

# **CRITERIA FOR THE AWARD OF THE ENVIRONMENTAL LABEL TO THE PRODUCT GROUP OF WOOD-, CORK- AND BAMBOO-BASED PRODUCTS: PANELS, FLOOR COVERINGS AND INTERIOR DOORS**

**ARTICLE 1** –These criteria have been established within the scope of the Environmental Label Regulation published in the Official Gazette dated 19.10.2018 and numbered 30570.

**ARTICLE 2** –The product group consisting of wood-, cork- and bamboo-based panels, floor coverings and interior doors covers wooden panels and interior doors, as well as laminate floorings and floor coverings containing no synthetic fibers in any of their component layers, provided that at least 80% by weight of the final product is manufactured from wood, wood-based materials, cork, cork-based materials, bamboo, bamboo-based materials or fibers.

It shall not comprise wall coverings, acoustic coverings, covering materials and doors for external use, or coverings having a structural function.

**ARTICLE 3** – The criteria for the product group “Wood-, Cork- and Bamboo-Based Products: Panels, Floor Coverings and Interior Doors” and the related assessment and verification requirements shall be valid for a period of 5 (five) years. Within this five-year period, the criteria may be updated where deemed necessary by the Environmental Label Board. The validity period of the criteria may be extended upon approval by the Environmental Label Board.

## **DEFINITIONS**

**ADt:** The standard ton unit expressing the weight of air-dried pulp containing approximately 10% moisture, as used in the paper industry;

**Wood-based material:** A material obtained by processing wood fibers, wood chips or wood through various processes involving high temperature and pressure and, where necessary, the use of binding resins or adhesives (Wood-based materials include fiberboard, hard fiberboard, medium- and high-density fiberboard (MDF/HDF), particleboard, oriented strand board (OSB), plywood and solid wood panels. Floor coverings may be coated with a final layer/finish during production);

**Wood preservative:** As specified in Annex V to the Biocidal Products Regulation published in the Official Gazette dated 31.12.2009 and numbered 27449; products used for the protection of wood or wood products, including at the sawmill stage, by the control of organisms, including insects, that cause deterioration or aesthetic damage to wood products;

**Wood floor covering:** A covering forming the use surface of a floor, consisting of assembled wooden elements, pre-assembled boards or parquet panels;

**Active substance:** A substance or micro-organism having an action on or against harmful organisms, as specified in Article 4 of the Biocidal Products Regulation dated 31.12.2009 and numbered 27449;

**Bamboo-based material:** A material obtained by processing bamboo fibres, bamboo chips or bamboo through various processes involving high temperature and pressure and, where necessary, the use of binding resins or adhesives;

**Bamboo floor coverings:** Floor coverings made of bamboo in the form of solid pieces or agglomerates mixed with a binder;

**Biocidal product:** As defined in the Biocidal Products Regulation published in the Official Gazette dated 31.12.2009 and numbered 27449; any substance or mixture consisting of, containing or generating one or more active substances, placed on the market in the form supplied to the user, with the intention of destroying, deterring, rendering harmless, preventing the action of, or otherwise exerting a controlling effect on any harmful organism by means other than mere physical or mechanical action, as well as any treated article having a primary biocidal function;

**Recycled material:** Material obtained by reprocessing recovered or reclaimed material through a manufacturing process into a final product or into a component to be incorporated into a product, as defined in TS EN ISO 14021;

**Safety data sheet (SDS):** A form providing detailed information on a chemical substance or mixture, including all physical, chemical, health and environmental information necessary for the safe handling, transport, storage and disposal of chemicals;

**High-pressure laminate (HPL):** A surfacing material obtained by pressing, under high heat and pressure, cellulosic core layers impregnated with phenolic or similar thermosetting resins together with a decorative top layer, having high mechanical strength and resistance to abrasion, impact, scratching, chemicals and heat;

**Mixture:** A mixture or solution composed of two or more substances, as defined in the Regulation on the Registration, Evaluation, Authorization and Restriction of Chemicals (KKDIK) published in the Official Gazette dated 23.06.2017 and numbered 30105;

**Laminate floor covering:** A rigid floor covering consisting of one or more thin fibrous material layers (generally paper) impregnated on the upper surface with an aminoplastic thermosetting resin (usually melamine), this surface layer being pressed or bonded onto a substrate and generally completed with a backing or balancing layer;

**LCI:** The lowest concentration of a volatile organic compound (VOC) at which effects on human health may begin to occur;

**LCI substances:** VOC substances for which LCI values have been established and which shall be taken into account with regard to indoor air quality and health effects;

**Substance:** As defined in the KKDIK Regulation published in the Official Gazette dated 23.06.2017 and numbered 30105; a chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition;

**Cork-based material:** A material produced by processing cork fibers, cork chips or cork through various processes involving high temperature and pressure and, where necessary, the use of binding resins or adhesives;

**Cork floor coverings:** Floor coverings produced from granulated cork mixed with a binder and cured, or consisting of multiple cork layers (agglomerated or veneer) pressed together with an adhesive and designed for use with a surface covering;

**R value:** The the sum of all  $R_i$  values where  $R_i$  value is the ratio  $C_i/LCI_i$ , where  $C_i$  is the chamber mass concentration of compound  $i$ , and  $LCI_i$  is the LCI (lowest concentration of interest) value of compound  $i$  defined under the European Collaborative Action on Urban Air, Indoor Environment and Human Exposure Reports.

**Synthetic fibers:** All polymer fibers;

**Volatile organic compound (VOC):** Any organic compound eluting on a GC column between and including n-hexane and n-hexadecane, corresponding to a boiling point range of approximately 68 °C to 287 °C (measurement performed using a capillary column coated with 5% phenyl / 95% methyl-polysiloxane);

**Semi-volatile organic compound (SVOC):** An organic compound eluting on a gas chromatography (GC) column between n-hexadecane (excluded) and n-docosane (included), corresponding to a boiling point higher than approximately 287 °C (measurement performed using a capillary column coated with 5% phenyl / 95% methyl-polysiloxane).

## CRITERIA

The criteria for the award of the Environmental Label to the product group “Wood-, Cork- and Bamboo-Based Products: Panels, Floor Coverings and Interior Doors” are as follows:

1. Product Description
2. Wood-, Cork- and Bamboo-Based Materials
3. General Requirements for Hazardous Substances and Mixtures
4. Specific Substance Requirements
5. Energy Consumption in the Production Process of Floor Coverings
6. Energy Consumption in the Production Process of Panels and Doors
7. Emissions from the Product
8. COD Emissions from Paper Production
9. Emissions to Air from Production – Working Environment
10. Fitness for Use
11. Repairability and Extended Guarantee

12. Maintenance of Environmental Label Use Authorization
13. Consumer Information
14. Information appearing on the Environmental Label

## **ASSESSMENT AND VERIFICATION REQUIREMENTS**

The assessment and verification requirements specific to each criterion are set out separately under each criterion. Where the applicant is required to provide declarations, documentation, analyses, test reports or other evidence demonstrating compliance with the criteria, such documents shall be provided, as appropriate, by the applicant and/or its supplier(s) and/or their supplier(s), etc.

The Ministry (Republic of Türkiye Ministry of Environment, Urbanisation and Climate Change) recognises tests carried out by laboratories accredited by TÜRKAK in accordance with TS EN ISO/IEC 17025 and management system and product certificates issued by certification bodies accredited by TÜRKAK in accordance with TS EN ISO/IEC 17021-1 and TS EN ISO/IEC 17065. (The list of organisations accredited by TÜRKAK can be accessed via TÜRKAK’s official website or at: <https://asist.turkak.org.tr/tr/accreditation/accreditationagencyCLPreh>.) Where, within the scope of assessment and verification requirements, it is mandatory to perform tests and/or issue certificates, and it is documented that no accredited laboratory and/or management system certification body and/or product certification body is available, accreditation in accordance with TS EN ISO/IEC 17025 and/or TS EN ISO/IEC 17021-1 and/or TS EN ISO/IEC 17065 shall not be required.

When generating data relating to the classification of substances or mixtures, the provisions of the “Regulation on the Test Methods to be Applied in the Determination of the Physicochemical, Toxicological and Ecotoxicological Properties of Substances and Mixtures”, published in the Official Gazette dated 11.12.2013 and numbered 28848 (second duplicate), shall be taken into account.

The Ministry may permit the use of alternative test methods other than those specified, provided that the equivalence of such test methods is deemed appropriate and approved.

Where deemed appropriate, the Ministry may request supporting information/documentation and may carry out independent verifications.

As pre-requisite, the product shall meet all applicable legal requirements necessary for its placing on the market. The applicant shall declare that the product complies with those requirements.

## **CRITERIA AND REQUIREMENTS**

### **CRITERION 1. Product Description**

A technical description document shall be submitted to the Ministry, including drawings showing the components of the product subject to the application, together with information on the product

dimensions and descriptions of the production process. This document shall also include the bill of materials indicating the total weight of the product and the distribution of this weight among the different components and/or materials.

***Assessment and Verification:*** The applicant shall submit to the Ministry a declaration of compliance supported by the following information relating to the product:

- The brand/trade name of the product,
- A description of the product together with technical drawings showing the components used in the product,
- The bill of materials, including all components and/or materials used in the production of the product (including all additives and surface treatment substances used in production) and the weight of each in the product,
- The composition (in % by weight) of the raw materials, substances or mixtures used in production,
- Detailed descriptions of the production process of the product (including the suppliers of each raw material used; the legal names, addresses, production sites where applicable, and contact details of the suppliers).

Provided that it contains the information listed above, an Environmental Product Declaration (EPD) or an equivalent document may be accepted as proof of compliance with this criterion.

## **CRITERION 2. Wood-, Cork- and Bamboo-Based Materials**

This requirement shall apply to wood, wood-based, cork, cork-based, bamboo and bamboo-based materials constituting more than 1% of the weight of the final product.

All wood, wood-based, cork, cork-based, bamboo and bamboo-based materials shall not be derived from genetically modified organisms (GMOs) and shall be covered by chain-of-custody certificates issued under independent third-party certification schemes 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 under FSC, PEFC or equivalent independent third-party certification schemes.

Where a certification scheme permits the mixing of certified and/or recycled materials with uncertified materials in a product or production line, at least 35% of the wood, cork and/or bamboo shall consist of sustainably certified virgin material and/or recycled material.

Uncertified materials shall be covered by a verification system that confirms legal sourcing and compliance with all other requirements of the certification scheme relating to uncertified materials.

Certification bodies issuing forest management and/or chain-of-custody certificates shall be accredited or recognised by the relevant certification scheme.

**Assessment and Verification:** The applicant shall submit to the Ministry a declaration of compliance, supported by a valid and independently certified chain-of-custody certificate held by the manufacturer, covering all wood, wood-based, cork, cork-based, bamboo and bamboo-based materials used in the product or production line, and demonstrating that no virgin material is derived from GMOs.

The applicant shall provide audited accounting/traceability documentation demonstrating that at least 35% of the materials originate from forests or areas managed in accordance with the principles of Sustainable Forest Management and/or from recycled sources meeting the requirements of the relevant independent chain-of-custody system. Certifications issued by certification bodies accredited by TÜRKAK under the PEFC programme or an equivalent programme shall be accepted.

Where the product or production line contains uncertified material, evidence shall be provided demonstrating that the proportion of uncertified virgin material does not exceed 30% and that such material is covered by a verification system confirming legal sourcing and compliance with all other requirements of the certification scheme relating to uncertified materials.

### **CRITERION 3. General Requirements for Hazardous Substances and Mixtures**

The presence in the product and in any of its components of substances identified as substances of very high concern (SVHCs) in accordance with Article 47 of the KKDİK Regulation shall be restricted pursuant to Criterion 3(a).

The presence in the product and in any of its components of substances and mixtures meeting the classification criteria for the hazard classes listed in Table 3.1 under the Regulation on Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) shall be restricted pursuant to Criterion 3(b).

**Table 3.1** Grouping of restricted hazards

<b>Group 1 Hazards - SVHC and CLP</b>
Carcinogenic, mutagenic and/or toxic to reproduction (CMR) category 1A or 1B:
H340 May cause genetic defects.
H350 May cause cancer.
H350i May cause cancer by inhalation.
H360 May damage fertility or the unborn child.
H360F May damage fertility.
H360D May damage the unborn child.
H360FD May damage fertility. May damage the unborn child.
H360Fd May damage fertility. Suspected of damaging the unborn child.
H360Df May damage the unborn child. Suspected of damaging fertility.
<b>Group 2 Hazards - CLP</b>
Carcinogenicity, Mutagenicity or Reproductive Toxicity - Category 2

H341 Suspected of causing genetic defects. H351 Suspected of causing cancer. H361f Suspected of damaging fertility. H361d Suspected of damaging the unborn child. H361fd Suspected of damaging fertility. Suspected of damaging the unborn child. H362 May cause harm to breast-fed children.
Category 1 aquatic toxicity:
H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects.
Category 1 and 2 acute toxicity:
H300 Fatal if swallowed. H310 Fatal in contact with skin. H330 Fatal if inhaled.
Category 1 aspiration toxicity:
H304 May be fatal if swallowed and enters airways.
Category 1 specific target organ toxicity (STOT)
H370 Causes damage to organs. H372 Causes damage to organs through prolonged or repeated exposure.
Category 1 skin sensitizer
H317 May cause an allergic skin reaction.
<b>Group 3 Hazards CLP</b>
Category 2, 3 and 4 aquatic toxicity
H411 Toxic to aquatic life with long lasting effects. H412 Harmful to aquatic life with long lasting effects. H413 May cause long lasting harmful effects to aquatic life.
Category 3 acute toxicity
H301 Toxic if swallowed. H311 Toxic in contact with skin. H331 Toxic if inhaled. EUH070 Toxic by eye contact.
Category 2 STOT
H371 May cause damage to organs. H373 May cause damage to organs through prolonged or repeated exposure.

**Criterion 3(a). Restriction of SVHCs**

The product and any of its components (in each individual layer) shall not contain substances of very high concern (SVHCs) in concentrations greater than 0.10% by weight.

No derogation from this requirement shall be granted for SVHCs listed under Article 47 (“Candidate List of Substances”) of the KKDIK Regulation that are present in the product or in any of its components in concentrations greater than 0.1% by weight.

**Assessment and Verification:** The applicant shall provide declarations confirming that SVHCs are not present above the specified concentration limit in the product and in all components used in the product. The declarations shall also cover substances included in the Candidate List.

### **Criterion 3(b). Restrictions on Substances and Mixtures Classified under the CLP Regulation Used in the Product**

Substances or mixtures used by the manufacturer or its suppliers during raw material preparation, manufacturing, assembly or any other processing stage shall not be classified with any of the restricted hazard classes listed in Table 3.1 under the CLP Regulation. This restriction shall apply to all components/materials, including adhesives, paints, primers, varnishes, lacquers, resins, biocidal products, fillers, waxes, oils, jointing compounds, coatings, sealants, and decorative papers.

However, the use of such restricted substances or mixtures shall be permitted provided that at least one of the following conditions is fulfilled:

- The restricted substance or mixture is used in a quantity less than 0.1% by weight of the total weight of the product and of any of its components;
- The restricted substance undergoes a change in properties during processing (e.g. loses its bioavailability or undergoes a chemical reaction) such that the restricted CLP hazard classification no longer applies, and the amount of unreacted (non-transformed) substance remaining is less than 0.1% by weight of the total weight of the product and of any of its components.

**Assessment and Verification:** The applicant shall submit a declaration of compliance with Criterion 3(b), supported, where necessary, by declarations from suppliers. The declaration shall include a list of substances or mixtures used, information on their hazard classification or non-classification, their quantities, and, where applicable, an explanation as to whether their properties change during processing.

For each substance or mixture, the following information shall be provided in support of the declaration of hazard classification or non-classification:

- (i) CAS number (for mixtures, where available);
- (ii) Physical form of the substance or mixture at the stage of use;
- (iii) Hazard classifications in accordance with the CLP Regulation;
- (iv) Classification entries in the Chemical Registration System (KKS) under the KKDIK Regulation.

## **CRITERION 4. Specific Substance Requirements**

### **Criterion 4(a). Contaminants in Recycled Wood, Cork and Bamboo**

The level of contaminants presents in recycled wood, cork, bamboo and their fibers or chips used in the manufacture of the product shall be lower than the limit values specified in Table 4.1.

This criterion shall not apply where recycled wood, cork, bamboo or their fibers or chips are recovered under a “Non-Hazardous Waste Recovery License” issued by the Ministry.

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

Contaminants	Limit value	Contaminants	Limit value
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	Creosote oil (Benzo(a)pyrene)	0.5

**Assessment and Verification:** The applicant shall submit to the Ministry the following declarations:

- A declaration from the manufacturer or panel supplier (where applicable) stating that recycled wood, cork, bamboo or their fibers or chips are not used in the product; or
- Test reports from the manufacturer or panel supplier (where applicable), or from the hazardous waste recovery facility carrying out the recovery of recycled wood-based inputs, demonstrating that all recycled wood, cork, bamboo or their fibers or chips used comply with the limit values specified in Table 4.1;
- Where recycled wood, cork, bamboo or their fibers or chips are recovered under a “Non-Hazardous Waste Recovery License” issued by the Ministry, a declaration to this effect together with a copy of the relevant recovery license.

**Criterion 4(b). Biocidal Products**

The treatment of wood, cork and/or bamboo used in the product with biocidal products shall not be permitted.

The following active substances shall not be used above the specified concentrations for in-can preservation of water-based mixtures such as adhesives or lacquers/varnishes:

- 3:1 mixture of chloromethylisothiazolinone and methylisothiazolinone (CMIT/MIT, CAS No 55965-84-9), at concentrations above 15 ppm;
- Methylisothiazolinone (MIT), at concentrations above 200 ppm;
- Other isothiazolinones, at concentrations above 500 ppm.

**Assessment and Verification:** The applicant shall submit to the Ministry a declaration stating that no biocidal products have been used.

In addition, a declaration from the suppliers of water-based mixtures indicates which active substances are used as in-can preservatives and at which concentrations shall be provided, together with the relevant SDSs of the substances used.

#### **Criterion 4(c). Heavy Metals in Paints, Primers and Varnishes**

Any paint, primer or varnish used on wood, wood-based, cork, cork-based, bamboo or bamboo-based materials shall not contain cadmium, lead, chromium (VI), mercury, arsenic or selenium in concentrations exceeding 0.01% by weight for each metal in the formulation as supplied in the container.

**Assessment and Verification:** The applicant shall submit a declaration of compliance with this criterion together with the relevant SDSs obtained from the suppliers of the paints, primers and varnishes used.

#### **Criterion 4(d). VOC Content in Surface Treatments**

Surface treatment products used in the product shall comply with one of the following conditions:

- The total VOC content in the product as supplied in the container shall be  $\leq 5\%$  by weight; or
- The total VOC content may exceed 5% by weight, provided that it is demonstrated that less than 10 g/m<sup>2</sup> is applied per treated surface area.

This criterion refers to the VOC content of the surface treatment products in their wet (uncured) form. Where products require dilution prior to use, the calculation shall be based on the diluted product.

This criterion shall not apply to mixtures used for repair during the manufacturing process (e.g. knot repairs, cracks, dents, etc.).

**Assessment and Verification:** The applicant shall submit a declaration of compliance and the SDS for each surface treatment substance or mixture used on the product.

Where the SDS states that the total VOC content is  $\leq 5\%$  by weight, no additional verification shall be required.

If the VOC content is not specified in the SDS, it shall be calculated based on the list of substances in the surface treatment mixture. The concentration of each VOC component shall be expressed as % by weight.

Where the VOC content exceeds 5% by weight, the applicant shall calculate and submit, in accordance with the method set out in Annex 1, documentation demonstrating that the effective VOC application per treated surface area is below 10 g/m<sup>2</sup>.

#### **Criterion 4(e). VOC Content in Other Substances and Mixtures Used**

The VOC content of other substances and mixtures used in the manufacture of the product shall not exceed the following levels:

- 3% by weight in adhesives and resins as supplied in the container;

- 1% by weight in other substances, excluding adhesives, resins and surface treatment products covered under Criterion 4(d).

The free formaldehyde content in liquid aminoplast resins used in the manufacture of the product shall be below 0.2% by weight.

This criterion refers to the VOC content of substances and mixtures in their wet (uncured) form. Where dilution is required prior to use, the calculation shall be based on the diluted substance or mixture.

This criterion shall not apply to mixtures used for repair during the manufacturing process (e.g. knot repairs, cracks, dents, etc.).

**Assessment and Verification:** The applicant shall provide SDSs or equivalent documentation demonstrating compliance with this criterion for any adhesives, resins or other substances used as supplied in the container, together with a formulation indicating quantities and CAS numbers of the components.

Where the SDS indicates that the VOC content is below 3% by weight for adhesives and resins, or below 1% by weight for other substances, no additional verification shall be required.

If the VOC content is not specified in the SDS, it shall be calculated based on the substance list. The concentration of each VOC component shall be expressed as % by weight.

The applicant shall provide test reports demonstrating that the free formaldehyde content in liquid aminoplast resins is below 0.2% by weight in accordance with TS EN 1243.

#### **Criterion 4(f). Plasticizers**

No adhesive, resin or surface treatment substance or mixture shall contain phthalate plasticizers referred to in Article 47 of the KKDIK Regulation.

The absence of such phthalates shall be interpreted as the total content of the listed phthalates being less than 0.1% by weight (1 000 mg/kg) in the adhesive, resin or surface treatment substance/mixture.

**Assessment and Verification:** The applicant shall submit one of the following:

- A declaration of compliance from the supplier or manufacturer stating that phthalate plasticizers are not used; or
- A declaration stating that although plasticizers are used, no phthalates meeting the conditions of Article 47 of the KKDIK Regulation are present in the adhesive, resin or surface treatment substance/mixture.

In the absence of an appropriate declaration, the adhesive, resin or surface treatment substance/mixture shall be tested for the presence of the relevant phthalates in accordance with ISO 8214-6 or an equivalent appropriate test method.

#### **Criterion 4(g). Halogenated Organic Compounds**

The use of halogenated organic compounds in substances used in the manufacture of the product (e.g. binders, adhesives, coatings, etc.) shall not be permitted.

**Assessment and Verification:** The applicant shall submit a declaration from the substance manufacturer stating that halogenated organic compounds are not used, together with the relevant SDSs.

#### **Criterion 4(h). Flame Retardants**

Only inorganic ammonium phosphate compounds (e.g. diammonium phosphate, ammonium polyphosphate), minerals with dehydrating effects (e.g. aluminum hydroxide or similar), and expandable graphite may be used as flame retardants in the product.

Halogenated organic flame retardants (e.g. brominated, chlorinated or fluorinated organic compounds) and other flame retardants not specified above shall not be used.

**Assessment and Verification:** The applicant shall submit supplier declarations and up-to-date SDSs for all chemical substances and mixtures used in the manufacture of the product.

#### **Criterion 4(i). Aziridine and Polyaziridine**

Aziridine and polyaziridine shall not be present in substances used in the manufacture of the product.

**Assessment and Verification:** The applicant shall submit a declaration from the substance manufacturer confirming that aziridine and polyaziridine are not used, together with the relevant SDSs.

### **CRITERION 5. Energy Consumption in the Production Process of Floor Coverings**

The annual average energy consumption during the production of floor coverings shall be calculated in accordance with Table 5.1 and Annex 2 and shall exceed the following thresholds (E score).

<b>Product</b>	<b>E Score</b>
Solid wood floor coverings	>11
Multi-layer wood floor coverings	>8
Wood floor coverings	
Cork floor coverings and cork tile floor coverings	

Product	E Score
Bamboo floor coverings	
Laminate floor coverings	

**Table 5.1** Calculation of the E Score

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

- The numerator of A shall consist of:  
RES fuels (fuel quantity × standard calorific value) + heat produced on-site from non-fuel RES + 2.5 × electricity produced on-site from non-fuel RES + 2.5 × electricity purchased from RES.
- The denominator of A shall consist of:  
Purchased RES fuels (fuel quantity × standard calorific value) + purchased non-RES fuels (fuel quantity × standard calorific value) + heat produced on-site from non-fuel RES + 2.5 × electricity produced on-site from non-fuel RES + 2.5 × electricity purchased from RES + 2.5 × electricity purchased from non-RES sources.

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.

The E score shall be calculated per m<sup>2</sup> of floor covering produced and shall take into account only the direct energy consumed in the production of the floor covering. Indirect energy consumption shall not be included.

An indicative list of activities to be included in and excluded from the energy consumption calculations is provided below. The activities shall begin with the receipt of sawn logs (tree trunks), cork and bamboo at the facilities of the manufacturer or its suppliers and shall cover all stages up to 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 consumption (e.g. heating, lighting, internal transportation, etc.).</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>	
Cork and cork tile floor coverings and Bamboo floor coverings	<ul style="list-style-type: none"> <li>- drying, grinding and sawing</li> <li>- sizing and trimming</li> <li>- sanding</li> <li>- pressing</li> <li>- 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 purchased annually on average from an external supplier. Where RES electricity is purchased, Guarantees of Origin (RES-G certificates) in accordance with the Regulation on Renewable Energy Source Guarantee Certificates in the Electricity Market, published in the Official Gazette dated 14 November 2020 and numbered 31304, shall be provided. Where this Regulation does not apply in the country of production, equivalent proof shall be submitted;
- The type(s) and quantities of fuels used in the manufacture of the products, supported by contracts, invoices or equivalent documentation (including date, quantity

delivered/purchased and fuel characteristics such as physicochemical properties, Lower Heating Value (LHV), etc.). A declaration identifying which fuels qualify as RES under the relevant legislation shall be included;

- The amount of energy used in the manufacturing steps included in the E score calculation, supported by documentation (e.g. energy measurements at different manufacturing stages, equipment energy consumption declared in product data sheets, etc.), as well as the type and quantity of energy sold. Calculations shall include the type and quantity of fuel used (where applicable) to produce the sold energy, the date(s)/period(s) of energy generation and the dates of sale;
- A declaration of the annual average production volume (m<sup>3</sup> or m<sup>2</sup>) of the product subject to the Environmental Label application.

Documents used for reporting energy consumption, fuel purchases and energy production to competent authorities, as well as production documentation, may be used as evidence of compliance with this criterion.

## **CRITERION 6. Energy Consumption in the Production Process of Panels and Doors**

### **Criterion 6.1. Laminate Production**

Energy consumption in laminate production shall not exceed the following limit values.

<b>Panel type</b>	<b>Energy consumption (MJ/kg panel)</b>
Compact laminate (including HPL $\geq$ 2 mm)	8 MJ/kg
Other laminate types (including HPL $\leq$ 2 mm)	11 MJ/kg

**Assessment and Verification:** A detailed description of how the calculation shall be carried out is provided in Annex 3. The calculation shall demonstrate compliance with the requirements. The calculation shall include information on the number of panels produced, the amount of electricity and fuel consumed, and which fuel sources are used.

### **Criterion 6.2. Wood-based panels**

The energy consumption calculated for the production of these panels in accordance with the method described in detail in Annex 3 shall not exceed the limit values given in the table below.

Panel type	Energy consumption (MJ/kg panel)
Particleboard	6.5 MJ/kg
MDF and HDF	9 MJ/kg
Wood-based panels – wet process	13 MJ/kg
OSB	9 MJ/kg
Wood veneer panels	9 MJ/kg
Solid wood panels	5 MJ/kg

If a type of wood-based panel is laminated, the wood-based panel shall comply with the relevant limit value specified here, and the laminate shall comply with the laminate requirements in Criterion 6.1. Melamine-faced wood panels shall only comply with the relevant limit value specified here. Moldings made from the materials shown in the table are also covered by the limit values.

**Assessment and Verification:** A calculation demonstrating compliance with the requirements. The calculation shall include information on the number of panels produced, the amount of electricity and fuel consumed, and which fuel sources are used.

## CRITERION 7. Emissions from the Product

### Criterion 7(a). VOC and Formaldehyde Emissions

Emissions from the product (measured in a test chamber in accordance with TS EN 16516+A1) shall not exceed the emission values listed in Table 7.1.

The packaging and shipment of the samples submitted for testing, as well as the handling and conditioning of the samples, shall be carried out in accordance with the procedures defined in TS EN 16516+A1.

**Table 7.1** Emission Requirements

Product	Emission requirements	
	Compound	Limit value after 28 days in a ventilated test chamber (see CEN/TS 16516), mg/m <sup>3</sup> <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 floor coverings	Total VOC	<0,16

Laminate floorings		
All floor coverings	Total SVOC	<0,1
Solid wood floorings Multi-layer wood floorings Wood veneer floor covering	R-value for Lowest Concentrations of Inter- est (LCI) substances minus acetic acid (CAS 64-19-7)	≤1
Cork floor coverings Bamboo floor coverings	R-value for LCI substances	≤1
All floor coverings Laminate panels	Carcinogenic substances	<0,001
<b>Product</b>	<b>Compound</b>	<b>Formaldehyde emission limit value according to TS EN 717-1 after 28 days</b>
All wood-based panels	Formaldehyde	<0,124 mg/m <sup>3</sup>
<p>(<sup>d</sup>) The chamber test shall be carried out 28 days after completion of the surface treatment. Until that time, the product to be tested shall be stored at the production facility in its closed (CLPled) packaging and delivered to the test laboratory in that condition.</p>		

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-polysiloxane and 95 % methyl-polysiloxane.

**Assessment and Verification:** The applicant shall submit to the competent body a declaration of compliance supported by test reports from chamber tests carried out in accordance with TS EN 16516+A1 (or an equivalent method) and test reports carried out in accordance with TS EN 717-1 (or an equivalent method). These reports shall demonstrate compliance with the limits specified in Table 7.1.

The test reports shall include:

- The test method used,
- The test results and the necessary calculations demonstrating that the limits specified in Table 7.1 are met.

If, on day 3 after placing the sample in the chamber, or at any time between day 3 and day 27, the concentration limits defined for day 28 are met, the test may be terminated early.

Test results obtained no more than 12 months prior to the Environmental Label application shall be considered valid, provided that no changes have been made in the production process or in chemical formulations that could increase VOC emissions from the final product.

### **Criterion 7(b). COD Emissions**

This criterion applies to wet processes in the production of wood-based panels.

The Chemical Oxygen Demand (COD) emission to water from the wastewater treatment plant shall be lower than 20 g COD/kg panel, measured in unfiltered treated wastewater.

For panel production facilities discharging their wastewater to a central/common wastewater treatment plant (WWTP) via a sewer system:

- The wastewater discharged to the sewer shall comply with the relevant COD (or Total Organic Carbon (TOC)) discharge standard applicable to the sewer system;
- The effluent of the central/common WWTP discharging to the receiving environment shall comply with the COD (or TOC) discharge standard defined in the relevant legislation/permit.

**Assessment and Verification:** The applicant shall submit measurement results for the last six months and the relevant calculations.

Where wastewater from panel production facilities is treated in a central/common WWTP, it shall be sufficient for the applicant to provide documentation verifying that the discharged wastewater complies with the requirements of the “Regulation on Urban Wastewater Treatment” published in the Official Gazette dated 08.01.2006 and numbered 26047 or the “Water Pollution Control Regulation” published in the Official Gazette dated 31.12.2004 and numbered 25687. The submitted document shall not be older than six months from the date of application.

## **CRITERION 8. COD Emissions from Paper Production**

The COD emission to water from the production of paper used in wood-based panels shall be lower than the COD value specified in the table below.

<b>Pulp type</b>	<b>Total COD emission limit value for pulp and paper production (kg/ADt)</b>
Unbleached chemical pulp	14.0
Chemical thermomechanical pulp	19.0
Thermomechanical pulp	7.0
Recycled fibre pulp	4.0

The COD emission shall be calculated as the sum of COD emissions from the pulp and paper production stages:

$\text{COD emission (kg/ADt)} = \text{Pulp (paper pulp) COD emission (kg/ADt)} + \text{Paper machine COD emission (kg/ADt)}$ . (ADt: Air-dry tonne)

For paper produced from mixtures of different pulp types, the COD emission value obtained from the manufacturer shall be compared with a weighted COD emission limit value calculated according to the proportions of the pulp types used in the production of the paper.

**Assessment and Verification:** The applicant shall submit a declaration from the paper supplier stating the COD emission value from paper production and, where the paper is produced from a mixture of different pulp types, the proportions of the pulp types used.

Where the paper is eco-labelled under the Environmental Label or any Type I ecolabel, this criterion shall be considered fulfilled.

## CRITERION 9. Emissions to Air from Production – Working Environment

In the working environment of the production facilities for wood-, cork- and bamboo-based floor coverings and wood-based panel products, the following limit values shall be complied with:

- **8-hour time-weighted average limit values:**
  - Formaldehyde: maximum 0.55 ppm
  - Phenol: maximum 3.5 ppm
- **15-minute short-term exposure limit values:**
  - Formaldehyde: maximum 1.5 ppm

**Assessment and Verification:** The applicant shall submit test reports demonstrating compliance with the requirement. The report shall include information on the measurements carried out, sampling programmes, measurement methods used and the measurement frequency.

## CRITERION 10. Fitness for Use

The products shall fulfil the fitness-for-use requirements defined for their relevant specific type. The products shall be tested and classified in accordance with the most recent versions of the standards and indicators listed in Table 10.1 and shall meet the required limits.

**Table 10.1** Standards for Testing and Classification of Products

Product	Test Method	Classification
Wood veneer floor coverings <sup>(1)</sup>	<ul style="list-style-type: none"> <li>- TS EN 1534 Indentation resistance</li> <li>- TS EN 13329 Thickness swelling (increase in thickness after exposure to water)</li> <li>- Appropriate test method for impact resistance<sup>(2)</sup></li> <li>- Appropriate test method for abrasion resistance<sup>(2)</sup></li> <li>- TS ISO 24334 Locking strength</li> </ul>	TS EN ISO 10874 <sup>(a)</sup>

Product	Test Method	Classification
Factory-varnished solid and multi-layer wood floor coverings	<ul style="list-style-type: none"> <li>- Wear layer thickness</li> <li>- Wood hardness of the surface layer <sup>(b)</sup></li> </ul>	TS EN ISO 10874 <sup>(b)</sup> CTBA
Factory-oiled, unfinished solid wood flooring and unfinished multi-layer wood flooring		
Cork tile floor coverings	- TS EN 12104	TS EN ISO 10874
Cork floor coverings	<ul style="list-style-type: none"> <li>- EN 660-1 for wear group</li> <li>- TS EN ISO 4918 for castor chair test</li> <li>- TS EN ISO 4918 for simulated movement of furniture leg test</li> <li>- TS EN ISO 24343-1 Residual indentation</li> </ul>	
Bamboo floor coverings	<ul style="list-style-type: none"> <li>- TS EN 1534 for indentation resistance</li> <li>- TS EN 13696 for wear layer thickness</li> </ul>	-
Laminate floor coverings	- TS EN 13329	TS EN ISO 10874
Panels	<ul style="list-style-type: none"> <li>- TSE K 517 (Panels obtained by covering MDF and particleboards with foil)</li> <li>- TS EN 312 (Particleboards)</li> <li>- TS EN 14322 (Wood-based panels – Melamine-faced boards for interior uses)</li> <li>- TS EN 14351-2 (Interior doors)</li> </ul>	-
<p><sup>(1)</sup> A wood veneer floor covering is a rigid floor covering consisting of a substrate made of a wood-based panel, a top wood veneer layer and, where applicable, a backing layer.</p> <p><sup>(2)</sup> Measurements and calculations for compliance shall be performed using reliable, accurate and reproducible methods taking into account generally accepted current measurement and calculation methods, including harmonised standards where published. These methods shall comply with the technical definitions, conditions and parameters defined in the Criteria User Manual.</p> <p><sup>(a)</sup> The test method used to measure abrasion resistance and, where applicable, the wear layer thickness shall be declared.</p> <p><sup>(b)</sup> Classification of wood species according to hardness and the relationship between use classes in TS EN ISO 10874, wear layer thickness and wood species can be found in CTBA Revetments intérieurs Parquet 71.01.</p>		

Floor coverings shall meet at least the following requirements:

Floor coverings	Limits
Wood veneer floor coverings	- The level of use of class 23 for floorings intended for private use

Floor coverings	Limits
	- The level of use of class 32 for floorings intended for commercial use.
Factory-varnished solid and multi-layer wood floor coverings	- The level of use of class 23 for floorings intended for private use and for commercial use
Factory-oiled, unfinished solid wood flooring and unfinished multi-layer 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% relative humidity - Resistance to indentation: <ul style="list-style-type: none"> <li>• <math>\geq 4</math> kg/mm<sup>2</sup> for plain and side pressed floor coverings</li> <li>• <math>\geq 9.5</math> kg/mm<sup>2</sup> for high density floor coverings</li> </ul>
Laminate floor coverings	- 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 submit a declaration of compliance with this criterion to the Ministry. The declaration shall be supported by test reports including:

- The product type,
- The applied test method(s),
- The test results and, where applicable, the classification of the product according to the relevant standard.

Where the product has been tested according to a test method different from those specified above, it may be accepted provided that the competent body considers the methods to be comparable.

## **CRITERION 9. Reparability and Extended Guarantee**

This criterion applies only to wood-, cork- and bamboo-based floor covering products.

### **Criterion 11(a). Repairability**

Information on repair shall be made available to users and installers in consumer instructions or on the manufacturer's website.

- The floor covering product shall be suitable for repair and replacement;

- User instructions shall be made available together with the product or on the manufacturer’s website, accessible to users and installers.

**Design for repair and repair documentation:** Floor coverings installed without adhesive shall be designed for disassembly to facilitate repair, reuse and recycling. Simple and illustrated instructions for removing and replacing damaged elements shall be provided. Removal and replacement shall be possible using common and basic hand tools. Information or recommendations regarding the availability of spare floor covering elements shall be provided in case of potential repair needs.

**Assessment and Verification:** The applicant shall submit a copy of the “design for repair and repair documentation” or equivalent material.

**Criterion 11(b). Extended Product guarantee**

The applicant shall provide an extended warranty valid for at least five years from the date of delivery of the product, without additional charge.

**Assessment and Verification:** The applicant shall submit a copy of the warranty document.

**CRITERION 12. Maintenance of Environmental Label Use Authorization**

This criterion applies only to wood-based panel products.

During the validity period of the Environmental Label use authorization, the following requirement shall be fulfilled to ensure that quality assurance is properly managed:

- Customer Complaints: An archive shall be maintained regarding customer complaints relating to the product holding the Environmental Label use authorization.

**Assessment and Verification:** The applicant shall submit the company procedure for handling and achieving customer complaints.

**CRITERION 13. Consumer Information**

This criterion applies only to wood-, cork- and bamboo-based floor covering products.

The product shall be placed on the market with the relevant consumer information on the packaging or in accompanying documentation. Instructions shall be legible, easily understandable and, where necessary, supported by graphical representations or symbols.

- Product identification and material information
  - Clear indication of the subgroup to which the product belongs (solid or multi-layer wood floor covering, cork floor covering, cork tile floor covering, bamboo floor covering, laminate floor covering, etc.);
  - Percentage by weight of wood, cork or bamboo material in the final product;

- Information on whether additional surface treatment is required during installation by the user.
- Installation instructions
  - Floating installation shall be recommended where possible, with guidance on subfloor preparation and required auxiliary materials;
  - Where adhesive installation is recommended to ensure longer service life, the use of a low-emission adhesive shall be recommended.
- Surface treatment (for coated or uncoated surfaces)
  - Type (e.g. oil or varnish/lacquer) and quantity of coating products required to achieve the intended durability;
  - Recommendations for low-emission coating products;
  - Information on extending the service life of the product (e.g. sanding and surface treatment).
- Use, cleaning and maintenance information
  - Instructions for daily/routine cleaning shall be provided and, where possible, reference shall be made to Environmental Labelled cleaning products;
  - Maintenance instructions (including maintenance products, refurbishment processes or intensive cleaning products) shall be clearly stated;
  - A clear statement regarding the areas of use of the floor covering shall be provided.

**Assessment and Verification:** The applicant shall submit a declaration of compliance with this criterion supported by a copy of the consumer information document to be provided with the product.

#### **CRITERION 14. Information appearing on the Environmental Label**

The Environmental Label shall appear on the product label with dimensions of 10 × 10 cm. Below the label, the certificate number shall be indicated in 12-point font together with the following statement:

“The use of the Environmental Label for this product has been approved by the Ministry of Environment, Urbanisation and Climate Change in accordance with the Environmental Label Regulation published in the Official Gazette dated 19.10.2018 and numbered 30570, due to its environmental performance.”

If approved during the application process, the following statements may appear on the label:

- Product obtained from sustainably managed forests.
- Lower energy consumption in manufacturing.
- Low-emission product.

***Assessment and Verification:*** The applicant shall submit, together with the declaration of compliance, a sample of the product packaging showing the label.

## ANNEX-1

### GUIDANCE FOR THE CALCULATION OF THE APPLIED VOC AMOUNT

The requirement concerns the total VOC content in surface treatment products in their wet form chemical composition. Where dilution of the products is required, the calculation shall be based on the content of the diluted product. This method is based on the application method calculating the amount applied per m<sup>2</sup>. It determines the organic solvent content as a percentage (%) according to the applied surface treatment amount.

The applied VOC amount shall be calculated using the following formula:

$$\sum_{n=1}^i \text{Surface Treatment Product Amount} \times \%VOC \times \text{Surface Treatment Efficiency}$$

The formula consists of the following elements:

- **Surface treatment product amount:** For each coating applied, the amount of surface treatment supplied to the system shall be reported in g/m<sup>2</sup>.
- **VOC content in surface treatment products:** The concentration shall be expressed as percentage (%) by weight.
- **Surface treatment efficiency:** This depends on the application method. Efficiency values are provided in Table Annex-1.1 according to current practices in the surface treatment industry.
- **Summation:** The total of all applied coatings shall be taken.

**Table Annex-1.1** Surface Treatment Efficiency

Surface Treatment	Efficiency (%)	Surface Treatment	Efficiency (%)
Automatic spraying, non-recycling	50	Roller coating	95
Automatic spraying, recycling	70	Curtain coating	95
Electrostatic spraying	65	Vacuum coating	95
Bell/disk spraying	80		

## ANNEX-2

### GUIDANCE FOR THE CALCULATION OF ENERGY CONSUMPTION IN THE PRODUCTION PROCESS OF FLOOR COVERINGS

Energy consumption per floor covering (m<sup>2</sup>) shall be calculated as the annual arithmetic average of the last three years. If the company does not possess these data, the Ministry shall assess which data are sufficient.

If the manufacturer has a surplus of energy sold as electricity, steam or heat, the amount sold may be deducted from the fuel consumption. Only the fuel actually consumed in the production of the floor covering shall be included in the calculation.

Energy consumption shall be reported in kWh/m<sup>2</sup>; however, calculations may also be carried out in MJ/m<sup>2</sup> (1 kWh = 3.6 MJ).

The energy content of fuels shall be calculated based on Table Annex-2.1. Where electricity is generated on-site, one of the following methods may be used to calculate fuel consumption:

- Actual annual fuel consumption;
- If the source is renewable and non-combustible, multiplying the electricity consumption generated on-site by 2.5.

Energy consumption values shall be calculated using standard fuel values. The energy contents of various fuels are given in Table Annex-2.1.

**Table Annex-2.1** Standard fuel values <sup>(1)</sup>

Fuel	MJ/kg	Fuel	MJ/kg
Gasoline	44.0	Pellets (7%)	16.8
Diesel	—	Peat	7.8–13.8
LPG	45.2	Hard coal	28.5
Fuel oil Eo1	42.3	Natural gas	47.2
Fuel oil Eo5	44.0	Sawdust/wood chips (25%)	13.8
GJ/ton = MJ/kg			
<p><sup>(1)</sup> The values are specified in Annex IV of Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC (OJ L 315, 14.11.2012, p. 1).</p> <p>(% W) expresses the percentage by weight of water in the fuel and is indicated by the letter f in the formula below. Unless otherwise specified, f = 0% W shall be assumed and ash content shall be averaged.</p>			

The formula for calculating the energy content of wood chips depends on the moisture content. Energy is required to evaporate the water in wood; this energy reduces the calorific value of wood chips. The energy content shall be calculated as follows:

$$\text{Sawdust/wood chips} = 19.0 \left( \frac{\text{MJ}}{\text{kg}} \right) - 21.442 \times \frac{f}{100}$$

The coefficient 21.442 represents the sum of the latent heat of evaporation of water (2.442 MJ/kg) and the energy content of dry wood (19.0 MJ/kg). Where the applicant has laboratory analyses of the calorific value of a fuel, the competent bodies may consider the use of that calorific value in calculating the energy content.

## ANNEX-3

### GUIDANCE FOR THE CALCULATION OF ENERGY CONSUMPTION IN THE PRODUCTION PROCESSES OF PANELS AND DOORS

- Energy consumption shall be calculated as an annual average for the entire operation related only to panels and interior doors.
- Energy consumption shall be calculated in MJ/kg per panel/product produced and shall cover all energy use gate-to-gate at the panel production facility. Where pulp/paper and laminate production account for more than 5% by mass of the panel/product, a separate energy consumption calculation shall also be carried out for pulp/paper and laminate production.
- Processes to be included in the calculation: chipping/crushing, refining, drying, mixing (including the production of all types of adhesives), forming, pressing, any lamination of the panel, cooling, trimming, sanding, surface treatments and packaging.
- Where chemical products (e.g. adhesives) are produced, the energy calculation shall be based on production data. The energy content of the raw materials shall not be included in the calculation. In exceptional cases, a standard value of 15 MJ/kg may be used for the adhesive solution prepared for use; this value shall be divided as 12 MJ/kg fuel and 3 MJ/kg electricity purchased from an external supplier (in a 4:1 ratio).
  - Example of a calculation using the standard value for adhesives:  
If a panel contains 12% adhesive in the solution prepared for use, this corresponds to 0.12 kg adhesive solution per kg panel. Applying the standard value in the energy calculation gives:
    - $0.12 \text{ kg adhesive/kg panel} \times 15 \text{ MJ/kg adhesive} = 1.8 \text{ MJ/kg panel}$ .
- Energy consumption in laminate panel production shall include resin/adhesive production, paper processing (resin impregnation/drying), stacking of paper/laminate, pressing, heating, cooling, trimming, sanding and packaging.
- The calculation shall include the actual energy (electricity and heat) effectively consumed in production, without using primary energy factors. Energy generated on-site and surplus energy sold externally shall be reported but shall not be counted as consumed energy in the calculation.
- System boundary for the requirement: Energy used for the extraction of raw materials and for the transport of raw materials to the sawmill/panel production facility shall not be included in the calculation.

## ANNEX-4

### LIST OF STANDARDS AND OTHER TECHNICAL SPECIFICATIONS

Standard	Title
<b>Zemin kaplama tanımları</b>	
TS EN 12466	Resilient floor coverings – Vocabulary
TS EN 13329	Laminate floor coverings – Specifications, requirements and test methods
TS EN ISO 14021	Environmental labels and declarations – Self-declared environmental claims (Type II environmental labelling)
<b>Volatile organic compound (VOC) emissions</b>	
TS EN 16516+A1	Construction products – Assessment of release of dangerous substances – Determination of emissions into indoor air
TS EN 717-1	Wood-based panels – Determination of formaldehyde release – Part 1: Formaldehyde emission by the chamber method
EMICODE	<a href="https://www.emicode.com/en/limit-values/">https://www.emicode.com/en/limit-values/</a>
<b>Raw materials</b>	
EPF	EPF Standard for delivery conditions of recycled wood – <a href="https://europanel.org/upload/EPF-Standard-for-recycled-wood-use.pdf">https://europanel.org/upload/EPF-Standard-for-recycled-wood-use.pdf</a>
TS EN 1243	Adhesives – Determination of free formaldehyde in amino and amidoformaldehyde condensates
ISO 8124-6:2023	Part 6: Certain phthalate esters
<b>Fitness for use</b>	
TS EN ISO 4918	Resilient, textile and laminate floor coverings – Determination of the effect of a castor chair
EN 660-1	Resilient floor coverings – Determination of wear resistance – Stuttgart test
EN 685	Resilient, textile and laminate floor coverings – Classification
TS EN 1534	Wood flooring – Determination of resistance to indentation – Test method
TS EN ISO 10874	Resilient floor coverings – Textile and laminate – Classification
TS EN 12104	Resilient floor coverings – Cork floor tiles – Specifications
TS EN 13696	Wood flooring – Test methods for the determination of elasticity, wear resistance and impact resistance
TS EN ISO 24343-1	Resilient and laminate floor coverings – Determination of indentation and residual indentation – Part 1: Residual