate floorings. The</i></p> <p><i>See further information above</i></p>
Illustrated assembly/disassembly instructions	<p><i>See example in Table 23</i></p>
Routine cleaning:	<p><i>Sweep or vacuum regularly using the wand attachment on your vacuum cleaner.</i></p> <p><i>Clean your laminate floor occasionally using a well-squeezed damp mop and a Laminate Floor Cleaner, if possible fulfilling the criteria of ecolabelled Type I products.</i></p> <p><i>Allow time for the floor to dry after washing</i></p> <p><i>Immediately wipe up wet areas from spills, muddy feet, and damp paws</i></p> <p><i>Don't use soap-based detergents or "mop and shine" products, as they may leave a dull film on your laminate floor.</i></p> <p><i>Don't use abrasive cleaners, steel wool, or scouring powder, which can scratch your floor.</i></p>
Maintenance instructions	<p><i>No needed</i></p>
Repairing information	<p><i>Minor damage can be repaired with xxxx. Major damage will require board replacement, which can be done by a professional floor installer.</i></p>
Product guarantee	<p><i>See example in Table 17</i></p>
Company contact information	<p><i>See example in Table 20</i></p>
Recommending the provision of spare parts	<p><i>See example in Table 20</i></p>
Recommendation on the EoL	<p><i>Laminate flooring installed without the use of glue can be easily separated, removed and/or reused for the same application at the end of the usage phase. The laminate flooring can be processed and returned to the manufacturing of wood-based materials.</i></p> <p><i>Construction site waste of the laminate flooring, and waste from demolition projects, should be primarily used in materials. If this is not possible, laminate flooring waste that is not suitable for further use must be utilised as an energy source – due to the high heating value of approximately 16MJ/kg – and used for the generation of process energy and electricity (cogeneration) instead of being disposed of in a landfill (waste code according to the European waste catalogue: 170201/030103).</i></p>

## Criterion 11. Information appearing on the EU Ecolabel

### Criterion text:

The logo shall be visible and legible. The EU Ecolabel registration/licence number shall appear on the product and shall be legible and clearly visible.

The optional label with text box shall contain the following text:

- Wood, cork or bamboo material from sustainably managed forests
- Lower energy consumption for manufacturing
- Low-emitting product.

### Assessment and verification

The applicant shall provide to the competent body a declaration of compliance with the criterion supported by a copy of the information appearing on the EU Ecolabel.

### Key points of criterion 11

- *Guidelines for use of the Ecolabel logo. Section C11.1*



**Note that the Competent Body will ask for a sample of the packaging or label/[product sheet included with the product to check these requirements are being fulfilled.**

### C11.1 Guidelines for use of the Ecolabel logo

The guidelines for the use of the optional label with text box can be found in the "Guidelines for use of the Ecolabel logo" on the website:



[http://ec.europa.eu/environment/ecolabel/documents/logo\\_guidelines.pdf](http://ec.europa.eu/environment/ecolabel/documents/logo_guidelines.pdf)