Nordic Ecolabelling for

# Panels and mouldings for interior use

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Nordic Ecolabelling

# Content

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# Contact information

In 1989, the Nordic Council of Ministers decided to introduce a voluntary official ecolabel, the Nordic Swan Ecolabel. These organisations/companies operate the Nordic Ecolabelling system on behalf of their own country's government. For more information, see the websites:

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# What is a Nordic Swan Ecolabelled panel and moulding for interior use?

Nordic Swan Ecolabel panels and mouldings for interior use have a reduced environmental and climate impact throughout their lifecycle – and meet strict requirements for recycled materials, chemicals, and quality, promoting circular economy.

Nordic Swan Ecolabel panels and mouldings fulfil all requirements for materials in Nordic Ecolabelling criteria for buildings, renovations, floors, as well as furniture and fitments.

Nordic Swan Ecolabelled panels and mouldings for interior use:

- Are made of a high proportion of renewable and/or recycled materials*.
- Wood-based panels consist of wood that is legally harvested under a traceability system. At least 70% of the wood is sourced from certified forestry.
- Meet strict requirements for chemicals used in production and for surface treatment. This means, for example, that antibacterial substances and halogenated flame retardants cannot be added.
- Meet strict requirements for emissions of formaldehyde and organic solvents. This is positive for the indoor environment.
- Have reduced climate impact which is achieved by meeting strict requirements for energy consumption.
- Are of good quality and comply with harmonised standards.

* *Except for cement-based panels.*

# Why choose the Nordic Swan Ecolabel?

- Panels and mouldings for interior use may use the Nordic Swan Ecolabel trademark for marketing. The Nordic Swan Ecolabel is a very well-known and well-reputed trademark in the Nordic region.
- The Nordic Swan Ecolabel is a simple way of communicating environmental focus and commitment to customers.
- The Nordic Swan Ecolabel clarifies the most important environmental impacts and thus shows how a company can cut emissions, resource consumption and waste management.
- Environmentally suitable operations prepare panels and mouldings for interior use for future environmental legislation.

- Nordic Ecolabelling provides businesses with guidance on the work of environmental improvements.

- The Nordic Swan Ecolabel not only covers environmental issues but also quality requirements, since the environment and quality often go hand in hand. This means that a Nordic Swan Ecolabel licence can also be seen as a mark of quality.

# What can carry the Nordic Swan Ecolabel?

Products that may be ecolabelled in this product group must be intended for indoor use. Panels can have different applications such as walls, subfloors, ceilings, as well as being used in the production of furniture and interior design. Panels designed for wet room such as bathrooms is also part of the criteria. The products must fall into one of the categories below:

1. Panels made from renewable raw materials according to EN 13986, classes 1 and 2.

2. Melamine faced boards according to EN 14322

3. Laminate such as HPL (High Pressure Laminate) or compact laminate according to the EN 438 series.

4. Panels and mouldings, either of solid wood or consisting of the panel types indicated in any of the other points.

5. CLT (cross laminated timber) according to EN 16351

6. Glulam (glued laminated timber) according to EN 14080

7. Composite construction panels/boards*

8. Gypsum plasterboard according to EN 520

9. Cement-based panels according to EN 12467

10. Acoustic ceiling- and wall panels** for which the main function is acoustic insulation.

A maximum of 10% by weight of the panel or moulding may consist of materials that are not required by the criteria. This allows panels to contain a limited amount of materials for which there are no requirements.

* *Panels consisting of the same composite material or panels consisting of different types of materials glued together.*

** *Panels either part of the wall or ceiling construction or which is mounted directly on walls or ceilings.*

The product group does not include the following products:

- Panels and moulding for outdoor use e.g., façade and cladding. Panels and cladding for exterior use can be labelled according to criteria for 114 Exterior panels and cladding*.
- Panels where the main function is insulation against heat or cold loss.
- Hard covering products such as panels, boards, tiles, clinker made of natural stone, agglomerated stone, ceramic, or precast concrete/cement.
- Acoustic panels which can be installed directly on an office desk or between office desks (partitions) can be labelled according to the criteria for Nordic Ecolabelling for Furniture and fitments*.
- Prefabricated shower walls and partitions walls between showers and toilets can be labelled according to the criteria for Nordic Ecolabelling for Furniture and fitments*.
- Fully prefabricated wall elements e.g., wall systems complete with structural framing, water/air/vapor barrier(s), insulation, and interior/exterior panels.
- Flooring. This can be labelled according to the criteria for Nordic Ecolabelling of Floor coverings*.
- Kitchen and bathroom worktops. These can be labelled according to the criteria for Nordic Ecolabelling for Furniture and fitments*.

* See https://www.nordic-ecolabel.org/product-groups

If there is a desire for ecolabelling other types of panels than those covered by the product group definition, an assessment may be made as to whether these can also be included. Nordic Ecolabelling will determine which new products may be included in the product group.

Nordic Ecolabelling determines whether a product can be Nordic Swan Ecolabelled, and under which criteria a product can apply for a licence.

# How to apply

### Application and costs

For information about the application process and fees for this product group, please refer to the respective national web site. For contact information see first in the document.

### What is required?

The application consists of an application form/web form and documentation showing that the requirements are fulfilled.

Each requirement is marked with the letter O (obligatory requirement) and a number. All requirements must be fulfilled to be awarded a licence.

The text describes how the applicant shall demonstrate fulfilment of each requirement. There are also icons in the text to make this clearer. These icons are:

✉ Enclose

Upload

State data in electronic application

Requirement checked on site

All information submitted to Nordic Ecolabelling is treated confidentially. Suppliers can send documentation directly to Nordic Ecolabelling, and this will also be treated confidentially.

### Licence validity

The Nordic Swan Ecolabel licence is valid providing the criteria are fulfilled and until the criteria expire. The validity period of the criteria may be extended or adjusted, in which case the licence is automatically extended, and the licensee informed.

Revised criteria shall be published at least one year prior to the expiry of the present criteria. The licensee is then offered the opportunity to renew their licence.

### On-site inspection

In connection with handling of the application, Nordic Ecolabelling normally performs on-site inspection visit to ensure adherence to the requirements. For such an inspection, data used for calculations, original copies of submitted certificates, test records, purchase statistics, and similar documents that support the application must be available for examination.

### Queries

Please contact Nordic Ecolabelling if you have any queries or require further information. See first in this document for contact information. Further information and assistance (such as calculation sheets or electronic application help) is available. Visit the relevant national website for further information.

## 1.1 Terms and definitions

The first time a term is used in the document, it is written in **bold font** or with a reference to this definition list.

| Words/Terms | Definitions |
|---|---|
| ADt | ADt is dry, solid content of pulp and paper. ADt for pulp is 90%, while ADt for paper means a solid content of 94%. |
| CITES | Convention on International Trade in Endangered Species of Wild Fauna and Flora.<br>CITES is an international convention for the control of trade (across borders) in wild fauna and flora at risk of extinction. |
| CoC | Chain of Custody – certification that ensures traceability in the supply chain. |
| COD | Chemical oxygen demand. A measure of how much oxygen is used during chemical degradation of organic matter. |
| Decor paper | Decor papers enable surface upgrades for wood-based substrates for use in the production of furniture, laminate flooring, and other interior and exterior design panels. |
| Dry conditions (Service Class 1) | Conditions corresponding to Service Class 1 of EN 1995-1-1 (Eurocode 5) which are characterised by a moisture content in the material corresponding to a temperature of 20ºC and a relative humidity in the surrounding air only exceeding 65% for a few weeks per year. |
| EPD | A product specific EPD according to the standard ISO 14025 and EN 15804 is a third-party verified document based on product category rules (PCR) and life cycle assessment (LCA). |
| FDG gypsum | FDG gypsum means gypsum from flue gas desulphurisation. DSG gypsum DeSulphoGymsum. |
| Fibre-cement flat sheets | Defined in EN 12467 |
| FSC | Forest Stewardship Council<br>Certification scheme for forestry and traceability in the supply chain. |
| Gypsum plasterboard | Gypsum plasterboard means a gypsum-based core material sold in the form of sheets for the purpose of finishing the interior surfaces of walls, celling, or floor prior to the application of paint, wallpaper, or other coating. Gypsum plasterboard's purpose can also be acoustic. It includes paper-faced, water-resistant, noise-resistant, and fire-resistant and fibre reinforced gypsum board. |
| Humid conditions (Service Class 2) | Conditions corresponding to Service Class 2 of EN 1995-1-1 (Eurocode 5) which are characterised by a moisture content in the material corresponding to a temperature of 20ºC and a relative humidity in the surrounding air only exceeding 85% for a few weeks per year. |
| IFL | Intact Forest Landscape<br>Continuous propagation of natural ecosystems within the zone with current forest spread, showing no sign of significant human activity. The area is large enough to maintain all-natural biodiversity, including viable populations of widespread species. |
| Ingoing substances and impurities | **Ingoing substances:**<br>All substances in the chemical product regardless of amount, including additives (e.g., preservatives and stabilisers) from the raw materials. Substances known to be released from ingoing substances (e.g., formaldehyde, arylamine, in situ-generated preservatives) are also regarded as ingoing substances.<br>**Impurities:**<br>Residues from production, incl. raw material production, which remain in the chemical product at concentrations below 1000 ppm (0.1000% by weight).<br>Examples of impurities are residues of reagents incl. residues of monomers, catalysts, by-products, scavengers (i.e., chemicals that are used to eliminate/minimise undesirable substances), detergents for production equipment and carry-over from other or previous production lines. |
| IUCN | International Union for Conservation of Nature<br>IUCN's Red List is the world's most comprehensive overview of the global conservation status of the planet's species, including trees. |
| Laminate | Laminate means a process in which paper is used in the product, e.g., melamine, HPL or compact laminate. |
| Lignocellulose raw materials | Lignocellulose refers to plant dry matter (biomass), so called lignocellulosic biomass such as straw, hemp, linen, and bagasse |
| Mineral wool | Insulation wool manufactured from molten rock, slag, or glass |
| Nanomaterial | 'Nanomaterial' means a natural, incidental or manufactured material consisting of solid particles that are present, either on their own or as identifiable constituent particles in aggregates or agglomerates, and where |

| | |
|---|---|
| | 50% or more of these particles in the number-based size distribution fulfil at least one of the following conditions:<br>(a) one or more external dimensions of the particle are in the size range 1 nm to 100 nm;<br>(b) the particle has an elongated shape, such as a rod, fibre or tube, where two external dimensions are smaller than 1 nm and the other dimension is larger than 100 nm;<br>(c) the particle has a plate-like shape, where one external dimension is smaller than 1 nm and the other dimensions are larger than 100 nm. |
| PEFC | Programme for the Endorsement of Forest Certification<br>Certification scheme for forestry and traceability in the supply chain |
| VOC | Organic compounds with a steam pressure exceeding 0.01kPa, at 20°C.<br>For products under EU Directive (2004/42/EC) in which steam pressure is not indicated: Organic substances with an initial boiling point that is lower than or equal to 250°C measured at a normal pressure of 101.3 kPa |
| Recycled materials | Recycled materials are defined according to ISO 14021 in the following two categories:<br>”Pre-consumer/commercial” is defined as material diverted from the waste stream during a manufacturing process.<br>”Post-consumer/commercial” is defined as material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose. This includes returns of material from the distribution chain.<br>Materials that are approved as input in FSC Recycled and which are covered by the term Reclaimed in FSC are regarded as recycled material. |
| Self-generated energy | Self-generated energy refers to energy (electricity and heat) not purchased from an external supplier. For example, if the panel production has an energy surplus that is sold as electricity, steam or heat, the sold amount can be deducted from the energy consumption. Internally produced fuel sources and residual products are not regarded as self-generated energy. |
| Wood based panels | *Example of wood-based panels according to EN 13986:*<br>*Particleboard*<br>*MDF (Medium Density Fibreboard)*<br>*HDF (High Density Fibreboard)*<br>*MFB (Melamine Faced Board)*<br>*Plywood*<br>*OSB (Oriented Stranded Board)*<br>*Flaxboard*<br>*LVL (Laminated Veneer Lumber), structural LVL is CE marked according to EN 14374*<br>*SWP (Solid Wood Panel),*<br>*Cement bonded particleboard* |
| Wood wool acoustic panels | Defined in EN 13168 |

## 1.2 Overview of the requirements

The criteria are mainly divided into requirement areas where some of the requirements apply to all panel types, while others only apply to certain panel types. The table below provides an overview of the requirements that must be met for the different panel types.

| Requirement area | Requirement/Material | Requirement | Responsibility for documentation |
|---|---|---|---|
| Description of product and production process | General requirements | O1 | Product manufacturer |
| **Quality** | | | |
| Product requirements | Quality and properties | O2 | Product manufacturer |
| Acoustic panels | Acoustic performance | O3 | Product manufacturer |

| | | | |
|---|---|---|---|
| **Raw materials** | | | |
| Wood raw material | Wood, cork and bamboo | O4<br>O5 | Product manufacturer/Subcontractor<br>Product manufacturer |
| | Recycled wood raw material | O6 | Product manufacturer/Subcontractor |
| Lignocellulose raw materials | Lignocellulose raw materials | O7 | Product manufacturer/Subcontractor |
| Paper | Ecolabelled paper | O8 | Product manufacturer |
| | Raw materials, chemicals, and emissions in manufacturing of pulp and paper | O9-O12 | Manufacture Product manufacturer of pulp and paper |
| Textile/fabric | Ecolabelled textile | O13 | Product manufacturer |
| | Fibres in textiles | O14-O16 | Product manager/supplier of textile/fibres |
| Plastic | Recycled plastic raw materials | O17-O20 | Product manager/supplier of recycled plastics |
| Recycled composite | Recycled composite | O21-O23 | Product manufacturer |
| Mineral raw materials | Responsible sourcing | O24 | Product manufacturer |
| | Heavy metals | O25 | Supplier of mineral raw materials |
| Gypsum | Raw materials | O26 | Product manufacturer |
| Mineral wool | Mineral wool raw materials | O27 | Product manufacturer |
| | Mineral wool raw materials | O28 | Manufacture of mineral wool |
| Metal | Aluminium | O29 | Supplier of aluminium |
| **Chemicals** | | | |
| Chemicals in production | Classification of chemical products | O30 | Manufacturer/supplier of chemical product |
| | Classification of ingoing substances | O31 | Manufacturer/supplier of chemical product |
| | Prohibited substances | O32 | Manufacturer/supplier of chemical product |
| | Antibacterial substances | O33 | Product manufacturer and manufacturer/supplier of chemical product |
| | Nanomaterials | O34 | Manufacturer/supplier of chemical product |
| | Preservatives | O35 | Manufacturer/supplier of chemical product |
| | VOCs in adhesives | O36 | Manufacturer/supplier of chemical product |
| | Free formaldehyde | O37 | Manufacturer/supplier of chemical product |
| Chemicals – surface treatment | Plastic foiling | O38 | Product manufacturer |
| | Classification of chemical products | O39 | Manufacturer/supplier of chemical product |
| | UV curing surface treatment system | O40 | Supplier/performer of surface treatment |
| | Classification of ingoing substances | O41 | Manufacturer/supplier of chemical product |
| | Prohibited substances | O42 | Manufacturer/supplier of chemical product |
| | Antibacterial substances | O43 | Product manufacturer and manufacturer/supplier of chemical product |
| | Nanomaterials | O44 | Manufacturer/supplier of chemical product |
| | Preservatives | O45 | Manufacturer/supplier of chemical product |

| | | | |
|---|---|---|---|
| | Free formaldehyde | O46 | Manufacturer/supplier of chemical product |
| | Application method and quantity applied – surface treatment | O47 | Supplier/performer of surface treatment |
| | Volatile organic compounds (VOC) | O48 | Supplier/performer of surface treatment |
| **Emissions** | | | |
| Emissions from product | Formaldehyde and VOC emissions | O49 | Product manufacturer |
| Emissions from production – COD | Emissions of COD from wet processes | O50 | Product manufacturer |
| Emissions from production – working environment | Emissions to air from production – HPL and compact laminate | O51 | Laminate manufacturer |
| | Emissions of dust | O52 | Product manufacturer |
| **Climate and energy** | | | |
| Pulp and paper | Pulp and paper production included in HPL and compact laminate | O53 | Manufacturer of pulp and paper |
| Laminate | Laminate | O54 | Laminate manufacturer |
| Wood-based panels | Wood-based panels | O55 | Panel manufacturer and wood suppliers (drying process) |
| Panels from lignocellulose raw materials | Panels – other lignocellulose raw materials | O56 | Product manufacturer |
| CLT and glulam | CLT and Glulam | O57 | Product manufacturer and wood suppliers (drying process) |
| Solid wood panels and mouldings | Solid wood | O58 | Product manufacturer and wood suppliers (drying process) |
| Recycled composite | Panels made from recycled composite | 059 | Product manufacturer |
| Gypsum plaster boards | Gypsum plaster boards | 060 | Product manufacturer |
| Mineral wool | Stone- and glass wool | O61 | Manufacturer of mineral wool |
| Mineral wood-based panels | Mineral wood-based panels - acoustic panels | O62 | Product manufacturer |
| Cement | Cement | O63 | Manufacturer of cement |
| Cement-based panels | Cement-based panels | O64 | Product manufacturer |
| Panels made of other materials | Panels made of other materials | O65 | Product manufacturer |
| **Circularity** | | | |
| Information to costumer | Information | O66 | Product manufacturer |
| Maintenance | Maintenance | O67 | Product manufacturer |
| Take back system | | O68 | Product manufacturer |
| **Innovation** | | | |
| | Innovation requirements | O69 | Product manufacturer |
| **Other requirements** | | | |
| | Maintenance of the Nordic Swan Ecolabel licence | O70–O71 | Product manufacturer/licensee |

## 1.3 Product information

This chapter contains product specification such as description of the product, material composition and production methods/process.

### O1 Description of the product

Applicants must provide the following information about the product:

- Trade name(s), brand name(s) and ID numbers.
- Description of the product(s) and materials/raw materials included. The total weight of the product and the weight of the constituent materials/raw materials must be stated.
- Description of production methods/treatment techniques.
- Description of subcontractors, including the name of their business, production site, contact and the production steps carried out.
- Names of chemical products used in the production and any surface treatment (including products used by any subcontractors).

✉ Description of the points above.

✉ Product sheets or equivalent information. A flow chart is recommended to explain the production process.

## 1.4 Quality

### O2 Quality and properties

**Products covered by a harmonised standard**

Products covered by a harmonised standard in accordance with the Construction Products Regulation (EU/305/2011) must document the features and functions with which the product is marketed.

**Products not covered by harmonised standard**

Products not covered by a harmonised product standard must document the features and functions of the product with one of the following options:

- voluntary CE marking and declaration of performance according to an ETA (European Technical Assessment), or
- as an alternative to an ETA, the properties of the product can be declared via a third-party verification of the product's performance. The third-party verification must be approved by Nordic Ecolabelling.

✉ For products covered by a harmonised product standard, state which product standard(s) the product is covered by and submit example of CE marking and the declaration of performance.

✉ For products that are not covered by a harmonised standard, a declaration of performance must be submitted in accordance with an ETA or other third-party verification of the product's performance.

### O3 Acoustic panels, acoustic performance

An acoustic panel for which the main purpose is sound absorption must achieve a minimum sound absorption class A or B.

Acoustic panels which are marketed with an alternative primary acoustic feature/purpose such as specific frequency tuning or reverberation time for use in e.g., sound studios, concert halls, theatres, cinemas, conference room and classroom does not need to achieve sound absorption class A or B, but the sound absorption class must be stated.

Test according to EN ISO 354 and EN ISO 11654.

✉ Test report according to EN ISO 354 and EN ISO 11654 showing compliance with the requirement. The report shall contain information about

measurements, sampling programmes, measurement methods and measurement frequency. For analysis methods, see Appendix 1.

✉ Documentation that acoustic panels are marked with an alternative primary acoustic feature/purpose such as specific frequency tuning or reverberation time for use in e.g., sound studios, concert halls, theatres, cinemas, conference room and classroom.

## 1.5 Raw materials

The requirements in this chapter concern requirements for raw materials used in panels and mouldings.

The requirements only apply to raw materials that are included by **more than 5 wt%** of the panel.

Panels consisting of different types of raw materials need to comply with the specific raw material requirements e.g., a wood wool acoustic panel must comply with requirements for wood raw materials and cement.

### 1.5.1 Wood raw materials

#### O4 Prohibited and restricted tree species

Nordic Ecolabelling's list of tree species* consists of virgin woods listed on:

a) CITES (Appendices I, II and III)
b) IUCN Red List, categorised as CR, EN and VU
c) Rainforest Foundation Norway's tree list:
d) Siberian larch (from forests outside the EU)

*Exemptions*

*Eucalyptus and Acasia used in production of fibreboards and particle boards are exempted from the list (note**).*

Use of tree species listed on a) CITES (Appendices I, II and III) is not permitted.

Tree species listed on either b), c) or d) may be used if they meet all the following requirements:

- the tree species does not originate from an area/region where it is on the IUCN Red List, categorised as CR, EN or VU
- the tree species does not originate from an Intact Forest Landscape (IFL), as defined in 2002 http://www.intactforests.org/world.map.html.
- the tree species shall originate from FSC or PEFC certified forests/plantations and shall be covered by a valid FSC/PEFC Chain of Custody (CoC) certificate documented/controlled as FSC or PEFC 100% through the FSC transfer method or PEFC physical separation method.
- tree species grown in plantations shall in addition not originate from plantations established on areas converted from forest after 1994

* *https://www.nordic-swan-ecolabel.org/pulp-paper-declaration-portal/what-can-be-declared/forestry-requirements/forestry_requirements_2020/*

** *Regarding wood chips, fibre raw materials from eucalyptus/acacia must be a minimum of 70% certified.*

✉ Enter the names of the tree species included in the product.

☒ Declaration from the applicant/manufacturer/supplier that tree species listed on a)–d) are not used in the product.

If species from the lists b), c) or d) are used:

☒ Valid FSC/PEFC Chain of Custody certificate from supplier/applicant/manufacturer covering the specific tree species and documenting that the wood is controlled as FSC or PEFC 100% through the FSC transfer method or PEFC physical separation method.

☒ The applicant/manufacturer/supplier shall document full traceability back to the certified forest unit and document the following:

- the wood does not originate from an area/region where it is on the IUCN Red List, categorised as CR, EN or VU.

- the tree species does not originate from an Intact Forest Landscape (IFL), as defined in 2002: http://www.intactforests.org/world.webmap.html

- for plantations, the applicant/manufacturer/supplier must document that the tree species does not originate from plantations established on areas converted from forest after 1994.

## O5 Traceability and certification

The requirement applies to wood raw material, cork and bamboo used in the product.

### Species name

The applicant/manufacturer must state the name (species name) of the wood raw material/bamboo/cork used in the product.

### Chain of Custody certification

All wood raw material and bamboo used in Nordic Swan Ecolabelled products must be covered by a valid Chain of Custody certificate in accordance with FSC/PEFC schemes.

The applicant or product manufacturer must have Chain of Custody certification under the FSC/PEFC schemes.

### Certified wood raw material, bamboo, and cork

A minimum of 70% by weight/volume of the wood raw material, bamboo and cork used in the Nordic Swan Ecolabelled product must come from forests that are managed in accordance with sustainable forestry management principles established by FSC and PEFC and/or be recycled raw material*.

*For particleboard*:

- A minimum of 70% by weight/volume of the wood raw material, bamboo and cork used in the Nordic Swan Ecolabelled particleboard must come from forests that are managed in accordance with sustainable forestry management principles established by FSC and PEFC and/or be recycled raw material and
- a minimum of 50% of the wood raw material in Nordic Swan Ecolabelled particleboard must consist of recycled raw material*.

The remaining proportion of wood raw material in all wood-based panels must be covered by FSC/PEFC's control schemes (FSC controlled wood/PEFC controlled sources) or be recycled material.

The applicant/manufacturer must create a designated product group for Nordic Swan Ecolabelled products in their accounting system to control and meet the required certified content in Nordic Swan Ecolabelled products.

* *See Terms and definitions.*

✉ The names (species names) of the wood raw material, bamboo and cork that are used.

✉ The applicant/manufacturer must provide valid FSC/PEFC CoC certification that includes all wood raw material, bamboo and cork used in the Nordic Swan Ecolabelled product.

✉ The applicant/manufacturer shall provide audited accounting documents showing that at least 70% of the material in the Nordic Swan Ecolabelled product or production line is from forests or areas that are managed in accordance with sustainable forestry management principles that meet the requirements of the FSC or PEFC scheme. If the product or production line includes uncertified material, evidence must be provided that the content of uncertified material does not exceed 30% and is covered by a verification system that ensures that it is legally harvested and meets any other requirements laid down by FSC or PEFC regarding uncertified material.

✉ Particleboards: The applicant/manufacturer must comply with above documentation requirements as well as provide documentary evidence that at least 50% of the wood raw material in Nordic Swan Ecolabelled particleboard consist of recycled raw material.

✉ An applicant/manufacturer who only uses recycled material in the Nordic Swan Ecolabelled product, which is not FSC/PEFC certified, must provide documentary evidence that the material is recycled, e.g., an invoice.

## O6 Chemicals – recycled material in wood-based panels

Recycled material in wood-based panels must meet the requirements of the European Panel Federation's (EPF) Standard for delivery conditions of recycled wood[1].

This means that the recycled materials and the panel must not include:

- Treated wood: wood that contains halogenated organic compounds, creosote, or heavy metals because of treatment with wood preservatives.
- Wood that exceeds the threshold limit values in the table below:

| Substance/compound | Limit value (mg/kg recycled wood) |
|---|---|
| Arsenic (As) | 25 |
| Cadmium (Cd) | 50 |
| Chromium (Cr) | 25 |
| Copper (Cu) | 40 |
| Lead (Pb) | 90 |
| Mercury (Hg) | 25 |
| Fluorine (F) | 100 |
| Chlorine (Cl) | 1000 |
| Pentachlorophenol (PCP) | 5 |

[1] https://europanels.org/issues/standards/, visited December 2022

The requirement does not apply to sawdust, wood chips and similar materials that come straight from the wood-processing industry where the wood is virgin/untreated.

✉ Certification or declaration of compliance with the EFP's Standard for delivery conditions of recycled wood or test of the final panel.

### 1.5.2 Lignocellulose raw materials (other than wood)

This requirement concerns panels made from lignocellulose raw materials such as straw, flax or hemp.

#### O7 Lignocellulose raw materials (other than wood)

The species name (Latin and English/Nordic language) and geographic origin (country) must be stated for the lignocellulose raw material.

The renewable raw materials must be waste* or residual products* from other production systems, e.g., straw from grain production.

** Waste and residues as defined in EU Directive 2018/2001/EC. Examples of residual products include straw, chaff, and the non-edible part of maize.*

✉ Name and geographic origin of the lignocellulose raw materials.

✉ Description of the raw material showing that it is a residual or waste product.

### 1.5.3 Paper and cellulose fibre

The requirements in this chapter comprise raw materials, chemical and emissions in production of pulp and paper used in panels. Pulp and paper are used in several types of panels such as kraft- and decor paper used in HPL/ compact laminate, layers of paper in gypsum plaster boards and sound absorbing material in acoustic panels.

#### O8 Ecolabelled paper

If the paper is ecolabelled with Nordic Swan Ecolabel or EU Ecolabel*, all requirements in this chapter 1.5.3 is fulfilled.

** Valid license according to Nordic Swan Ecolabel Basic module gen. 3, copy- and printing paper gen. 5 or EU Ecolabel EU11 2019/70 - or later valid generations.*

✉ Nordic Swan Ecolabel or EU Ecolabelled paper: Submit name of paper, manufacturer, and license number. Appendix 3 may be used.

#### O9 Prohibited and restricted tree species (pulp and paper)

Nordic Ecolabelling's list of tree species* consists of virgin woods listed on:

a) CITES (Appendices I, II and III)
b) IUCN Red List, categorised as CR, EN and VU
c) Rainforest Foundation Norway's tree list:
d) Siberian larch (from forests outside the EU)

*Exemptions*

*Eucalyptus and Acasia used in pulp and paper production are exempted from the list (note**).*

Use of tree species listed on a) CITES (Appendices I, II and III) is not permitted.

Tree species listed on either b), c) or d) may be used if they meet all the following requirements:

- the tree species does not originate from an area/region where it is on the IUCN Red List, categorised as CR, EN or VU
- the tree species does not originate from an Intact Forest Landscape (IFL), as defined in 2002 http://www.intactforests.org/world.map.html.
- the tree species shall originate from FSC or PEFC certified forests/plantations and shall be covered by a valid FSC/PEFC Chain of Custody (CoC) certificate documented/controlled as FSC or PEFC 100% through the FSC transfer method or PEFC physical separation method.
- tree species grown in plantations shall in addition not originate from plantations established on areas converted from forest after 1994.

* *https://www.nordic-swan-ecolabel.org/pulp-paper-declaration-portal/what-can-be-declared/forestry-requirements/forestry_requirements_2020/*

** *Regarding pulp, fibre raw materials from eucalyptus/acacia must be a minimum of 70% certified.*

☒ Enter the names of the tree species included in the product.

☒ Declaration from the applicant/manufacturer/supplier that tree species listed on a)–d) are not used in the product.

☒ If species from the lists b), c) or d) are used:

☒ Valid FSC/PEFC Chain of Custody certificate from supplier/applicant/manufacturer covering the specific tree species and documenting that the wood is controlled as FSC or PEFC 100% through the FSC transfer method or PEFC physical separation method.

☒ The applicant/manufacturer/supplier shall document full traceability back to the certified forest unit and document the following:

- the wood does not originate from an area/region where it is on the IUCN Red List, categorised as CR, EN or VU.

- the tree species does not originate from an Intact Forest Landscape (IFL), as defined in 2002: http://www.intactforests.org/world.webmap.html

- for plantations, the applicant/manufacturer/supplier must document that the tree species does not originate from plantations established on areas converted from forest after 1994.

## O10 Traceability and certification of wood raw materials (pulp and paper)

### Species name

The applicant/manufacturer of the panel (containing pulp or laminate) or pulp/paper supplier must state the name (species name) of the fibre raw material used in the pulp/paper.

### Chain of Custody certification

All wood raw material used in the pulp or laminate must be covered by a valid Chain of Custody certificate in accordance with FSC/PEFC schemes.

The manufacturer/supplier of the pulp or laminate must have valid FSC/PEFC CoC certification.

### Certified fibre raw material

A minimum of 70% by weight/volume of the fibre raw material used in the pulp or laminate must come from forests that are managed in accordance with sustainable forestry management principles that meet the requirements of the FSC or PEFC Chain of Custody schemes, and/or be recycled raw material*.

The remaining proportion shall be covered by FSC/PEFC's control schemes (FSC controlled wood/PEFC controlled sources) or be recycled material*.

✉ Name (species name) of the fibre raw material used. Appendix 3 may be used.

✉ The manufacturer/supplier of the pulp and laminate must present a valid FSC/PEFC CoC certificate, which includes all fibre raw material used in the pulp or laminate.

✉ The panel manufacturer must document that pulp or laminate is purchased from a CoC FSC/PEFC certified subcontractor and provide documentation that the certification requirement of at least 70% certified raw materials has been met, and the remaining proportion is covered by FSC/PEFC's control schemes (FSC controlled wood/PEFC controlled sources. This must be specified on the invoice/delivery note with certification claim.

✉ Valid Nordic Swan Ecolabel and or EU Ecolabel licence certificate for paper.

## O11 Chemicals in the manufacture of pulp and paper

Chemicals used in the manufacture of pulp and paper must meet the requirements contained in the Chemical Module for Nordic Ecolabelling of paper, Version 3, or later versions.

✉ Declaration from the manufacture of pulp and paper that the requirement is met. Appendix 3 may be used.

## O12 COD emissions from the production of paper and pulp

COD (Chemical Oxygen Demand) emissions to water must be less than the stated COD value in the table below. A description of the preparation and analysis methods is provided in Appendix 1.

The COD is calculated by adding up COD emissions from pulp and paper:

COD mass (kg/ADt) + COD emissions paper machine (kg/ADt).

For paper produced from mixtures of chemical, recycled fibre and mechanical pulps, a weighted limit value is calculated from the proportion of the various pulp types. In the weighted calculation, the percentage of COD emissions from the paper machine must be set to 1 kg/ADT. For example, for 60% unbleached chemical mass and 40% recycled pulp, the calculation is: (14–1 x 0.6) + (4–1 x 0.4) = 7.8 + 1.2 = 9.0 kg/ADT.

| Pulp types | Total COD emissions for both pulp and paper (kg/ADt) |
|---|---|
| Unbleached chemical pulp | 14.0 |
| CTMP pulp | 19.0 |
| TMP/groundwood pulp | 7.0 |
| Recycled fibre pulp | 4.0 |

✉ Information about the types of pulp used in the production of paper. Appendix 3 may be used.

✉ If pulp that has been checked in accordance with Nordic Ecolabelling's Basic Module for paper is used: Description of the producer, production site and name of the pulp.

✉ Description of the sampling procedure including measurement methods and measurement results in the last 12 months from the producers of the paper and pulp.

✉ Calculation from the producers of the paper and pulp showing that the total emissions of COD are below the relevant limit value in the requirement.

### 1.5.4 Textile fibre

The requirements apply to textile/textile fibre used as an outer layer on the panel or textile fibre used as sound absorbing material in the panel. Textile fibre can be made from both natural and synthetic fibres such as cotton, viscose, silk, polyester, and wool used in panels.

#### O13 Ecolabelled textile

If the textile is ecolabelled with Nordic Swan Ecolabel or EU Ecolabel*, all requirements in this chapter 1.5.4 is fulfilled.

** Valid license according to Nordic Swan Ecolabel textile, gen. 4 or EU Ecolabel EU16 2016/350/EU - or later valid generations.*

✉ Nordic Swan Ecolabel or EU Ecolabelled textile: Submit name of textile, manufacturer, and license number.

#### O14 Cotton, other natural seed fibres of cellulose or wool

Cotton, other natural seed fibres of cellulose (including kapok) or wool shall not come from genetically modified organisms (GMO) and must be one of the following or a combination (where the different types of certified cotton must add up to 100%) of:

- organically cultivated* or
- recycled** or
- GOTS certified or
- grown in compliance with one of the following standards: BCI (Better Cotton Initiative), CmiA (Cotton made in Africa) or FairTrade for cotton.

** Organic means cotton that is certified organic or is grown during the transition period to organic cultivation in accordance with a standard approved in the IFOAM Family of Standards. See definitions for more details.*

*** See Terms and definitions.*

✉ A valid certification showing that the cotton in the Nordic Swan Ecolabelled product has been organically grown or grown in compliance with the standards in the requirement. If the GOTS certification is held by the subcontractor, a transaction certificate is required showing that the product being shipped is GOTS certified. Documentation for BCI cotton must show traceability back to the BCI farmers.

✉ Documentation for recycled fibre must be either a or b:

✉ a) Certificate showing that the raw material is 100% recycled (post- and/or pre-consumer) with Global Recycled Standard certificate 4.0 (or later versions), Recycled Claim Standard (RCS) or other equivalent certification approved by Nordic Ecolabelling.

✉ b) Present documentation demonstrating that the recycled fibre was purchased as 100% recycled (post- and / or pre-consumer) and state the supplier.

## O15 Synthetic fibres

Synthetic fibres must comprise of minimum 50% post-consumer recycled material*. The recycled plastic fibres must not be re-worked granulate (e.g., r-PET) from reprocessing processes that have obtained an EFSA** or FDA*** approval (approved food contact material or marketed as compatible with these).

The traceability of the recycled raw material must be documented with either a) or b) below:

a) Global Recycled Standard certificate or Recycled Claim Standard certificate showing that the raw material is post-consumer recycled, or other equivalent certification approved by Nordic Ecolabelling.

or

b) Statement from the manufacturer of the recycled raw material regarding type of recycled plastic, and that the feedstock used in the raw material is minimum 50% post-consumer recycled material*.

* *See Terms and definitions.*

** *In line with Commission Regulation (EC) No 282/2008 of 27 March 2008 on recycled plastic materials and articles intended to come into contact with foods.*
*** *In line with the Code of Federal Regulations Title 21: Food and Drugs, PART 177 – Indirect food additives: polymers.*

✉ Declaration from the manufacturer of recycled plastic fibres that the raw material is not EFSA or FDA approved, see requirement.

✉ A) Certificate from an independent certifier of the supply chain (e.g., Global Recycled Standard or Recycled Claim Standard) or b) declaration from the manufacture of synthetic fibres, showing type of plastic and that minimum 50% of the synthetic fibres are post-consumer recycled material, see definition in requirement.

✉ Documentation (calculation) from the applicant showing that the requirement of share of recycled plastic has been received.

## O16 Fibres - test for harmful substances

Fibres, both virgin and recycled fibres, shall not contain the following substances above the limits stated in the table below.

The requirement can de documented using alternative a) or b):

a) an Oeko-Tex standard 100 class I-III certificate.

b) test report showing that the requirement is complied with.

The following are exempted from this requirement:

- Material from PET bottles originally approved for food contact.
- Fibres from chemically recycled polymers, if it can otherwise be documented that the process ensures, that the requirement limits are complied with.
- Fibres, where it can be documented that they originate from type I (according to standard ISO 14024) eco-labelled products.

| Substance/substance group | Max. limit | Test method |
|---|---|---|
| **Extractable metals** | | Atomic absorption spectrometry (AAS) or ICP.<br>The metals are extracted by use of artificial acidic sweat solution according to ISO 105-04 (testing solution II). |
| Chromium total | 2.0 mg/kg | |
| Lead | 1.0 mg/kg | |
| Mercury | 0.02 mg/kg | |
| Cadmium | 0.1 mg/kg | |
| **Organic tin compounds** | | |
| TBT and TPhT | 0.5 mg/kg | |
| **Phthalates** | | Extraction of the testing material with an organic solvent. The extract is analysed by gas chromatography (MS detection). |
| BBP, DBP, DEP, DMP, DEHP, DMEP, DIHP, DHNUP, DCHP, DHxP, DIBP, DIHxP, DIOP, DINP, DIDP, DPrP, DHP, DNOP, DNP and DPP | Total 0.05 weight% | |
| **PAHs (Polycyclic aromatic hydrocarbons)** | | Extraction of the testing material with an organic solvent. The extract is analysed after clean-up by gas chromatography with mass selective detection (MSD). |
| Naphthalene, Acenaphtene, Acenaphtylene, Phenanthrene, Anthracene, Fluorene, Fluoranthene and Pyrene | Each 1 mg/kg | |
| **Flame retardants** | | Extraction of the testing material with an organic solvent. The extract is analysed then by LC/MS/MS respectively GC/MS/MS. |
| Brominated and chlorinated flame retardants | Total 50 mg/kg | |
| **Chlorophenols** | | The samples are extracted with a basic aqueous solution following DIN 50009. The extracted free phenols and possibly hydrolysed phenolesters are acetylated, transferred to an organic phase, and analysed with GC-MS. |
| Pentachlorophenol | 0.5 mg/kg | |
| Tetrachlorophenol | 0.5 mg/kg | |
| Trichlorophenol | 2.0 mg/kg | |
| Dichlorophenpol | 3.0 mg/kg | |
| Monochlorophenol | 3.0 mg/kg | |
| **Per- and polyfluorinated compounds** | | The method for the determination of PFCs/PFAS is based on an extraction with methanol followed by determination of the |

| | | |
|---|---|---|
| | | PFCs/PFAS by means of LCMS and GC-MS. |
| PFOS, PFOSA, PFOSF, N-Me-FOSA, N-Me-FOSE, N-Et-FOSE | Total <1.0 µg/m2 | |
| PFHpA, PFNA, PFDA, PFUdA, PFDoA, PFTrDA, PFTeDA | 0.025 mg/kg for each | |
| PFOA and salts | Total <0.025 mg/kg | |
| PFOA related substances as stated in OekoTex 100 Annex 4 and 5 | Total <0.025 mg/kg | |
| Other stated per- and polyfluorinated compounds as set out in OekoTex 100 Annex 5. | 0,025 or 0.025 mg/kg for each as stated in Oeko-Tex 100 | |
| **Dyes** | | EN 14362-1<br>EN 14362-3<br>The identification and quantification of dyes extracted with an organic solvent is made by means of chromatographic methods. |
| Cleavable, classified as carcinogenic | 20 mg/kg | |
| Cleavable aniline | 50 mg/kg | |
| Classified as carcinogenic | 50 mg/kg | |
| Dyes classified as allergenic | 50 mg/kg | |
| Other dyes | 50 mg/kg | |

✉ Test reports or Oeko-Tex 100 class I-III certificate showing fulfilment of the requirement. A written procedure showing how an annual test is performed in line with the requirement, along with annual in-house checks of compliance with the requirement. Alternatively, a procedure for annual requisition of Oekotex 100 class I-III certificate. Test results/certificate are to be archived and kept available for inspection by Nordic Ecolabelling.

✉ When using chemically recycled polymers documentation showing that the recycling process ensures that the requirement is complied with.

✉ When using the exemption for material from PET bottles, this must be documented by the fibre supplier.

✉ When using an exemption for fibres from earlier type I ecolabelled textiles, this must be documented by the fibre supplier.

### 1.5.5 Plastic

The requirements in this chapter comprise plastic used in panels e.g., face sheets, layers/membranes or core material used for sound absorbing such as expanded polystyrene (EPS), extruded polystyrene (XPS), polyisocyanurate (PIR) or Polyurethane (PU). Polyester made from recycled plastic must comply with requirements for textile in section 1.5.4.

#### O17 Plastic

Plastic used in panel and mouldings (final product) must consist of:

- Minimum 20% post-consumer recycled plastic* and
- Minimum 50% total recycled plastic*. The min. 20% post-consumer recycled plastic may be included in the 50%.

Recycled plastic must not contain:

- re-worked granulate (e.g., r-PET) from reprocessing processes that have obtained an EFSA** or FDA*** approval.

Virgin and recycled plastic must not contain:

- PVC or PVDC.

The traceability of the recycled raw material must be documented with either a) or b) below:

a) Global Recycled Standard certificate or Recycled Claim Standard certificate showing that the raw material is recycled, or other equivalent certification approved by Nordic Ecolabelling.

b) By stating the producer of the recycled raw material and documenting that the feedstock used in the raw material is minimum 100%% post-consumer recycled material, see definition in requirement.

** See Terms and definitions.*

*** In line with Commission Regulation (EC) No 282/2008 of 27 March 2008 on recycled plastic materials and articles intended to come into contact with foods.*
**** In line with the Code of Federal Regulations Title 21: Food and Drugs, PART 177 – Indirect food additives: polymers*

✉ Declaration from the manufacturer of the recycled plastic that the plant is not EFSA or FDA approved, see requirement.

✉ Declaration from the manufacturer of the recycled plastic that the plastic is free of PVC or PVDC.

✉ Description and documentation from manufacturers of recycled raw materials that the plastic is traceable according to the requirement - Global Recycled Standard certification or Recycled Claim standard certification, or other equivalent certification approved by Nordic Ecolabelling.

✉ Documentation (calculation) from the applicant showing that the requirement for share of recycled plastic has been reached.

## O18 Chemicals in recycled plastics

Recycled plastic must not contain:

- halogenated flame retardants
- cadmium
- lead
- mercury
- chromium VI
- arsenic
- phthalates
- polycyclic aromatic hydrocarbons (Benzo[A]Pyrene, Benzo[E]Pyrene, Benzo[A]Anthracene, Dibenzo[A,H]Anthracene, Benzo[B]Fluoranthene, Benzo[J]Fluoranthene, Benzo[K]Fluoranthene, Chrysene)

*Impurities up to 100 ppm are permitted.*

✉ A test report (XRF, X-ray fluorescence, GC-MS, or equivalent method) from the supplier of the recycled plastic showing compliance with the requirement. Alternatively, the requirement can be documented with traceability to the source to substantiate that these substances are not included.

## O19 Additives - prohibited substances

Additives in the list below must not be added to plastic (both virgin and recycled plastic). The requirement applies to additives actively added to the polymer raw material in the master batch or compound in production of plastic. The requirement also covers substances that are added during re-compounding of recycled plastic raw materials.

- CMR substances - Carcinogenic, Germ cell mutagenicity, Reproductive toxicity category 1A or B or category 2
    - An exemption is made for titanium dioxide (CAS No. 13463-67-7) classified H351.
    - An exemption is made for 1,1,1-Trimethylolpropane (TMP, CAS No. 77-99-6) classified H361.
- Substances on the Candidate List*
- Substances evaluated by the EU to be persistent, bioaccumulative, and toxic (PBT) or very persistent and very bioaccumulative (vPvB), in accordance with the criteria in Annex XIII of REACH**.
- Endocrine disruptors:
    - Substances considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances for further evaluation of their role in endocrine disruption. See the following link: http://ec.europa.eu/environment/chemicals/endocrine/strategy/being_en.htm (Annex L, page 238 onwards)
    - Substances on the EU member state initiative "Endocrine Disruptor Lists", List I and III. See the following links: https://edlists.org/the-ed-lists/list-i-substances-identified-asendocrine-disruptors-by-the-eu and https://edlists.org/the-ed-lists/list-iii-substances-identified-asendocrine-disruptors-by-participating-national-authorities
- Halogenated organic compounds with the following exceptions:
    - halogenated organic pigments that comply with the Council of Europe recommendation "Resolution AP (89) 1 on the use of colorants in plastic materials coming into contact with food", point 2.5.
- Butylhydroxytoluene (BHT, CAS No. 128-37-0)
- Aziridine and polyazidirines
- Short-chain chlorinated paraffins (C10-C13) and medium-chain chlorinated paraffins (C14-C17).
- Perfluoroalkyl and polyfluoroalkyl substances (PFASs)
- Alkylphenols, alkylphenol ethoxylates (APEO) and other alkylphenol derivates (APD)***.
- Brominated flame retardants.
- Phthalates****
- Pigments and additives based on lead, cadmium, arsenic, chromium (VI), mercury and their compounds.
- Bisphenols and bisphenol derivatives
    - Bisphenol A used in the production of epoxy acrylate is not covered by the requirement.
    - Assessment of regulatory needs: Bisphenols. ECHA – 16 December 2021: Section 2.1: Bisphenols for which further EU

RRM is proposed – restriction
https://echa.europa.eu/documents/10162/c2a8b29d-0e2d-7df8-dac1-2433e2477b02

** The Candidate List is available on the ECHA website: http://echa.europa.eu/candidate-list-table*

*** PBT and vPvB in accordance with the criteria in Annex XIII of REACH*

**** Alkylphenol derivative*

***** Phthalates are esters of 1,2 benzenedicarboxylic acid (orthophthalic acid)*

✉ Safety data sheet for additives in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

✉ A declaration from the plastics manufacturer.

### O20 Manufacture of EPS, XPS, PIR and Polyurethane (PU)

CFC, HCFC, HFC, methylene chloride or other halogenated organic compounds must not be used as blowing agents.

Protective measures must be taken when handling isocyanates to reduce employee exposure as far as possible. The Workplace Exposure Limits for air* concentrations of isocyanates in areas where employees are working without protective equipment are:

- MDI (CAS No. 101-68-8): Average over an 8-hour period must not exceed 0.005 ppm (0.05 mg/m3)
- TDI (CAS No. 584-84-9 and 91-08-7): Average over an 8-hour period must not exceed 0.005 ppm (0.04 mg/m3)

** If the legislation in the individual country has lower limit values than stated in the requirement, it is the limit values of the legislation that must be met.*

✉ A declaration from the manufacturer of EPS, XPS, PIR or polyurethane PU foam stating which blowing agent has been used.

✉ A description of the safety measures taken and the statutory Workplace Exposure Limits for isocyanates in the country of manufacture. If the statutory limits are the same or more stringent than the threshold limit values in the requirement, no further documentation is required. If the statutory limits are less stringent, a description of how air concentration levels of isocyanates are measured must be submitted, along with a test report showing compliance with the threshold limit values specified in the requirement.

## 1.5.6 Material based on recycled composite

The requirement in this chapter comprise panels made of recycled composite material. The panels must not comply with the other requirements for raw material, e.g., wood raw materials in section 1.5.1 or plastic in section 1.5.5.

### O21 Recycled composite

The recycled composite material used in panel and mouldings (final product) must meet the following requirements:

- The ingoing materials and suppliers of the recycled composite material must be stated.
- All recycled composite material must already be a composite. It is not allowed to produce new composite material by mixing pure fractions of different materials, e.g., wood and plastic.

- The composite material must consist of 100% by weight of recycled material. 50% by weight must be post-consumer recycled.

✉ Declaration from the producer of the recycled composite material in line with the requirements above.

## O22 Chemicals in recycled composite

The used composite material must meet alternative a) or b) below:

a) All recycled composite material must come from (previously approved) food contact approved materials. Please note that recycled composite material that has undergone any new reprocessing process and obtained an EFSA* or FDA** approval may not be used.

b) The used recycled composite material must not contain the following substances:

- halogenated flame retardants
  cadmium
- lead
- mercury
- chromium IV
- arsenic
- phthalates
- polycyclic aromatic hydrocarbons (Benzo[A]Pyrene, Benzo[E]Pyrene, Benzo[A]Anthracene, Dibenzo[A,H]Anthracene, Benzo[B]Fluoranthene, Benzo[J]Fluoranthene, Benzo[K]Fluoranthene, Chrysene)

*Impurities up to 100 ppm are permitted.*

** In line with Commission Regulation (EC) No 282/2008 of 27 March 2008 on recycled plastic materials and articles intended to come into contact with foods.*
*** In line with the Code of Federal Regulations Title 21: Food and Drugs, PART 177 – Indirect food additives: polymers.*

✉ Declaration from the supplier of recycled composite material stating that the material is allowed for food contact.

✉ A test report (XRF, X-ray fluorescence or equivalent method) from the supplier of the recycled composite material showing compliance with the requirement.

✉ Alternatively, the requirement can be document with traceability to the source to substantiate that these substances are not included.

## O23 Additives - prohibited substances

Additives in the list below must not be added during production of material based on recycled composite.

- CMR substances - Carcinogenic, Germ cell mutagenicity, Reproductive toxicity category 1A or B or category 2
  - An exemption is made for titanium dioxide (CAS No. 13463-67-7) classified H351
  - An exemption is made for 1,1,1-Trimethylolpropane (TMP, CAS No. 77-99-6) classified H361
- Substances on the Candidate List*
- Substances evaluated by the EU to be persistent, bio accumulative, and toxic (PBT) or very persistent and very bio accumulative (vPvB), in accordance with the criteria in Annex XIII of REACH**.

- Endocrine disruptors:
    - Substances considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances for further evaluation of their role in endocrine disruption. See the following link: http://ec.europa.eu/environment/chemicals/endocrine/strategy/being_en.htm (Annex L, page 238 onwards)
    - Substances on the EU member state initiative "Endocrine Disruptor Lists", List I and III. See the following links: https://edlists.org/the-ed-lists/list-i-substances-identified-asendocrine-disruptors-by-the-eu and https://edlists.org/the-ed-lists/list-iii-substances-identified-asendocrine-disruptors-by-participating-national-authorities
- Halogenated organic compounds with the following exceptions:
    - Halogenated organic pigments that comply with the Council of Europe recommendation "Resolution AP (89) 1 on the use of colorants in plastic materials coming into contact with food", point 2.5
- Butylhydroxytoluene (BHT, CAS No. 128-37-0)
- Aziridine and polyazidirines
- Short-chain chlorinated paraffins (C10-C13) and medium-chain chlorinated paraffins (C14-C17).
- Perfluoroalkyl and polyfluoroalkyl substances (PFASs), e.g., PFOA and PFOS
- Alkylphenols, alkylphenol ethoxylates (APEO) and other alkylphenol derivates (APD)***.
- Brominated flame retardants.
- Phthalates****
- Pigments and additives based on lead, cadmium, arsenic, chromium (VI), mercury and their compounds.
- Bisphenols and bisphenol derivatives
    - Bisphenol A used in the production of epoxy acrylate is not covered by the requirement.
    - Assessment of regulatory needs: Bisphenols. ECHA – 16 December 2021: Section 2.1: Bisphenols for which further EU RRM is proposed – restriction https://echa.europa.eu/documents/10162/c2a8b29d-0e2d-7df8-dac1-2433e2477b02

** The Candidate List is available on the ECHA website: http://echa.europa.eu/candidate-list-table*

*** PBT and vPvB in accordance with the criteria in Annex XIII of REACH.*

**** Alkylphenol derivative.*

***** Phthalates are esters of 1,2 benzenedicarboxylic acid (orthophthalic acid).*

☒ Safety data sheet for additives in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

☒ A declaration from the manufacturer of recycled composite material.

## 1.5.7 Mineral raw materials

The requirement in this chapter covers sourcing of virgin mineral raw materials and content of heavy metals in the mineral raw materials. The requirements apply to virgin minerals such as gypsum, limestone, volcanic rocks, and silica used in panels such as gypsum plasterboards, cement-based panels and acoustic panels containing mineral wool.

### O24 Responsible sourcing of virgin mineral raw materials

The licensee must:

- have a supply chain policy/code of conduct for responsible sourcing of mineral raw materials such as gypsum, limestone, volcanic rocks, and silica. The policy must concern biodiversity and deforestation risk - reducing impact to biodiversity along the whole supply chain. The policy must be both public and communicated to the supply chain.
- have a process to identify all specific mining operations (quarries) where the minerals are extracted from.
- ensure that virgin mineral raw materials used in panels come from mining operations (quarries) with documented biodiversity management and rehabilitation plans.

✉ The most recent version of the public policy and a description of how it is communicated to the supply chain.

✉ List of mining operations supplying virgin minerals to the ecolabelled panel.

✉ Documentation/description of the supplying mining operations biodiversity management and rehabilitation plans.

### O25 Heavy metals

Mineral raw materials or mineral biproducts must not exceed the quantities of heavy metals indicated in the table below in accordance with indicated test method:

| Heavy metal | Partial opening of the test sample EN 259 Maximum content mg/kg | Total opening of the test sample EN 13656 Maximum content mg/kg |
|---|---|---|
| Arsenic | 10 | 30 |
| Lead | 56 | 56 |
| Cadmium | 1,6 | 10 |
| Mercury | 1,4 | 1,4 |
| Chrome (total) | 300 | 300 |

✉ The declaration from the raw materials producer/-refiner, containing measurement results, measurement methods and measurement frequency. For the description of the measurement method, see Appendix 1.

## 1.5.8 Gypsum

### O26 Recycled gypsum plasterboard

Gypsum plasterboard (final product) must consist of:

- Minimum 10% recycled gypsum from demolition/construction, see definition* and

- Minimum 30% total recycled gypsum from demolition/construction/FDG gypsum, see definition**. The min. 10% recycled gypsum* may be included in the 30%.

The requirement may be documented as an annual average of the production of Nordic Swan Ecolabelled plasterboards.

** Recycled gypsum from construction, demolition, recycling stations or internally production scrap/waste (not DSG/FDG gypsum).*

*** DSG/FDG gypsum, recycled gypsum from construction, demolition, recycling stations and internally production scrap/waste.*

✉ Documentation (calculation) from the applicant showing that the requirement for share of recycled gypsum has been reached.

### 1.5.9 Mineral wool

The requirements in this chapter comprise mineral wool (stone- and glass wool).

#### O27 Recycled mineral wool

At least 45% by weight of the stone wool in the product must consist of recycled materials*

At least 70% by weight of the glass wool in the product must consist of recycled materials*

The requirement may be documented as an annual average of the production of mineral wool used in Nordic Swan Ecolabelled panels.

* See terms and definitions

✉ Documentation (calculation) from the applicant showing that the requirement for share of recycled glass- or stone wool has been reached.

#### O28 Additives - prohibited substances

Additives in the list below must not be added the production of mineral wool such as oils, bonding agents, and stabilisers:

- CMR substances - Carcinogenic, Germ cell mutagenicity, Reproductive toxicity category 1A or B or category 2
    - An exemption is made for titanium dioxide (CAS No. 13463-67-7) classified H351
    - An exemption is made for 1,1,1-Trimethylolpropane (TMP, CAS No. 77-99-6) classified H361
- Substances on the Candidate List*
- Substances evaluated by the EU to be persistent, bio accumulative, and toxic (PBT) or very persistent and very bio accumulative (vPvB), in accordance with the criteria in Annex XIII of REACH**.
- Endocrine disruptors:
    - Substances considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances for further evaluation of their role in endocrine disruption. See the following link: http://ec.europa.eu/environment/chemicals/endocrine/strategy/being_en.htm (Annex L, page 238 onwards)
    - Substances on the EU member state initiative "Endocrine Disruptor Lists", List I and III. See the following links: https://edlists.org/the-ed-lists/list-i-substances-identified-asendocrine-disruptors-by-the-eu and https://edlists.org/the-ed-

lists/list-iii-substances-identified-asendocrine-disruptors-by-participating-national-authorities

- Halogenated organic compounds with the following exceptions:
    - halogenated organic pigments that comply with the Council of Europe recommendation "Resolution AP (89) 1 on the use of colorants in plastic materials coming into contact with food", point 2.5
- Butylhydroxytoluene (BHT, CAS No. 128-37-0)
- Aziridine and polyazidirines
- Short-chain chlorinated paraffins (C10-C13) and medium-chain chlorinated paraffins (C14-C17).
- Perfluoroalkyl and polyfluoroalkyl substances (PFASs)
- Alkylphenols, alkylphenol ethoxylates (APEO) and other alkylphenol derivates (APD)***
- Brominated flame retardants.
- Phthalates****
- Pigments and additives based on lead, cadmium, arsenic, chromium (VI), mercury and their compounds.
- Bisphenols and bisphenol derivatives
    - Bisphenol A used in the production of epoxy acrylate is not covered by the requirement.
    - Assessment of regulatory needs: Bisphenols. ECHA – 16 December 2021: Section 2.1: Bisphenols for which further EU RRM is proposed – restriction https://echa.europa.eu/documents/10162/c2a8b29d-0e2d-7df8-dac1-2433e2477b02
- Organotin compounds.

** The Candidate List is available on the ECHA website: http://echa.europa.eu/candidate-list-table*

*** PBT and vPvB in accordance with the criteria in Annex XIII of REACH.*

**** Alkylphenol derivative.*

***** Phthalates are esters of 1,2 benzene dicarboxylic acid (Ortho phthalic acid).*

✉ Safety data sheet for additives in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

✉ A declaration from the manufacturer of mineral wool.

### 1.5.10 Metal - aluminium

The requirement in this chapter applies to aluminium such as aluminium used as frames in acoustic panels.

#### O29 Production of aluminium

The requirement can be met by documenting either A) High proportion recycled or B) Primary aluminium production. (B consist of 4 alternatives):

**A) High proportion recycled**

A minimum of 75% by weight of aluminium must be recycled.

*Recycled aluminium is defined as both pre- and post-consumed, cf. definition in ISO 14021.*

The requirement can be verified either by:

- A signed agreement between the aluminium supplier and the manufacturer of the Nordic Swan Ecolabelled product stating that the requirement is met, or
- eBVD or EPD based on product-specific data/data from the aluminium producer´s own production specifically stating the content of recycled aluminium in the product, or
- Valid Hydro Circal certificate.

Or

### B) Primary aluminium production

The requirement can be met by one of the 4 alternatives (1-4) below:

The requirement can be verified using either: direct traceability through the supply chain, mass balance approach[2] or by all major suppliers[3].

#### 1. Aluminium production – active sustainability strategy

Aluminium used in the Nordic Swan Ecolabelled product comes from a primary aluminium producer who has an active sustainability strategy focusing on reducing energy consumption and greenhouse gas emissions. The strategy for reducing energy consumption and greenhouse gas emissions shall be quantitative and time-based, and they shall be determined by the company management.

Or

#### 2. Aluminium production – low direct climate effecting emissions

Aluminium used in the Nordic Swan Ecolabelled product comes from a primary aluminium producer whose direct climate-affecting emissions from primary aluminium production does not exceed 1,5 tonnes of CO2e/ton of aluminium produced.

or

#### 3. Aluminium production – low electricity consumption for electrolysis

Aluminium used in the Nordic Swan Ecolabelled product comes from a primary aluminium producer whose electricity consumption for electrolysis does not exceed 15.3 MWh / ton produced aluminium.

or

#### 4. Aluminium production – ASI certified site

A minimum of 50% by weight of aluminium used in the Nordic Swan Ecolabelled product comes from a production site that are certified to the ASI Performance standard[4].

### High proportion recycled (A):

✉ Alternative 1: There must be a signed agreement between the producer of aluminium/supplier of aluminium and the manufacturer of the Nordic Swan

[2] In case of several potential aluminium producers, the supplier of the metal components can verify the requirement by using a mass balance approach if there is an account documenting the annual volumes purchased from the individual aluminium producers. The volumes must correspond to volumes sold to the producer of Nordic Swan Ecolabelled product (e.g., cannot sell a larger volume than the corresponding quantity purchased from the individual aluminium producers)

[3] All major suppliers are compliant with one of the 3 alternatives. Major suppliers are here defined as suppliers delivering 75% of the total volume (w/w) of aluminium components in the Nordic Swan Ecolabelled product.

[4] https://aluminium-stewardship.org/asi-standards/asi-performance-standard (visited November 2022)

Ecolabelled product stating that the requirement is met. The declaration from the supplier of aluminium can be based on purchase records/average data from several aluminium suppliers.

☒ Alternative 2: eBVD or EPD can be used as documentation if these are based on product-specific data/data from the aluminium producer´s own production and specifically state the content of recycled aluminium in the product.

☒ Alternative 3: Valid Hydro Circal certificate[5].

**Primary aluminium production (B):**

Alternative 1:

☒ Enclose latest sustainability strategy report or equivalent documentation from the producer of primary aluminium showing fulfilment of the requirement. The producer of primary aluminium can also present specific targets from annual business report with reference to specific numbers and assumptions. Average numbers from the producer of primary aluminium with several steel melting plants is accepted.

☒ Information on type of traceability used to document the requirement.

Alternative 2:

☒ Declaration that the requirement is met, as well as calculation and indication of direct emissions in tonnes of CO2e/ton of aluminium produced.

☒ Information on type of traceability used to document the requirement.

Alternative 3:

☒ Declaration that the requirement is met, as well as calculation and indication of electricity consumption in MWh/ton produced aluminium.

☒ Information on type of traceability used to document the requirement.

Alternative 4:

☒ Enclose valid ASI Performance certificate from the primary aluminium producer.

☒ Information from the supplier/manufacturer of the constituent aluminium part about which aluminium parts are from certified aluminium production (purchase records).

☒ Information from the supplier/manufacturer of the constituent aluminium parts on type of traceability used to document the requirement.

☒ Documentation from the manufacturer of the Nordic Swan Ecolabelled product that the requirement for share of purchased aluminium from certified aluminium producers is fulfilled – e.g., invoices or other documentation from suppliers.

## 1.6 Chemicals

The requirements in this chapter apply to chemical products, used in the production of the Nordic Swan Ecolabelled product, such as adhesives, resins,

[5] https://www.hydro.com/en-DK/about-hydro/publications/certificates/ (November 2022)

and waxes, as well as to surface treatments. The chapter is divided into 2 sub-sections:

- Requirements concerning chemicals in the production of the Nordic Swan Ecolabelled product, such as adhesives, resins and waxes, Section 1.6.1
- Requirements concerning chemical products used for surface treatment*, Section 1.6.2.

** Lamination (thin layer of laminate < 2 mm, including melamine) on another panel is not considered to be surface treatment. For a wood-based panel with laminate, both elements must fulfil the requirements for the relevant panel type individually, i.e., the wood-based panel and laminate must both meet the requirements for chemicals in Sections 1.6.1.*

Chemical products used in the manufacture of paper, and to print patterns on the decor paper, are not covered by these requirements. Auxiliary substances such as lubricants and detergents are also not covered by these requirements.

### Definitions

The requirements in the criteria document apply to all ingoing substances in the chemical product. Impurities are not regarded as ingoing substances and are therefore exempt from the requirements. Ingoing substances and impurities are defined as below, unless stated otherwise.

- **Ingoing substances**: All substances in the product, including additives (e.g., preservatives and stabilisers) in the raw materials. Substances known to be released from ingoing substances (e.g., formaldehyde, arylamine, in situ-generated preservatives) are also regarded as ingoing substances.
- **Impurities**: Residues from production, incl. raw material production, which remain in the chemical product at concentrations below 1000 ppm (0.1000% by weight).

Examples of impurities are reagent residue incl. residues of monomers, catalysts, by-products, “scavengers” (i.e., chemicals used to eliminate/minimise undesirable substances), cleaning agents for production equipment and “carry-over” from other/previous production lines.

## 1.6.1 Chemicals used in the production of panels

The requirements in this chapter concern chemicals used in the production of the Nordic Swan Ecolabelled product itself such as adhesives, resins, or additives.

### O30 Classification of chemical products

Chemical products used in the production of the Nordic Swan Ecolabelled product must not be classified in accordance with the table below.

| **CLP Regulation 1272/2008** | | |
|---|---|---|
| **Hazard statement** | **Hazard class and category** | **Hazard code** |
| Toxic to the environment | Aquatic Acute 1<br>Aquatic Chronic 1<br>Aquatic Chronic 2<br>Ozone | H400<br>H410<br>H411<br>H420 |

| | | |
|---|---|---|
| Acute toxicity | Acute Tox 1 or 2<br>Acute Tox 1 or 2<br>Acute Tox 1 or 2<br>Acute Tox 3<br>Acute Tox 3<br>Acute Tox 3 | H300<br>H310<br>H330<br>H301<br>H311<br>H331 |
| Specific target organ toxicity – single exposure/repeated exposure | STOT SE 1<br>STOT RE 1 | H370<br>H372 |
| Carcinogenic[1] | Carc. 1A or 1B<br>Carc. 2 | H350<br>H351 |
| Germ cell mutagenic[1] | Mut. 1A or 1B<br>Mut. 2 | H340<br>H341 |
| Reproductive toxicity[1] | Repr. 1A or 1B<br>Repr. 2<br>Lact. | H360<br>H361<br>H362 |

[1] *Including all combinations of stated exposure route and stated specific effect. For example, H350 also covers the classification H350i.*

*Note that responsibility for correct classification lies with the manufacturer.*

Exemptions apply for:

- Classification H351 for adhesive products containing methylene diphenyl diisocyanate (MDI).
- Classifications H350, H341, H301, H311 and H331 for adhesive products and resins containing formaldehyde (CAS no. 50-00-0). Formaldehyde emissions are regulated in a separate requirement.
- Classifications H341, H301 and H331 for resins containing a maximum of 10% by weight of phenol (CAS no. 108-95-2).
- Classifications H301, H311, H331 and H370 for resins containing a maximum of 10% by weight of methanol (CAS no. 67-56-1).
- Classifications H351 and H361 for resins containing melamine (CAS no. 108-78-1).
- UV curing products are exempted from classification H411 under the following conditions: There must be a controlled closed process where no discharge to recipient takes place. Spillage and general waste (e.g., cleaning residue) must be collected in containers approved for hazardous waste and handled by a waste contractor.

☒ A declaration from the chemical manufacturer or supplier. Appendix 4 may be used.

☒ A safety data sheet for the product in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

☒ Exemption for UV curing products: Description of the process and how waste and general waste are handled, including information about who receives the general waste.

## O31 Classification of ingoing substances

Ingoing substances in the chemical product used in production must not be classified as in the table below.

| **CLP Regulation 1272/2008** | | |
|---|---|---|
| **Hazard statement** | **Hazard class and category** | **Hazard code** |
| Carcinogenic[1] | Carc. 1A or 1B<br>Carc. 2 | H350<br>H351 |

| | | |
|---|---|---|
| Germ cell mutagenic[1] | Mut. 1A or 1B<br>Mut. 2 | H340<br>H341 |
| Reproductive toxicity[1] | Repr. 1A or 1B<br>Repr. 2<br>Lact. | H360<br>H361<br>H362 |
| Endocrine disruption for human health | ED HH 1<br>ED HH 2 | EUH380<br>EUH381 |
| Endocrine disruption for the environment | ED ENV 1<br>ED ENV 2 | EUH431<br>EUH431 |
| Persistent, Bioaccumulative and Toxic properties<br>Very Persistent, Very Bioaccumulative properties | PBT<br>vPvB | EUH440<br>EUH441 |
| Persistent, Mobile, and Toxic properties<br>Very Persistent, Very Mobile properties | PMT<br>vPvM | EUH450<br>EUH451 |

[1] *Including all combinations of stated exposure route and stated specific effect. For example, H350 also covers the classification H350i.*

Exemptions apply for:

- Adhesive containing methylene diphenyl diisocyanate (MDI) classified as H351.
- Adhesive and resin containing formaldehyde (CAS no. 50-00-0) classified as H350 and H341. Formaldehyde emissions are regulated in a separate requirement.
- Resin containing maximum 10% by weight of phenol (CAS no. 108-95-2) classified as H341.
- Resin containing melamine (CAS no. 108-78-1) classified as H351 and H361.
- Titanium dioxide (CAS no. 13463-67-7) classified as H351.
- 1,1,1-Trimethylolpropane (TMP, CAS no. 77-99-6) classified as H361.

✉ A declaration from the chemical manufacturer or supplier. Appendix 4 may be used.

✉ A safety data sheet for the product in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

## O32 Prohibited substances

The chemical product used in production must not contain the following substances:

- Substances on the Candidate List*
    - Exemption applies to melamine (CAS No. 108-78-1)
- Substances that have been judged in the EU to be PBT (Persistent, Bio accumulative and Toxic) or vPvB (very Persistent and very Bio accumulative)**
- Halogenated organic compounds.
    - Exemptions apply for Bronopol, IPBC and CMIT/MIT (3:1). These are set out in requirement O35.
- Per- and polyfluoroalkyl substances (PFASs), e.g., PFOA and PFOS
- Butylhydroxytoluene (BHT, CAS No. 128-37-0)
- Aziridine and polyazidirines
- Bisphenols and bisphenol derivatives
    - Bisphenol A used in the production of epoxy acrylate is not covered by the requirement.

- Assessment of regulatory needs: Bisphenols. ECHA – 16 December 2021: Section 2.1: Bisphenols for which further EU RRM is proposed – restriction https://echa.europa.eu/documents/10162/c2a8b29d-0e2d-7df8-dac1-2433e2477b02

- APEO (alkylphenol ethoxylates) and APD (alkylphenol derivatives/alkylphenols) ***
- Phthalates****
- Pigments and additives based on lead, tin, cadmium, chromium VI and mercury, and their compounds
- Endocrine disruptors: Substances on the EU member state initiative "Endocrine Disruptor Lists", List I, List II and List III, see following links:

*List I: https://edlists.org/the-ed-lists/list-i-substances-identified-as-endocrine-disruptors-by-the-eu*

*List II: https://edlists.org/the-ed-lists/list-ii-substances-under-eu-investigation-endocrine-disruption*

*List III: https://edlists.org/the-ed-lists/list-iii-substances-identified-as-endocrine-disruptors-by-participating-national-authorities*

*Substances that are transferred to one of the corresponding sub-lists "Substances no longer on list" and that no longer feature on Lists I–III are not prohibited. However, this does not apply to the substances listed in Sub-List II that were evaluated based on regulations or directives that do not have provisions for identifying endocrine disruptors (e.g., the Cosmetics Regulation). These substances may have endocrine disrupting properties. Nordic Ecolabelling will assess these substances on a case-by-case basis, based on the background information provided in Sub-List II.*

** The Candidate List can be found on the ECHA website: http://echa.europa.eu/candidate-list-table*

*** PBT and vPvB in accordance with the criteria in Annex XIII of REACH*

**** Alkylphenol derivatives are defined as substances that release alkylphenols when they break down.*

***** Phthalates are esters of 1,2-benzenedicarboxylic acid (orthophthalic acid).*

✉ A declaration from the manufacturer/supplier of the chemical product. Appendix 4 may be used.

✉ A safety data sheet for the product in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

## O33 Antibacterial substances

Chemical products and nanomaterials* with antibacterial or disinfectant properties must not be added during production.

The term antibacterial means chemical products that prevent or inhibit growth of microorganisms, such as bacteria or fungi. Silver ions, silver nanoparticles, gold nanoparticles and copper nanoparticles are classed as antibacterial agents.

*The requirement does not apply to preservatives used to preserve the chemical product, so-called in-can preservatives.*

** Nanomaterials/-particles are defined according to the EU Commission Recommendation on the Definition of Nanomaterial (2022/C 229/01).*

✉ Declaration from the manufacturer of the product that no chemical products and nanomaterials with antibacterial or disinfecting properties have been added during production.

✉ Declaration from the manufacturer/supplier of the chemical product that the product does not contain nanomaterials with antibacterial or disinfecting properties. Appendix 4 may be used.

## O34 Nanomaterials

The chemical product must not contain nanomaterials*.

Exemptions apply for:

- Pigments. This exemption does not include pigments added for purposes other than colouring.
- Naturally occurring inorganic fillers**.
- Synthetic amorphous silica (SAS)***.
- Polymer dispersions.

** Nanomaterials/-particles are defined according to the EU Commission Recommendation on the Definition of Nanomaterial (2022/C 229/01).*
*** This applies to fillers covered by Annex V point 7 in REACH.*

**** This applies to non-modified synthetic amorphous silica and surface-treated pyrogenic silica, as long as the silica particles form aggregates or agglomerates in the end product. For surface treated nanoparticles, the surface treatment must meet the chemical requirements in O31 (Classification of ingoing substances) and O32 (Prohibited substances).*

✉ A declaration from the chemical manufacturer that the chemical product does not contain any nanomaterial. Appendix 4 may be used.

## O35 Preservatives

The content of preservatives in the chemical product must meet the following limit values:

| Preservative | Limit value |
|---|---|
| Bronopol | ≤ 500 ppm (0.05% by weight) |
| IPBC (iodopropynyl butylcarbamate) | ≤ 2000 ppm (0.20% by weight) |
| Mixture (3:1) of CMIT/MIT (5 chloro-2-methyl-4-isothiazolin-3-one / 2-methyl-4-isothiazolin-3-one) | ≤ 15 ppm (0.0015% by weight) |
| MIT (2-methyl-2H-isothiazol-3-one) | ≤ 100 ppm (0.01% by weight) |
| Total amount of isothiazolinones | ≤ 500 ppm (0.05% by weight). |

✉ A declaration from the chemical manufacturer or supplier. Appendix 4 may be used.

✉ A safety data sheet for the product in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

## O36 Volatile organic compounds in adhesives

Volatile organic compounds (VOC), including volatile aromatic compounds (VAH), may be present in the adhesive to a maximum of 3% by weight. Of these,

VAHs may be present in the adhesive to a maximum of 0.1% by weight.

Resin used in the production of laminate is exempted from the requirement that the laminate must meet later requirements for VOC emissions.

*Definition of Volatile organic compounds (VOC), see terms and definitions.*

✉ Declaration from the adhesive manufacturer/supplier that the requirement is fulfilled. Appendix 4 may be used.

### O37 Free formaldehyde

The content of free formaldehyde (from formaldehyde not deliberately added or from formaldehyde-releasing substances) must not exceed 0.02% by weight (200 ppm) in the chemical product.

For adhesive products, up to 0.2% by weight (2000 ppm) of free formaldehyde is permitted.

For adhesive products used for load-bearing structures the requirement can be applied to the mixture of adhesive and hardener. The mixing of adhesive and hardener and application of the mixture must be performed with methods that protect the workers from exposure. For all other adhesive products, the requirement applies to the pure adhesive before mixing with any hardener.

Resin used in the production of laminate is exempted from the requirement if the laminate fulfils later requirements concerning emissions of formaldehyde.

✉ A declaration from the manufacturer/supplier of the chemical product that the requirement is fulfilled. For adhesive products used for load-bearing structures a declaration must also be sent in by the panel producer that describes how the workers are protected from exposure when the adhesive and hardener is mixed and applied. Appendix 4 may be used.

## 1.6.2 Surface treatment

The requirements in this chapter apply to surface treatment* products such as lacquers, oils, paints, and stains. There are also requirements for foiling with plastic. Any filler used is also covered by these requirements.

** Lamination (thin layer of laminate < 2 mm, including melamine) on another panel is not considered to be surface treatment. For a wood-based panel with laminate, both elements must fulfil the requirements for the relevant panel type individually, i.e., the wood-based panel and laminate must both meet the requirements for chemicals in Sections 1.6.1.*

### O38 Plastic foiling

The type of plastic used for wrapping the surface must be stated.

Foiling with chlorinated plastics such as PVC is not permitted.

Adhesives used for foiling must fulfil the requirements in Sections 1.6.1.

✉ State plastic type for foiling.

### O39 Classification of chemical products

The chemical products used for surface treatment must not have any of the classifications in the table below.

| **CLP Regulation 1272/2008** | | |
|---|---|---|
| **Hazard statement** | **Hazard class and category** | **Hazard code** |
| Toxic to the environment* | Aquatic Acute 1<br>Aquatic Chronic 1<br>Aquatic Chronic 2<br>Ozone | H400<br>H410<br>H411<br>H420 |
| Acute toxicity | Acute Tox 1 or 2<br>Acute Tox 1 or 2<br>Acute Tox 1 or 2<br>Acute Tox 3<br>Acute Tox 3 | H300<br>H310<br>H330<br>H301<br>H311 |

| | | |
|---|---|---|
| | Acute Tox 3 | H331 |
| Specific target organ toxicity – single exposure/repeated exposure | STOT SE 1<br>STOT RE 1 | H370<br>H372 |
| Respiratory sensitisation | Resp. Sens. 1, 1A or 1B | H334 |
| Carcinogenic[1] | Carc. 1A or 1B<br>Carc. 2 | H350<br>H351 |
| Germ cell mutagenic[1] | Mut. 1A or 1B<br>Mut. 2 | H340<br>H341 |
| Reproductive toxicity[1] | Repr. 1A or 1B<br>Repr. 2<br>Lact. | H360<br>H361<br>H362 |

[1] *Including all combinations of stated exposure route and stated specific effect. For example, H350 also covers the classification H350i.*

** Exceptions are made for UV curing surface treatment products classified as environmentally hazardous if requirement O40 is fulfilled.*

*Note that responsibility for correct classification lies with the manufacturer.*

✉ Safety data sheet for each chemical product used in the surface treatment (system) in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

✉ Declaration from the manufacturer of the chemical products used in the surface treatment (system). Appendix 5 may be used.

## O40 UV curing surface treatment system

UV curing surface treatment products must be applied to the material in a controlled closed process where no discharge to recipient takes place. Spillage and general waste (e.g., cleaning residue) must be collected in containers approved for hazardous waste and handled by a waste contractor.

✉ Description of the process and how waste and residual waste are handled, including information on who receives the residual waste from the performer of the surface treatment.

## O41 Classification of ingoing substances

Ingoing substances in the chemical product that is used for the surface treatment must not have the classifications in the table below:

| **CLP Regulation 1272/2008** | | |
|---|---|---|
| **Hazard statement** | **Hazard class and category** | **Hazard code** |
| Carcinogenic[1] | Carc. 1A or 1B<br>Carc. 2 | H350<br>H351 |
| Germ cell mutagenic[1] | Mut. 1A or 1B<br>Mut. 2 | H340<br>H341 |
| Toxic for reproduction[1] | Repr. 1A or 1B<br>Repr. 2<br>Lact. | H360<br>H361<br>H362 |
| Endocrine disruption for human health | ED HH 1<br>ED HH 2 | EUH380<br>EUH381 |
| Endocrine disruption for the environment | ED ENV 1<br>ED ENV 2 | EUH431<br>EUH431 |
| Persistent, Bio accumulative and Toxic properties<br>Very Persistent, Very Bio accumulative properties | PBT<br>vPvB | EUH440<br>EUH441 |
| Persistent, Mobile, and Toxic properties<br>Very Persistent, Very Mobile properties | PMT<br>vPvM | EUH450<br>EUH451 |

*[1] Including all combinations of stated exposure route and stated specific effect. For example, H350 also covers the classification H350i.*

Exemptions apply for:

- Photo initiators classified as H351, H341 or H361
- Titanium dioxide (CAS no. 13463-67-7) classified as H351
- 1,1,1-Trimethylolpropane (TMP, CAS no. 77-99-6) classified as H361
- Trimethylolpropane triacrylate (TMPTA) with CAS 15625-89-5 classified as Carc 2, H351
- Mequinol (CAS no. 150-76-5) classified as H361
- The hardener in two-component UV products can be exempted from the requirement if the following is met: it must be documented that the workers are not exposed to the components, e.g., by using safety equipment when mixing or that the mixing takes place automatically without exposure of the workers and that the application of the finished two-component system is done in a closed system.

✉ Safety data sheet for each chemical product used in the surface treatment (system) in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

✉ A declaration from the manufacturer of the chemical product(s) used in the surface treatment. Appendix 5 may be used.

✉ Exemption for two-component products: description of the application system and how workers are protected from exposure.

## O42 Prohibited substances

The chemical product must not contain the following substances:

- Substances on the Candidate List*
- Substances that have been judged in the EU to be PBT (Persistent, Bio accumulative and Toxic) or vPvB (very Persistent and very Bio accumulative)**
- Halogenated organic compounds with the following exceptions:
    - The preservatives bronopol, IPBC and CMIT/MIT (3:1). These are addressed in a separate requirement, see O45.
    - Halogenated organic pigments that comply with the Council of Europe recommendation “Resolution AP (89) 1 on the use of colourants in plastic materials coming into contact with food”, point 2.5
    - Epoxy acrylate used in UV curing surface treatment products
- Per- and polyfluoroalkyl substances (PFASs), e.g., PFOA and PFOS
- Aziridine and polyazidirines
    - An exemption is made for aziridines/polyaziridines if the substance is not classified as carcinogenic, mutagenic or reprotoxic from any manufacturer or in ECHA.
- Bisphenols and bisphenol derivatives
    - Bisphenol A used in the production of epoxy acrylate is not covered by the requirement.
    - Assessment of regulatory needs: Bisphenols. ECHA – 16 December 2021: Section 2.1: Bisphenols for which further EU RRM is proposed – restriction

https://echa.europa.eu/documents/10162/c2a8b29d-0e2d-7df8-dac1-2433e2477b02

- APEO (alkylphenol ethoxylates) and APD (alkylphenol derivatives)/alkylphenols ***
- Phthalates****
- Pigments and additives based on lead, tin, cadmium, chromium VI and mercury, and their compounds
- Volatile aromatic hydrocarbons (VAH). They are permitted in the chemical product as an impurity at a level of not more than 1% by weight
- Endocrine disruptors: Substances on the EU member state initiative "Endocrine Disruptor Lists", List I, List II and List III. See links below.
    - An exemption is made for BHT that is included in UV curing lacquers and paints. If BHT receives a harmonised classification that means the substance does not meet the requirements in the criteria document, the exemption will lapse.

*List I: https://edlists.org/the-ed-lists/list-i-substances-identified-as-endocrine-disruptors-by-the-eu*

*List II: https://edlists.org/the-ed-lists/list-ii-substances-under-eu-investigation-endocrine-disruption*

*List III: https://edlists.org/the-ed-lists/list-iii-substances-identified-as-endocrine-disruptors-by-participating-national-authorities*

*Substances that are transferred to one of the corresponding sub-lists "Substances no longer on list" and that no longer feature on Lists I–III are not prohibited. However, this does not apply to the substances listed in Sub-List II that were evaluated on the basis of regulations or directives that do not have provisions for identifying endocrine disruptors (e.g. the Cosmetics Regulation). These substances may have endocrine disrupting properties. Nordic Ecolabelling will assess these substances on a case-by-case basis, based on the background information provided in Sub-List II.*

** The Candidate List can be found on the ECHA website: http://echa.europa.eu/candidate-list-table*

*** PBT and vPvB in accordance with the criteria in Annex XIII of REACH*

**** Alkylphenol derivatives are defined as substances that release alkylphenols when they break down.*

***** Phthalates are esters of 1,2-benzenedicarboxylic acid (orthophthalic acid).*

✉ Safety data sheet for each chemical product used in surface treatment in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

✉ Declaration from the manufacturer of the chemical product(s) used in the surface treatment. Appendix 5 may be used.

## O43 Antibacterial substances

Chemical products and nanomaterials* with antibacterial or disinfectant properties must not be added to the finished product.

The term antibacterial means chemical products that prevent or inhibit growth of microorganisms, such as bacteria or fungi. Silver ions, silver nanoparticles, gold nanoparticles and copper nanoparticles are classed as antibacterial agents.

*The requirement does not apply to preservatives used to preserve the chemical product, so-called in-can preservatives.*

** Nanomaterials/-particles are defined according to the EU Commission Recommendation on the Definition of Nanomaterial (2022/C 229/01).*

✉ Declaration from the manufacturer of the product that no chemical products and nanomaterials with antibacterial or disinfecting properties have been added to the finished product.

✉ Declaration from the manufacturer/supplier of the chemical product that the product does not contain nanomaterials with antibacterial or disinfecting properties. Appendix 5 may be used.

## O44 Nanomaterials

The chemical product must not contain nanomaterials*.

Exemptions apply for:

- Pigments. This exemption does not include pigments added for purposes other than colouring.
- Naturally occurring inorganic fillers**.
- Synthetic amorphous silica (SAS)***.
- Polymer dispersions.

** Nanomaterials/-particles are defined according to the EU Commission Recommendation on the Definition of Nanomaterial (2022/C 229/01).*
*** This applies to fillers covered by Annex V point 7 in REACH.*

**** This applies to non-modified synthetic amorphous silica and surface-treated pyrogenic silica, as long as the silica particles form aggregates or agglomerates in the end product. For surface treated nanoparticles, the surface treatment must meet the chemical requirements in O41 (Classification of ingoing substances) and O42 (Prohibited substances).*

✉ A declaration from the chemical manufacturer that the chemical product does not contain any nanomaterial. Appendix 5 may be used.

## O45 Preservatives

The content of preservatives in the chemical product must meet the following limit values:

| Preservative | Limit value |
|---|---|
| Bronopol | ≤ 500 ppm (0.05% by weight) |
| IPBC (iodopropynyl butylcarbamate) | ≤ 2000 ppm (0.20% by weight) |
| Mixture (3:1) of CMIT/MIT (5 chloro-2-methyl-4-isothiazolin-3-one / 2-methyl-4-isothiazolin-3-one) | ≤ 15 ppm (0.0015% by weight) |
| MIT (2-methyl-2H-isothiazol-3-one) | ≤ 100 ppm (0.01% by weight) |
| Total amount of isothiazolinones | ≤ 500 ppm (0.05% by weight). |

✉ A declaration from the chemical manufacturer or supplier. Appendix 5 may be used.

✉ A safety data sheet for the product in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

## O46 Free formaldehyde

The content of free formaldehyde in each individual chemical product used for surface treatment must not exceed 0.02% by weight (200 ppm).

✉ Declaration from the manufacture of the chemical product(s) in the surface treatment system. Appendix 5 may be used.

## O47 Application method and quantity applied – surface treatment

The following information must be given for each surface treatment system used:

a) Name of surface treatment product and manufacturer of surface treatment product

b) Quantity applied (g/m2), number of coats and application method(s) used

c) The following efficiency rates must be used when calculating VOC quantities in subsequent requirements:
   - Automated spray with no recycling: 50%
   - Automated spray with recycling: 70%
   - Spray application, electrostatic: 65%
   - Spray application, bell/disk: 80%
   - Roller coating: 95%
   - Curtain coating: 95%
   - Vacuum coating: 95%
   - Dipping: 95%
   - Rinsing: 95%

*The efficiency rates are standard values. Other efficiency rates may be used if they can be documented.*

✉ Description from the performer of the surface treatment of each surface treatment system used, in line with the requirement.

## O48 Quantity of applied volatile organic compounds (VOC)

In the surface treatment system, the chemical products that are used must meet one of the following alternatives in each surface treatment system:

a) The total VOC content must not exceed 5% by weight, or

b) The total amount of VOCs applied must not exceed 10 g/m$^2$ treated surface.

The total amount of VOCs in option b) is calculated using the following formula:

$$\frac{\text{Applisert mengde av overflatebehandlingsprodukt } \left(\frac{\text{g}}{\text{m}^2}\right) \times \text{Andel VOC i overflatebehandlingsproduktet } (\%)}{\text{Overflatebehandlingens virkningsgrad}(\%)}$$

For both alternatives, it is the VOC content of the chemical products in their uncured form that must meet the requirement. If the chemical products require dilution, the calculation must be based on the content in the diluted product.

*Definition of Volatile organic compounds (VOC), see terms and definitions.*

✉ Safety data sheet for each chemical product used in the surface treatment system in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

✉ Declaration from the manufacturer/supplier of the chemical products in the surface treatment system, detailing the quantity of VOCs in each product.

✉ A calculation from the performer of the surface treatment showing that alternative b) in the requirement is met if the surface treatment system does not meet alternative a).

# 1.7 Emissions

The requirements in this chapter cover different types of emissions. Emissions from the product (1.7.1), from the production process (COD 1.7.2) and in the working environment (1.7.3) are subject to requirements.

## 1.7.1 Emissions from the product

### O49 Emissions of formaldehyde and VOC

The panel/moulding must fulfil the emission requirements in the applicable category below. The analysis laboratory must be an independent third party.

**Wood-based panels/mouldings (including melamine faced products)**

The emission of formaldehyde and carcinogenic VOC cat. 1A and 1B must not exceed the limit values for the relevant test method* according to table below:

| Test method | EN 717–1 | EN 16516 |
|---|---|---|
| Formaldehyde | 0,06 mg/m$^3$ | Under develupment |
| Carcinogenic VOC cat. 1A and 1B | | 0,001 mg/m$^3$ |

*Limit value after 28 days according to EN 717-1 or EN 16516. If the limit values in the table are met for a period shorter than 28 days, this is accepted.*

** Or other test methods with scientifically proven correlation by independent third party.*

**Laminate and other types of panels/mouldings**

The emission of VOC and formaldehyde from the finished panel/moulding must not exceed the limit values for the relevant test method*according to table below:

| Test method | EN 16516 |
|---|---|
| TVOC (C6-C16) | 1,160 mg/m3 or (160 µg/m$^{3)}$ |
| TSVOC>C16 | 0,03 mg/m3 or (30 µg/m$^{3)}$ |
| Carcinogenic VOC cat. 1A and 1B | 0,001 mg/m$^3$ |
| Formaldehyde | 0,03 mg/m3 or (30 µg/m$^{3)}$ |

*Limit value after 28 days according to EN 16516. If the limit values in the table are met for a period shorter than 28 days, this is accepted.*

** Or other test methods whit scientifically proven correlation by independent third party.*

✉ Analysis report, including measurement methods, results, and measurement frequency. It must be clearly stated which method/standard was used and the laboratory that conducted the analysis.

## 1.7.2 Emissions from the production – COD

### O50 Emissions of COD from wet processes

The requirement covers wet processes in panel production. COD (Chemical Oxygen Demand) emissions to water must be maximum 20 g COD/kg product (unfiltered sample).

A description of the preparation and analysis methods is given in Appendix 1.

✉ Measurement results including information on sampling programmes and measurement methods for the past 12 months and measurement frequency.

### 1.7.3 Emissions from the production – working environment

#### O51 Emissions to air from production of laminate in HPL and compact laminate

Laminate produced with resins containing formaldehyde and phenol must adhere to the following hygienic limit values for emissions to air in the workplace (gate to gate at the laminate production site)*:

- The average value during an 8-hour period must not exceed:
  - 0.3 ppm (0.37 mg/m$^3$) for formaldehyde
  - 2 ppm (8 mg/m$^3$) for phenol.
- The average value during a reference period of 15 minutes must not exceed:
  - 0.6 ppm (0.74 mg/m$^3$) for formaldehyde
  - 4 ppm (16 mg/m$^3$) for phenol.

** If the legislation in the country in question has lower limit values than those stated in the requirement, the legal limit values must be fulfilled.*

✉ Test report showing compliance with the requirement. The report shall contain information about measurements, sampling programmes, measurement methods and measurement frequency. For analysis methods, see Appendix 1.

✉ Alternative documentation showing the legal requirements of the country in which production takes place. If the legislation in the individual country has lower limit values than those stated in the requirement, no further documentation is necessary.

#### O52 Emissions of dust

The following limit values for emissions to indoor air must not be exceeded during the manufacture of panels/mouldings in relation to the working environment.

The requirement relates to panels/moulding in which the content of mineral raw materials or wood raw materials individually accounts for more than 5 % by weight of the panel/moulding:

- Mineral dust, inert: 10 mg/m$^3$
- Mineral dust, inert, breathable: 5 mg/m$^3$
- Mineral wool: 1 fibre/cm$^3$
- Wood dust, breathable: 2 mg/m$^3$
- Organic dust, total: 5 mg/m$^3$

If the legislation in the individual country has a lower limit value than stated in the requirement, the legal limit value must be complied with

✉ Test report showing compliance with the limit value. The report shall contain information about measurements, sampling programmes, measurement methods and measurement frequency. For analysis methods, see Appendix 1.

✉ Alternative documentation showing the legal requirement in the country where production takes place. If the legislation in the individual country has lower limit values than those stated in the requirement, no further documentation is necessary.

## 1.8 Climate and energy

This chapter contains requirements for the energy consumption in the production of the different types of panels and specific type of raw materials used in the panels.

The energy consumption is calculated as MJ/kg product produced, and encompasses all energy used from **gate to gate** (phase A3 in EPDs) at the panel production site. Energy consumption also needs to be calculated for specific type of raw materials such as pulp/paper, resin/glue, laminate, cement, and mineral wool used in panels.

The requirements must be documented in the form of energy consumed (actual energy used in production) without the use of primary energy factors.

The requirement may be documented either just for the specific production of the ecolabelled panel or for the company's total annual production.

**System boundary for the requirement:** Energy consumption for extraction of raw materials and transport of raw materials is not part of the energy requirement. The energy requirements do not apply to raw materials that are included by less than **5 wt%** of the panel.

Further descriptions of how the energy calculation should be carried out can be found in Appendices 6.

### 1.8.1 Panels made from renewable raw materials

The requirements apply to energy consumption in the production of; kraft paper and paper pulp used in HPL, compact laminate, wood-based panels, panels made from other lignocellulose raw materials, CLT, glulam and solid wood panels/mouldings.

O53 **Energy consumption in the production of kraft paper and pulp that is included in HPL, compact laminate, acoustic- or gypsum plasterboards**

The requirement covers pulp and paper used in the production of kraft paper.

The requirement does not cover the production of decor paper.

The following requirements must be met:

$P^*_{electricity(total)} < 2.5$

$P^*_{fuel(total)} < 2.5$

For paper consisting solely of TPM/GW* produced on-site, the limit value for $P_{fuel(total)}$ is 1.25

**P is the energy score for the paper and pulp production. The energy scores from the production of both the paper and the pulps are included in $P_{electricity(total)}$ and $P_{fuel(total)}$. A more detailed description of how the calculation should be carried out can be found in Appendix 2.*

*TMP/GW = Thermomechanical pulp/groundwood*

✉ If pulp that has been checked in accordance with Nordic Ecolabelling's Basic Module for paper is used: Description of the producer, production site and name of the pulp.

✉ Calculation from the producers of the paper and pulp showing that the point limit is fulfilled. A calculation sheet has been developed for the energy calculation, which can be obtained from Nordic Ecolabelling.

## O54 Energy consumption – laminate production

Energy consumption in the production of laminate must not exceed the following limit values:

| Panel type | Energy consumption MJ/kg panel |
|---|---|
| Compact laminate<br>HPL ≥ 2 mm included | 8 MJ/kg |
| Other types of laminate ≤ 2 mm<br>HPL ≤ 2 mm included | 11 MJ/kg |

A detailed description of how to perform the calculation is given in Appendix 6.

✉ Calculation showing compliance with the requirement. The calculation must contain information about the quantity of panels produced, electricity and fuel consumed, and which fuel sources have been used.

## O55 Energy consumption – wood-based panels

Energy consumption in the production of these panels must 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 |
| Plywood | 9 MJ/kg |
| LVL | 9 MJ/kg |
| SWP | 5 MJ/kg |

If a type of wood-based panel is laminated, the wood-based panel must fulfil the requirement limit here, while the laminate must fulfil the requirements for laminate in O54.

Melamine-coated wood panels must only fulfil the requirement limit here.

Mouldings in same materials as shown in the table are also covered by the requirement limits.

A detailed description of how to perform the energy calculation is given in Appendix 6.

✉ Calculation showing compliance with the requirement. The calculation must contain information about the quantity of panels produced, electricity and fuel consumed, and which fuel sources have been used.

## O56 Energy consumption – panels made from other lignocellulose raw materials

Energy consumption in the production of panels based on other renewable raw materials, such as straw, linen or hemp, must not exceed 1 MJ/kg.

A detailed description of how to perform the calculation is given in Appendix 6.

✉ Calculation showing compliance with the requirement. The calculation must contain information about the quantity of panels produced, electricity and fuel consumed, and which fuel sources have been used.

### O57 Energy consumption - CLT and glulam (cross and glued laminated timber)

The energy consumption in production of CLT and Glulam must not exceed 5 MJ/kg.

A detailed description of how to perform the calculation is given in Appendix 6.

✉ Calculation showing compliance with the requirement. The calculation must include information about suppliers, the quantity from each supplier and the consumption of electricity and fuel, as well as the fuel sources used.

### O58 Energy consumption - Solid wood panels and mouldings

The energy consumption in production of solid wood panels/mouldings must not exceed 1350 MJ/m$^3$. The calculation includes energy consumption for drying, sawing, and planning wood that is included in the solid wood panel/moulding.

The limit value can be met per supplier or as an overall average of the suppliers.

✉ Calculation showing compliance with the requirement. The calculation must include information about suppliers, the quantity from each supplier and the consumption of electricity and fuel, as well as the fuel sources used.

## 1.8.2 Panels made from mineral- and non-renewable raw materials

The requirements apply to energy consumption in the production of; materials based on recycled composite, gypsum plaster boards, mineral wool, mineral wool-based panels, cement, cement-based panels, and panels made from other materials.

### O59 Energy consumption - Materials based on recycled composite

The energy consumption in production of panels made of recycled composite material must not exceed 1 MJ/kg.

*The requirement includes energy use (electricity and heat) from gate to gate at the production site e.g., pumping, refining, forming, heating, pressing, drying, cutting, and packaging. For more information, see Appendix 6.*

✉ Calculation showing compliance with the requirement. The calculation must contain information about the quantity of panels produced, electricity and fuel consumed, and which fuel sources have been used.

### O60 Energy consumption - gypsum plasterboards

The energy consumption in production of gypsum plasterboard must not exceed:

- 3 MJ/kg plasterboard (standard boards*)
- 3,5 MJ/kg plasterboard (premium boards**)

** Standard boards e.g., type A and light weight boards according to EN 520.*

*** Premium boards e.g., impact resistant boards*

*The requirement includes energy use (electricity and heat) from gate to gate at the production site e.g., pumping, refining, forming, heating, pressing, drying, cutting, and packaging. The requirement does not include extraction of resources and transport. Paper or mineral wool has its own energy requirements in O53.*

✉ Calculation showing compliance with the requirement. The calculation must contain information about the quantity of panels produced, electricity and fuel consumed, and which fuel sources have been used.

## O61 Energy consumption - mineral wool

The requirement covers part a) energy consumption in mineral wool production such as glass- and stone mineral wool and part b) fossil fuels.

**a) Energy consumption**

- The energy consumption in production of stone wool must not exceed 15 MJ/kg board.
- The energy consumption in production of glass wool (incl. fibre glass) must not exceed 13 MJ/kg board.

*The requirement does not include extraction of resources and transport.*

**b) Fossil fuels**

- Fossil oil and coal must not be used as fuels* for production of process heat in the production of glass- and stone wool.

*Necessary use of fossil oil e.g., in planned maintenance stops, emergency maintenance stops, as a reserve and tip fuel (peak load fuel) or at start-ups for regulation of the combustion temperature in a heat and co-generation boiler is allowed.*

** Use of natural gas and liquefied petroleum gas (LPG) is allowed.*

✉ A) Calculation showing compliance with the requirement. The calculation must contain information about the quantity of panels produced, electricity and fuel consumed, and which fuel sources have been used.

✉ B) The mineral wool manufacturer shall confirm that fossil oil and/or coal are not used as fuels to produce process heat in the production of glass-and stone wool.

## O62 Energy consumption - mineral wool-based panel (incl. facing/finishing)

The energy consumption in production of mineral wool-based panels must not exceed 4 MJ/kg panel.

*The requirement includes energy use (electricity and heat) from gate to gate at the production site e.g., cutting, facing the mineral wool, surface coating and packaging. Manufacturing of mineral wool or fleece/glass fleece and transport is not part of the requirement.*

✉ Calculation showing compliance with the requirement. The calculation must contain information about the quantity of panels produced, electricity and fuel consumed, and which fuel sources have been used.

## O63 Energy consumption - Cement

Cement defined according to EN 197-1 must comply with the requirement a) global warming potential (GWP) and b) fossil fuels:

**a) The total global warming potential (GWP)**

- The total global warming potential (GWP) from cradle-to-gate shall not exceed the values given in table below.

**Table 1:** Limit values for product-specific emissions for cement. Product specific GWPtot for the cradle to gate system boundary (A1-A3)

| Cement/hydraulic binder type | GWPtot |
|---|---|
| **White cement clinker** | **0.973 tCO2e/tonne white cement clinker** |
| **Grey cement clinker** | **0.722 tCO2e/tonne grey cement clinker** |
| **Lime** | **0.746 tCO2e/tonne lime** |

**b) Fossil fuels**

- Fossil oil and coal must not be used as fuels* for production of process heat in the production of cement.

*Necessary use of fossil oil e.g., in planned maintenance stops, emergency maintenance stops, as a reserve and tip fuel (peak load fuel) or at start-ups for regulation of the combustion temperature in a heat and co-generation boiler is allowed.*

** Use of natural gas and liquefied petroleum gas (LPG) is allowed.*

✉ A) Product-Specific Type III Environmental Product Declaration (EPD) in accordance with EN 15804+A2 & ISO 14025 / ISO 21930 and PCR/c-PCR showing that the GWP limit is met.

✉ B) The cement manufacturer shall confirm that fossil oil and/or coal are not used as fuels to produce process heat in the production of cement.

✉ Documentation from the license holder showing that the specific cement is used in the product.

### O64 Energy consumption - cement-based panels

The energy consumption in production of fibre cement flat sheets must not exceed 2 MJ/kg panel.

The energy consumption in production of wood wool boards/panels must not exceed 3 MJ/kg board/panel.

*The requirement includes energy use (electricity and heat) from gate to gate at the production site e.g., pumping, refining, forming, pressing, drying, cutting, and packaging. Manufacturing of cement and transport is not part of the requirement.*

✉ Calculation showing compliance with the requirement. The calculation must contain information about the quantity of panels produced, electricity and fuel consumed, and which fuel sources have been used.

### O65 Energy consumption - panels made from other materials

The energy consumption in production of panels made from other materials* must not exceed 4 MJ/kg panel.

** Other material covered by the criteria such as plastic, textile or aluminium.*

*The requirement includes energy use (electricity and heat) from gate to gate at the production site e.g., site e.g., pumping, refining, forming (production of felt board), pressing, drying, gluing/laminating different types of material layers together, cutting and packaging. Manufacturing of polymer/PET granulate/PET fibre production is not part of the requirement.*

✉ Calculation showing compliance with the requirement. The calculation must contain information about the quantity of panels produced, electricity and fuel consumed, and which fuel sources have been used.

## 1.9 Circularity

The requirements in this chapter concern resource efficiency that have the function to increase the circularity of panels and mouldings. These requirements deal with instructions, maintenance, and take-back systems.

### O66 Information for consumers

*Consumer means both private consumers and professional operators.*

The following product information should accompany the product and/or be available for download on the manufacturer's website:

- How the product is to be stored before assembly, e.g., at the construction site.
- Instructions for assembly and instructions for any surface treatment after installation.
- Information about which materials are used in the panels (raw materials and chemicals).
- Specify the standards by which the product is tested.

The information must be available in the language of each country in which the Nordic Swan Ecolabelled product is marketed.

✉ Product information intended for customers.

### O67 Maintenance

For products that are used as the outermost layer on e.g., a wall or ceiling or otherwise have a surface directly facing the consumer, the following must be included:

- Cleaning instructions
- Information on maintenance that includes which care products are suitable for the product (paints, oils, etc.) and how often these products should be used.
- The information can either be supplied with the product or consumers can be referred to information on the manufacturer's website.

✉ Cleaning and maintenance instructions and how these are communicated to the customer.

### O68 Take back system

This requirement does not include panels collected in already functioning national return systems such as wood-based panels and gypsum plasterboards.

The manufactures of panels must:

- offer a system for taking back products, e.g., old used panels, incorrect deliveries, faulted product, panels not used in the construction process and so on,

  or

- be in a process/test/pilot face to establish a system for taking back products, e.g., old used panels, incorrect deliveries, faulted product, panels not used in the construction process and so on.

✉ Description of the offered take back system or planed/tested take back system.

## 1.10 Innovation

The requirement in this chapter covers various areas where Nordic Ecolabelling sees an opportunity to promote manufacturers that contribute to innovation, e.g., by using bio-based raw materials for adhesive production; to the circular economy or reduced greenhouse gas emissions; and to measures concerning biodiversity. One of the points must be fulfilled, and the manufacturer can decide which measure they wish to fulfil. This offers flexibility. Nordic Ecolabelling would also like to provide signals as to what may become mandatory in the next revision of the criteria.

### O69 Innovation in production

The applicant/producer must fulfil at least 1 of the following 13 options:

| Area | Requirement |
|---|---|
| **Chemicals** | Adhesives and/or surface treatment products, such as paints, lacquers, or stains, used in the production of the Nordic Swan Ecolabelled product are Nordic Swan Ecolabelled. |
| | No adhesives based on urea-formaldehyde or isocyanate are used in the production of the Nordic Swan Ecolabelled product. |
| | The binder in the adhesive used in the production of the Nordic Swan Ecolabelled product contains one or more components that are made of renewable raw materials. |
| | None of the ingoing substances that are contained in the chemical products used in the production of the Nordic Swan Ecolabel product are classified as SVHC or CMR. |
| **Raw materials and biodiversity** | A minimum 100% by weight of the wood raw material, bamboo and cork used in the Nordic Swan Ecolabelled product (production line) comes from forests that are managed in accordance with sustainable forestry management principles/recycled wood raw material as defined by FSC or PEFC and is covered by a valid Chain of Custody certificate in accordance with the FSC/PEFC schemes. |
| | A minimum 50% by weight of the wood raw material, bamboo and cork used in the Nordic Swan Ecolabelled product (production line) is post-consumer* recycled wood/paper raw material. |
| | A minimum 60% by weight of the textile, plastic or recycled composite used in the Nordic Swan Ecolabelled product (production line) is post-consumer* recycled raw materials. |
| | A minimum of 15% by weight of the gypsum used in the Nordic Swan Ecolabelled product (production line) is post-consumer recycled raw materials. |
| **Climate** | The production (production line) of the Nordic Swan Ecolabelled product, is fossil-free*.<br>* Fossil-free means that the energy used for the production of heat, steam or pressure on the production line is not based on fossil energy sources such as oil, diesel and natural gas. Electricity is not covered by the requirement. |
| | Energy consumption in the production of the Nordic Swan Ecolabelled product is at least 10% lower than the limit values specified in section 3.9. |
| | The manufacturer has its own energy production, e.g., solar panels, solar collectors, or its own wind turbine, which is used for the manufacturing of the Nordic Swan Ecolabelled panels, mouldings or glulam. This does not apply to heat pumps. |
| | 100% of the purchased electricity is ecolabelled according to Bra Miljöval, EKO Energy or similar* |
| **End of life - circular economy** | The manufacturer of panels has a fully operational take-back system and new panels contains min. 5% post-consumer recycled material from reprocessed own products collected via the system. |

** Ecolabels for electricity are assessed according to the guidelines which are located here (link). Bra Miljöval and EKOEnergy are assessed and approved.*

✉ Documentation in relation to the above-mentioned alternatives in the requirement.

# 2 Licence maintenance

The purpose of the licence maintenance is to ensure that fundamental quality assurance is dealt with appropriately.

## O70 Customer complaints

The licensee must guarantee that the quality of the Nordic Swan Ecolabelled product or service does not deteriorate during the validity period of the licence. Therefore, the licensee must keep an archive over customer complaints.

Note that the original routine must be in one Nordic language or in English.

✉ Upload your company's routine for handling and archiving customer complaints.

## O71 Traceability

The licensee must be able to trace the Nordic Swan Ecolabelled products in the production. A manufactured / sold product should be able to trace back to the occasion (time and date) and the location (specific factory) and, in relevant

cases, also which machine / production line where it was produced. In addition, it should be possible to connect the product with the actual raw material used.

You can upload your company's routine or a description of the actions to ensure traceability in your company.

✉ Please upload your routine or a description.

# Regulations for the Nordic Ecolabelling of products

When the Nordic Swan Ecolabel is used on products the licence number shall be included.

More information on graphical guidelines, regulations and fees can be found at www.nordic-swan-ecolabel.org/regulations

# Follow-up inspections

Nordic Ecolabelling may decide to check whether panels and mouldings for interior use fulfils Nordic Ecolabelling requirements during the licence period. This may involve a site visit, random sampling, or similar test.

The licence may be revoked if it is evident that panels and mouldings for interior use does not meet the requirements.

# Criteria version history

Nordic Ecolabelling adopted version 7.0 of the criteria for panels and mouldings for interior use on 15 June 2023. The criteria are valid until 31 December 2028.

# New criteria

As part of any future evaluation of the criteria, it will be relevant to consider the following:

- Product definition - new types of panels and mouldings for interior use
- Resources/use of raw materials
- Energy consumption in both production of relevant raw materials and production of panels
- Emissions from production of panels and from the panels
- End of life

# Appendix 1 Laboratories and methods for testing and analysis

### General requirements for test and analysis laboratories

Tests must be carried out in a correct and competent way. The analysis laboratory/test institute must be impartial and professional.

If accreditation is not separately required, the test and/or analysis laboratory must comply with the general requirements of the EN ISO 17025 standard for the quality control of test and calibration laboratories or have official GLP status.

The applicant's laboratory can be approved if it is accredited and complies with the requirements of the standard EN ISO 17025.

When testing quality and performance properties, the applicant's own laboratory can be approved even if it is not accredited. The following applies:

- The laboratory has a certified quality system (ISO 9001) which includes testing, and
- The laboratory can show that the test results obtained are similar to the results from an accredited test laboratory through initial tests performed as parallel tests. Parallel tests must as a minimum be performed when test standards are updates, and
- The laboratory performs the tests in accordance with an established plan for the current test standard and documents the selection of products in a product series for worst case tests, and
- An independent inspection body shall, on the basis of test reports, confirm that the manufacturer's test results are consistent with the results of an accredited laboratory. This can, for example, be evaluated as part of an inspection of the laboratory's quality system carried out by the inspection body for certification of the quality system.

### Acoustic panels, acoustic performance O3

The sound absorption test must be carried out in accordance with the standardised test methods in EN ISO 354 and classification according to EN ISO 11654.

### Emissions of formaldehyde and VOC from panels O49

The test shall be carried out in accordance with the test method* EN 16516 or ISO 16000-3 or other equivalent standardised test conditions and determination methods.

* The methods and limit values are based on the EU commission published regulation amending Annex XVII of the REACH Regulation (EC) No 1907/2006. This requirement will be updated following the development of this regulation.

### Test method for COD emissions (wet process) O50

COD content shall be tested in accordance with ISO 6060 (Water quality — Determination of the chemical oxygen demand) or equivalent. If another analysis method is used, the licensee must show that it is equivalent. An analysis of PCOD or BOD may also be used as verification if a correlation with COD can be demonstrated. The method for measuring TOC is ISO 8245 Guidelines for the determination of total organic carbon (TOC) and dissolved organic carbon (DOC).

Sample frequency: Emissions to water are calculated as the annual average value and are based on at least one representative daily sample per week. Alternatively, a sampling frequency set by the authorities may also be approved.

Sampling: Water samples must be taken after the process wastewater has been treated in any internal water treatment plant. The flow at the time of sampling must be indicated. If the process wastewater is externally purified with other wastewater, the analysis result should be reduced by the documented efficiency of the COD in the external water treatment plant. The analyses must be carried out on unfiltered and un-sedimented samples in accordance with standard ISO 6060.

### Working environment – emissions to air O51 and O52

Air measurements must be carried out in accordance with standardised test methods in this area, such as EN 689 Workplace exposure – Measurement of exposure by inhalation to chemical agents – Strategy for testing compliance with occupational exposure limit values; EN 482 Workplace exposure – Procedures for the determination of the concentration of chemical agents – Basic performance requirements; or equivalent method approved by Nordic Ecolabelling.

EN 14042 Workplace atmospheres – Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

# Appendix 2 Energy requirements for paper and pulp production

### Energy calculation guidelines

Use of energy in the form of fuel and electricity is subject to requirements. Through information on the actual energy consumption during production in relation to set reference values, an energy point is calculated.

The energy calculation covers the entire paper product; both the paper production and the pulps used. Fillers in paper and transport of raw materials as well as within the factory area shall not be included in the energy calculation.

### Non-integrated pulp mill

*Electricity*

The calculations must include both purchased and on-site produced electricity.

Electricity = on-site produced electricity + purchased electricity - sold electricity.

The calculation of electricity consumption must be based on invoices and readings from electricity meters. On-site produced electricity is documented using readings from electricity meters. The requirement covers all processes from debarking to drying the pulp. An exemption applies to electricity for offices or lighting in the factory area. The average electricity consumption can be used for all pulps if the pulp mill only produces pulps of equivalent quality using the same type of process.

*Fuel*

The calculation must include both purchased fuel and fuel produced at the plant, divided into renewable and fossil fuels. The pulp producer must report the fuel used for on-site generated electricity and should deduct the fuel for electricity before reporting it to the paper manufacturer. The paper manufacturer deducts the fuel consumption from internally produced electricity using a factor of 1.25 in its own energy calculation.

Fuel pulp = fuel produced at the plant + purchased fuel - sold fuel* (sold fuel and/or heat/0,8)

The amount of fuel purchased must be adjusted to the quantities at the start and end of the current year. Consumption of internally produced fuel from bark, shavings and other wood residues is calculated using the thermal values for the fuels used or measured.

* *Excess energy*

Excess energy sold in the form of electricity, steam or heat is subtracted from the total consumption. The amount of fuel used to produce electricity or heat is calculated by dividing the sold electricity or heat by 0.8. This is equivalent to an average efficiency for the total production of electricity and heat.

Alternatively, the actual efficiency of the plant in the conversion of fuel to heat energy can be used.

*Verification*

An overview of the factory's energy supply system showing the number of boilers, with information about the boiler effect and which fuel is used.

Report on the amount of purchased, on-site produced, and sold electricity.

Report on the amount of purchased, on-site produced, and sold fuel/heat.

Conversion factors and efficiency must be stated if thermal energy has been re-calculated to fuel.

The calculation sheet produced by Nordic Ecolabelling can be used.

### Non-integrated paper mill

*Electricity*

The calculations must include both purchased and on-site produced electricity.

Electricity = on-site produced electricity + purchased electricity - sold electricity.

The calculation of electricity consumption must be based on invoices and readings from electricity meters. On-site produced electricity is documented using readings from electricity meters. The requirement covers all processes from pulping to drying the base paper. An exemption applies to electricity for offices or lighting in the factory area. The average electricity consumption can be used for all paper if the paper mill only produces paper of equivalent quality using the same type of process.

*Fuel*

All purchased fuel must be included in the calculations, divided into fossil and renewable fuels.

Fuel paper = purchased fuel - sold heat converted to excess energy*

The amount of purchased fuel must be adjusted to the quantities at the start and end of the current year.

* *Excess energy*

Excess energy sold in the form of electricity, steam or heat is subtracted from the total consumption. The amount of fuel used to generate electricity or heat that is sold off is calculated by dividing the sold electricity or heat by 0.8. The coefficient of 0.8 is equivalent to the average energy efficiency for total heat and electricity production. Alternatively, the actual energy efficiency of the plant in the conversion of fuel to heat energy can be used.

*Verification*

An overview of the paper machinery's energy supply system showing the number of boilers, with information about the boiler effect and which fuel is used.

Report on the amount of purchased, on-site produced, and sold electricity.

Report on the amount of purchased, on-site produced and sold fuel/heat.

Conversion factors and efficiency must be stated if thermal energy has been re-calculated to fuel.

The calculation sheet produced by Nordic Ecolabelling can be used.

### Steam

If excess steam from another production process is used (e.g., from another industry), the energy content of the steam must be included in the calculation. In this case, Table 1, the steam table should be used. If steam from electric boilers is used, the energy content must be converted to fuel in the same way, but the energy content must be multiplied by 1.25.

## Energy calculation, paper production

*Energy score for paper production*

Energy scores for $P_{paper(electricity)}$ and $P_{paper(fuel)}$ for paper production are calculated using the following formulas:

$$P_{paper\_electricity} = \frac{Electricity_{consumed}}{Electricity_{reference}}$$

$$P_{paper\_fuel} = \frac{Fuel_{consumed} - 1.25 \cdot in - house\ generated\ electricity}{Fuel_{reference}}$$

The following reference values for kraft paper must be used:

$Electricity_{reference}$ = 1600 kWh/ADt

$Fuel_{reference}$ = 2100 kWh/ADt

*Verification*

Calculation of energy score. The calculation sheet produced by Nordic Ecolabelling can be used.

## Energy score when a mixture of different pulp types are used

The following formulas are used to calculate the energy score when a mixture of different pulp types is used:

$$P_{pulp\_electricity} = \sum_{i=1}^{n} P_{pulp\_electricity\_i} \cdot pulp_i$$

$$P_{pulp\_fuel} = \sum_{i=1}^{n} P_{pulp\_fuel\_i} \cdot pulp_i$$

$Pulp_i$ is the percentage of the individual pulp relative to the total pulp mixture. Due to wastage and differences in water content, the sum total of the pulp may be greater than 1. P pulp(electricity)i is the energy score for electricity for pulp i. P pulp(fuel)i is the energy score for fuel for pulp i.

*Verification*

Calculation of energy score. The calculation sheet produced by Nordic Ecolabelling can be used.

### Total energy score for paper and pulp production

The total energy score for both electricity and fuel consumption for the paper production, including pulp production, is calculated using the formulas below:

$$P_{electriciy} = P_{electriciy\_pulp} + P_{electriciy\_paper}$$

$$P_{fuel} = P_{fuel\_pulp} + P_{fuel\_paper}$$

The amount of fuel used to produce electricity in the pulp mill must be deducted by the paper manufacturer from the values received from the pulp producer using a factor of 1.25.

Worst case calculations must be included to show that each pulp recipe meets the requirements if no specific calculations are reported for each pulp mixture.

*Verification*

The documentation must include calculations with sub-totals. The base values used for consumed fuel and electricity must be stated. Worst case calculations must be included to show that each pulp recipe meets the requirements if no specific pulp-mixture calculations are reported for each pulp mixture present. The calculation sheet produced by Nordic Ecolabelling can be used.

### Energy score for pulp production

Energy scores for P pulp(electricity) and P pulp(fuel) for paper production are calculated using the following formulas:

$$P_{pulp\_electricity\_i} = \frac{Electricity_{consumed}}{Electricity_{reference}}$$

$$P_{pulp\_fuel\_i} = \frac{Fuel_{consumed} - 1.25 \cdot in - house\ generated\ electricity}{Fuel_{reference}}$$

The table below shows the reference values for electricity and fuel:

**Table 1 Reference values pulp**

| Process | Fuel kWh/t, Ref. value | Electricity kWh/t, Ref. value |
|---|---|---|
| Bleached chemical pulp | 3600 | 650 |
| Dried, bleached chemical pulp | 4600 | 700 |
| Unbleached chemical pulp | 3200 | 550 |
| Dried, bleached chemical pulp | 4200 | 600 |
| NSSC | 3200 | 700 |
| Dried NCCS | 4100 | 750 |
| CTMP | N/A | 1500 |
| Dried CTMP | 900 | 1500 |
| DIP | 300 | 450 |
| Dried DIP | 1200 | 500 |
| TMP | N/A | 2200 |
| Dried TMP | 900 | 2250 |
| Slip | N/A | 2000 |
| Dried slip | 900 | 2050 |

*Verification*

Calculation of energy score. The calculation sheet produced by Nordic Ecolabelling can be used.

**Table 2 Steam table**

Enthalpy in gauged steam, h´´, as a function of absolute pressure, p or temperature, t. Enthalpy is divided by an efficiency of 0.9 and added to the heat consumption.

| p Bar | t 0C | h´´ KJ/kg | p bar | t 0C | h´´ KJ/kg |
|---|---|---|---|---|---|
| 0.50 | 81.3 | 2646.0 | 16.0 | 201.4 | 2791.7 |
| 0.60 | 86.0 | 2653.6 | 17.0 | 204.3 | 2793.4 |
| 0.80 | 93.5 | 2665.8 | 18.0 | 207.1 | 2794.8 |
| 1.00 | 99.6 | 2675.4 | 19.0 | 209.8 | 2796.1 |
| 1.20 | 104.8 | 2683.4 | 20.0 | 212.4 | 2797.2 |
| 1.40 | 109.3 | 2690.3 | 22.0 | 217.2 | 2799.1 |
| 1.60 | 113.3 | 2696.2 | 24.0 | 221.8 | 2800.4 |
| 1.80 | 116.9 | 2701.5 | 26.0 | 226.0 | 2801.4 |
| 2.00 | 120.2 | 2706.3 | 28.0 | 230.1 | 2802.0 |
| 2.50 | 127.4 | 2716.4 | 30.0 | 233.0 | 2802.3 |
| 3.00 | 133.5 | 2724.7 | 32.0 | 237.5 | 2802.3 |
| 3.50 | 138.9 | 2731.6 | 34.0 | 240.9 | 2802.1 |
| 4.00 | 143.6 | 2737.6 | 36.0 | 244.1 | 2801.7 |
| 4.50 | 147.9 | 2742.9 | 38.0 | 247.3 | 2801.1 |
| 5.00 | 151.8 | 2717.5 | 40.0 | 250.3 | 2800.3 |
| 6.00 | 158.8 | 2755.5 | 45.0 | 257.4 | 2797.7 |
| 7.00 | 165.0 | 2762.0 | 50.0 | 263.9 | 2794.2 |
| 8.00 | 170.4 | 2767.5 | 55.0 | 269.9 | 2789.9 |
| 9.00 | 175.4 | 2772.1 | 60.0 | 275.6 | 2785.0 |
| 10.00 | 179.9 | 2776.2 | 65.0 | 280.8 | 2779.5 |
| 11.00 | 184.0 | 2779.7 | 70.0 | 285.8 | 2773.5 |
| 12.00 | 188.0 | 2782.7 | 80.0 | 295.0 | 2759.9 |
| 13.00 | 191.6 | 2785.4 | 90.0 | 303.3 | 2744.6 |
| 14.00 | 195.0 | 2787.8 | 100.0 | 311.0 | 2727.7 |
| 15.00 | 198.3 | 2789.9 | 110.0 | 318.1 | 2709.3 |

Source: Thermal Engineering Data, which refers to Schmidt, E.: Properties of water and Steam in SI.Units, 1969. Springer-Verlag and R. Oldenbourg 1969.

# Appendix 3 Declaration by the manufacturer of pulp and paper

To be used in conjunction with an application for a licence for the Nordic Swan Ecolabel of Panels and Mouldings for interior use.

*Pulp and paper are used in several types of panels such as kraft- and décor paper used in HPL/compact laminate, outer layer in gypsum plaster boards and sound absorbing material in acoustic panels.*

| |
|---|
| Product name (pulp): |
| Product name (paper): |
| Manufacturer (pulp and/or paper): |

| **O8 Ecolabelled paper** | **Yes** | **No** |
|---|---|---|
| Is the paper ecolabelled with Nordic Swan Ecolabel or EU Ecolabel?<br><br>If yes, please state valid licence number: | | |
| **O9 Tree species - restrictions** | **Yes** | **No** |
| Are any of the prohibited and restricted wood species (listed in the list of prohibited and restricted tree species) used in the pulp and paper?<br><br>Eucalyptus and Acacia used for pulp and paper production is exempted from the list.<br><br>The list of prohibited and restricted tree species is located on the website: Forestry requirements 2020 (nordic-swan-ecolabel.org)<br><br>If yes, please state tree species/trade name/scientific name: | | |
| **O10 Traceability and certification of wood raw materials** | | |
| Please state the name (species name/scientific name) of the fibre raw materials used in the production of pulp/paper: | | |
| | **Yes** | **No** |
| The pulp and paper manufacturer must be Chain of Custody certified according to FSC or PEFC. All fibres used in the pulp and paper shall be covered by valid Chain of Custody certificate issued by FSC or PEFC.<br><br>Are the pulp and paper covered by valid Chain of Custody certificate issued by FSC or PEFC?<br><br>Please present valid FSC/PEFC Chain of Custody certificate covering alle fibre raw materials used in the pulp/paper (e.g., via link to website). | | |
| Minimum 70% of the fibre raw material that is used in the paper shall originate from forestry certified under the FSC or PEFC schemes or be labelled FSC or PEFC recycled.<br>The remaining proportion of fibre raw material must be covered by the FSC/PEFC control schemes (FSC controlled wood/PEFC controlled sources).<br><br>Please enclose documentation that the paper is labelled with FSC/PEFC or e.g., third party-controlled balance sheet from CoC credit account system or a rolling average of the certification percentage on a product line showing that the quantity of certified fibre raw material in the paper is met.<br><br>Comments: | | |

| O11 Chemical used in the manufacture of pulp and paper | Yes | No |
|---|---|---|
| Chemicals use in the manufacture of pulp and paper must meet the requirements contained in the Chemical Module for Nordic Ecolabelling of paper, Version 3 or later.<br>The criteria is located on the website:<br>https://www.nordic-swan-ecolabel.org/criteria/copy-and-printing-paper-044/<br><br>Overview of chemical requirements for pulp and paper: | | |

| Chemicals | Requirements, Chemical Module, generation 3 |
|---|---|
| All production chemicals<br>- Classification (O1)<br>- Prohibited substances (O2) | O1 and O2 |
| Cleaning agents and dispersants | O3 |
| Deinking chemicals | O4 |
| Biocidal products and slimicides | O5 |
| Retention agents and flocculants | O6 |
| Wet strength agents | O7 |
| Foam inhibitors and defoamers | O8 |
| Paper colourants<br>- Metals (O9)<br>- Amines and phthalates (O10) | O9 and O10 |
| Adhesives | O11 |
| Starch - GMO | O12 |

| | | |
|---|---|---|
| Does the pulp and paper comply with the chemical requirements?<br><br>Comments: | | |

| O12 COD emissions from the production of pulp and paper | Yes | No |
|---|---|---|
| COD (Chemical Oxygen Demand) emissions to water must be less than the stated COD value in the table below.<br>The COD is calculated by adding up COD emissions from both pulp and paper:<br>COD mass (kg/ADt) + COD emissions paper machine (kg/ADt).<br><br>For paper produced from mixtures of chemical, recycled fibre and mechanical pulps, a weighted limit value is calculated from the proportion of the various pulp types. In the weighted calculation, the percentage of COD emissions from the paper machine must be set to 1 kg/ADT.<br>For example, for 60% unbleached chemical mass and 40% recycled pulp, the calculation is:<br>(14–1 x 0.6) + (4–1 x 0.4) = 7.8 + 1.2 = 9.0 kg/ADT | | |

| Pulp types | Total COD emissions for both pulp and paper (kg/ADt) |
|---|---|
| Unbleached chemical pulp | 14.0 |
| CTMP pulp | 19.0 |
| TMP/groundwood pulp | 7.0 |
| Recycled fibre pulp | 4.0 |

| | | |
|---|---|---|
| Does the pulp and paper comply with the COD requirement?<br><br>Please enclose documentation/calculation showing that the total emissions of COD are below the relevant limit values indicated in the table above.<br><br>Comments: | | |

**Test method for COD emissions**

COD content shall be tested in accordance with ISO 6060 (Water quality — Determination of the chemical oxygen demand) or equivalent. If another analysis method is used, the licensee must show that it is equivalent. An analysis of PCOD or BOD may also be used as verification if a correlation with COD can be demonstrated. The method for measuring TOC is ISO 8245 Guidelines for the determination of total organic carbon (TOC) and dissolved organic carbon (DOC).

**Sample frequency:**

Emissions to water are calculated as the annual average value and are based on at least one representative daily sample per week. Alternatively, a sampling frequency set by the authorities may also be approved.

Sampling: Water samples must be taken after the process wastewater has been treated in any internal water treatment plant. The flow at the time of sampling must be indicated. If the process wastewater is externally purified with other wastewater, the analysis result should be reduced by the documented efficiency of the COD in the external water treatment plant. The analyses must be carried out on unfiltered and unsedimented samples in accordance with standard ISO 6060.

We declare that the requirements have been met and that the information provided is correct. In the event of any change to the composition of the product, that impacts the product's fulfilment of the requirements, a new declaration of fulfilment of the requirements is to be submitted to Nordic Ecolabelling.

**Signature of pulp/paper manufacturer**

| | |
|---|---|
| Place and date: | Company name/stamp: |
| Person responsible: | Signature of responsible person: |
| Phone: | E-mail: |

# Appendix 4 Chemicals used in production of panels

To be used in conjunction with an application for a license for the Nordic Swan Ecolabel of Panels and Mouldings for interior use.

Declaration is made by the chemical manufacturer or supplier based to the best of their knowledge at the given time and available knowledge on the chemical product with reservations for new advances/knowledge. Should such new knowledge arise, the undersigned is obliged to submit an updated declaration to Nordic Ecolabelling.

This declaration shall be filled for chemical products used in the production of the Nordic Swan Ecolabelled panels and mouldings for interior use (incl. laminate and melamine), such as adhesives, resins, and waxes.

*Chemical products used in the manufacture of paper, and to print patterns on the decor paper, need not be declared. Neither need auxiliary substances such as lubricants and detergents be declared.*

Name of chemical product:

Function of the chemical product:

Ingoing substances in the raw material/ingredient (chemical name, CAS-number, amount in weight-%):

The requirements in the criteria document and accompanying appendices apply to all ingoing substances in the Nordic Swan Ecolabelled product. Impurities are not regarded as ingoing substances and are exempt from the requirements. Ingoing substances and impurities are defined below, unless stated otherwise in the requirements.

***Ingoing substances:*** *all substances in the chemical product regardless of amount, including additives (e.g., preservatives and stabilisers) from the raw materials. Substances known to be released from ingoing substances (e.g., formaldehyde, arylamine, in situ-generated preservatives) are also regarded as ingoing substances.*

***Impurities:*** *Residues from production, incl. raw material production, which remain in the chemical product at concentrations below 1000 ppm (0.1000% by weight).*

*Examples of impurities are residues of reagents incl. residues of monomers, catalysts, by-products, scavengers (i.e. chemicals that are used to eliminate/minimise undesirable substances), detergents for production equipment and carry-over from other or previous production lines.*

| **O30 Classification of chemical products used in the production** | | |
|---|---|---|
| **Does the chemical product contain substances classified with any of the hazard phrases below?**<br>**Including all combinations of stated exposure routes and stated specific effect.**<br>***For example, H350 also covers classification H350i.*** | **Yes** | **No** |
| H400 –Toxic to the environment, Aquatic Acute 1 | | |
| H410 – Toxic to the environment Aquatic Chronic 1 | | |
| H411 – Toxic to the environment Aquatic Chronic 2 | | |
| H420 – Toxic to the environment Ozone | | |
| H300 – Acute toxicity; Acute Tox 1 or 2 | | |
| H310 – Acute toxicity; Acute Tox 1 or 2 | | |
| H330 – Acute toxicity; Acute Tox 1 or 2 | | |
| H301 – Acute toxicity; Acute Tox 3 | | |
| H311 – Acute toxicity; Acute Tox 3 | | |
| H331 – Acute toxicity; Acute Tox 3 | | |
| H370 – Specific organic toxicity, STOT SE 1 | | |
| H372 – Specific organic toxicity, STOT RE 1 | | |
| H350 – Carcinogenic, Carc. 1A or 1B | | |
| H351 – Carcinogenic, Carc. 2 | | |
| H340 – Germ cell mutagenic, Mut. 1A and 1B | | |
| H341 – Germ cell mutagenic, Mut. 2 | | |
| H360 – Reproductive toxicity, Repr. 1A or 1B | | |
| H361 – Reproductive toxicity, Repr 2 | | |
| H362 – Reproductive toxicity, Lact. | | |

**The following are exempted from the requirement:**

- Classification H351 for adhesive products containing methylene diphenyl diisocyanate (MDI).
- Classifications H350, H341, H301, H311 and H331 for adhesive products and resins containing formaldehyde (CAS no. 50-00-0). Formaldehyde emissions are regulated in a separate requirement.
- Classifications H341, H301 and H331 for resins containing a maximum of 10% by weight of phenol (CAS no. 108-95-2) used in laminate and plywood.
- Classifications H301, H311, H331 and H370 for resins containing a maximum of 10% by weight of methanol (CAS no. 67-56-1).
- Classifications H351 and H361 for resins containing melamine (CAS no. 108-78-1).
- UV curing products are exempted from classification H411 under the following conditions: There must be a controlled closed process where no discharge to recipient takes place. Spillage and general waste (e.g., cleaning residue) must be collected in containers approved for hazardous waste and handled by a waste contractor.

**If yes**, please state the CAS no., chemical name, and level (in ppm, % by weight or mg/kg). Also, state whether the substance is contained in the form of an impurity or an added substance or if the above-mentioned exceptions apply.

| **O31 Classification of ingoing substances** | | |
|---|---|---|
| **Does the chemical product contain substances classified with any of the hazard phrases below?**<br>**Including all combinations of stated exposure routes and stated specific effect.**<br>***For example, H350 also covers classification H350i.*** | **Yes** | **No** |
| H350 – Carcinogenic, Carc 1A and 1B | | |
| H351 – Carcinogenic, Carc. 2 | | |
| H340 – Germ cell mutagenic, Mut. 1A or 1B | | |
| H341 – Germ cell mutagenic, Mut. 2 | | |
| H360 – Reproductive toxicity, Repr. 1A and 1B | | |
| H361 – Reproductive toxicity, Repr. 2 | | |
| H362 – Reproductive toxicity, Lact. | | |
| EUH380 - Endocrine disruption for human health, ED HH1 | | |
| EUH381 - Endocrine disruption for human health, ED HH2 | | |
| EUH431 - Endocrine disruption for the environment, ED ENV 1 | | |
| EUH431 - Endocrine disruption for the environment, ED ENV 2 | | |
| EUH440 - Persistent, Bioaccumulative and Toxic properties, PTB | | |
| EUH411 - Very Persistent, Very Bioaccumulative properties, vPvB | | |
| EUH450 - Persistent, Mobile, and Toxic properties, PMT | | |
| EUH451 - Very Persistent, Very Mobile properties, vPvM | | |
| **The following are exempted from the requirement:**<br>- Adhesive containing methylene diphenyl diisocyanate (MDI) classified as H351.<br>- Adhesive and resin containing formaldehyde (CAS no. 50-00-0) classified as H350 and H341. Formaldehyde emissions are regulated in a separate requirement.<br>- Resin containing maximum 10% by weight of phenol (CAS no. 108-95-2) classified as H341 used in laminate and plywood.<br>- Resin containing melamine (CAS no. 108-78-1) classified as H351 and H361.<br>- Titanium dioxide (CAS no. 13463-67-7) classified as H351.<br>- 1,1,1-Trimethylolpropane (TMP, CAS no. 77-99-6) classified as H361. | | |

**If yes**, please state the CAS no., chemical name, and level (in ppm, % by weight or mg/kg). Also, state whether the substance is contained in the form of an impurity or an added substance or if the above-mentioned exceptions apply.

| **O32 Prohibited substances** | | |
|---|---|---|
| **Does the chemical product contain any of the following substance groups?** | **Yes** | **No** |
| Substances on the Candidate List<br>The Candidate List can be found on the ECHA website: http://echa.europa.eu/candidate-list-table<br>- Exemption applies to melamine (CAS No. 108-78-1) | | |
| Substances that have been judged in the EU to be PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative)<br>PBT and vPvB in accordance with the criteria in Annex XIII of REACH | | |
| Halogenated organic compounds<br>- Exemptions apply for bronopol, IPBC, MIT and CMIT/MIT (3:1). These are addressed in a separate requirement, see requirement O35). | | |
| Per- and polyfluoroalkyl substances (PFASs), e.g., PFOA and PFOS | | |
| Butylhydroxytoluene (BHT, CAS No. 128-37-0) | | |
| Aziridine and polyazidirines | | |
| Bisphenols and bisphenol derivatives<br>- Bisphenol A used in the production of epoxy acrylate is not covered by the requirement.<br>- Assessment of regulatory needs: Bisphenols. ECHA- 16 December 2021: Section 2.1: Bisphenols for which further EU RRM is proposed – restriction https://echa.Europa.eu/documents/10162/c2a8b29d-0e2d-7df8-dac1-2433e2477b02 | | |
| APEO (alkylphenol ethoxylates) and APD (alkylphenol derivatives/alkylphenols)<br>Alkylphenol derivatives are defined as substances that release alkyphenols when they break down. | | |
| Phthalates<br>- Phthalates are esters of 1,2-benzenedicarboxylic acid (orthophthalic acid). | | |
| Pigments and additives based on lead, tin, cadmium, chromium VI and mercury, and their compounds. | | |
| Endocrine disruptors: Substances on the EU member state initiative “Endocrine Disruptor Lists”, List I, List II and List III, see following links:<br>List I: https://edlists.org/the-ed-lists/list-i-substances-identified-as-endocrine-disruptors-by-the-eu<br>List II: https://edlists.org/the-ed-lists/list-ii-substances-under-eu-investigation-endocrine-disruption<br>List III: https://edlists.org/the-ed-lists/list-iii-substances-identified-as-endocrine-disruptors-by-participating-national-authorities<br>Substances that are transferred to one of the corresponding sub-lists “Substances no longer on list” and that no longer feature on Lists I–III are not prohibited. However, this does not apply to the substances listed in Sub-List II that were evaluated on the basis of regulations or directives that do not have provisions for identifying endocrine disruptors (e.g., the Cosmetics Regulation). These substances may have endocrine disrupting properties. Nordic Ecolabelling will assess these substances on a case-by-case basis, based on the background information provided in sub-List II. | | |

**If yes**, please state the CAS no., chemical name, and level (in ppm, % by weight or mg/kg). Also, state whether the substance is contained in the form of an impurity or an added substance or if the above-mentioned exceptions apply.

| O33 Antibacterial substances | | |
|---|---|---|
| **Please state:** | **Yes** | **No** |
| Does the chemical product contain nanomaterials* with antibacterial or disinfecting properties?<br><br>The term antibacterial means chemical products that prevent or inhibit growth of microorganisms, such as bacteria or fungi. Silver ions, silver nanoparticles, gold nanoparticles and copper nanoparticles are classed as antibacterial agents.<br>* Nanomaterials/-particles are defined according to the EU Commission Recommendation on the Definition of Nanomaterial (2022/C 229/01). | | |
| The following is exempted from the requirement:<br>- Preservatives used to preserve the chemical product, so-called in-can preservatives. | | |

**If yes**, please state the CAS no., chemical name, and level (in ppm, % by weight or mg/kg). Also, state whether the substance is contained in the form of an impurity or an added substance or if the above-mentioned exceptions apply.

| O34 Nanomaterials | | |
|---|---|---|
| **Please state:** | **Yes** | **No** |
| Does the chemical product contain nanomaterials/-particles?<br><br>Nanomaterials/-particles are defined according to the EU Commission Recommendation on the Definition of Nanomaterial (2022/C 229/01):<br>'Nanomaterial' means a natural, incidental, or manufactured material consisting of solid particles that are present, either on their own or as identifiable constituent particles in aggregates or agglomerates, and where 50 % or more of these particles in the number-based size distribution fulfil at least one of the following conditions:<br>(a) one or more external dimensions of the particle are in the size range 1 nm to 100 nm;<br>(b) the particle has an elongated shape, such as a rod, fibre or tube, where two external dimensions are smaller than 1 nm and the other dimension is larger than 100 nm;<br>(c) the particle has a plate-like shape, where one external dimension is smaller than 1 nm and the other dimensions are larger than 100 nm. | | |
| The following are exempted from the requirement:<br>- Pigments. This exemption does not include pigments added for purposes other than colouring.<br>- Naturally occurring inorganic fillers in accordance with annex V point 7 in REACH.<br>- Synthetic amorphous silica (SAS). This applies to non-modified synthetic amorphous silica and surface-treated pyrogenic silica, as long as the silica particles form aggregates or agglomerates in the end product.<br>- Polymer dispersions | | |

**If yes**, please state the CAS no., chemical name, and level (in ppm, % by weight or mg/kg). Also, state whether the substance is contained in the form of an impurity or an added substance or if the above-mentioned exceptions apply.

| O35 Preservatives | | | |
|---|---|---|---|
| **Please state if content of preservatives exceeds the limit values below** | | **Yes** | **No** |
| **Preservative:** | **Limit value** | | |
| Bronopol | < 500 ppm (0.05% by weight) | | |

| | | | |
|---|---|---|---|
| IPBC (iodopropynyl butylcarbamate) | < 2000 ppm (0.20% by weight) | | |
| Mixture (3:1) of CMIT/MIT (5 chloro-2-methyl-4-isothiazolin-3-one / 2-methyl-4-isothiazolin-3-one) | ≤ 15 ppm (0.0015 % by weight) | | |
| MIT (2-methyl-2H-isothiazol-3-one) | ≤ 15 ppm (0.0015 % by weight) | | |
| Total amount of isothiazolinones | ≤ 500 ppm (0.05% by weight). | | |

**If yes**, state the CAS no. (where possible), chemical name and level (in ppm, % by weight or mg / kg) for each preservative.

| **O36 Volatile organic compounds in additives** | | |
|---|---|---|
| **Please state:** | **Yes** | **No** |
| Does the additive contain any VOC (volatile organic compound) and/or VAH (volatile aromatic compound)?<br>Volatile organic compounds (VOC), including volatile aromatic compounds (VAH), may be present in the adhesive to a maximum of 3% by weight.<br><br>Does the additive comply with the requirement?<br><br>VAHs may be present in the adhesive to a maximum of 0.1% by weight VOC may be present in the chemical product to a maximum of 1% by weight and VAH of 0.1% of weight.<br>VOC are defined as any organic compound having an initial boiling point less than or equal to 250C measured at a standard pressure of 101.3 kPa. | | |
| The following are exempted from the requirement:<br>Resin used in the production of laminate is exempted from the requirement provided that the laminate meets the emission requirements in O49. | | |

**If yes**, please state the CAS no., chemical name, and level (in ppm, % by weight or mg/kg). Also, state whether the substance is contained in the form of an impurity or an added substance or if the above-mentioned exceptions apply.

| **O37 Free formaldehyde** | | |
|---|---|---|
| **Please state:** | **Yes** | **No** |
| Does the content of free formaldehyde (from formaldehyde not deliberately added or from formaldehyde-releasing substances) exceed 0.02% by weight (200 ppm) in the chemical product?<br><br>For adhesive products, up to 0.2% by weight (2000 ppm) of free formaldehyde is permitted. The requirement applies to the pure adhesive before mixing with any hardener.<br><br>The following are exempted from the requirement:<br>Resin used in the production of laminate is exempted from the requirement provided that the laminate meets the emission requirements in O49. | | |

**If yes**, please specify source of formaldehyde, i.e., actively added or because of release or decomposition from another substance and theoretical amount of formaldehyde in the product. Please state also if the above-mentioned exceptions apply.

**Signature of chemical product manufacturer**

| | |
|---|---|
| Date | Company |
| Signature by contact person | |
| Name of contact person | Phone |

# Appendix 5 Chemicals used in surface treatments

To be used in conjunction with an application for a license for the Nordic Swan Ecolabel of Panels and Mouldings for interior use.

Declaration is made by the chemical manufacturer or supplier based to the best of their knowledge at the given time and available knowledge on the chemical product with reservations for new advances/knowledge. Should such new knowledge arise, the undersigned is obliged to submit an updated declaration to Nordic Ecolabelling.

This declaration shall be filled for surface treatment products used in the production of the Nordic Swan Ecolabelled panels and mouldings for interior use such as lacquers, oils, paints, and stains. Any filler used shall also be declared.

*Lamination (thin layer of laminate < 2 mm, including melamine) on another panel is not considered to be surface treatment.*

Name of chemical product:

Function of the chemical product:

Ingoing substances in the raw material/ingredient (chemical name, CAS-number, amount in weight-%):

The requirements in the criteria document and accompanying appendices apply to all ingoing substances in the Nordic Swan Ecolabelled product. Impurities are not regarded as ingoing substances and are exempt from the requirements. Ingoing substances and impurities are defined below, unless stated otherwise in the requirements.

***Ingoing substances:*** *all substances in the chemical product regardless of amount, including additives (e.g., preservatives and stabilisers) from the raw materials. Substances known to be released from ingoing substances (e.g., formaldehyde, arylamine, in situ-generated preservatives) are also regarded as ingoing substances.*

***Impurities:*** *Residues from production, incl. raw material production, which remain in the chemical product at concentrations below 1000 ppm (0.1000% by weight).*

*Examples of impurities are residues of reagents incl. residues of monomers, catalysts, by-products, scavengers (i.e., chemicals that are used to eliminate/minimise undesirable substances), detergents for production equipment and carry-over from other or previous production lines.*

| **O39 Classification of chemical products used in the production** | | |
|---|---|---|
| **Does the chemical product contain substances classified with any of the hazard phrases below?**<br>**Including all combinations of stated exposure routes and stated specific effect.**<br>***For example, H350 also covers classification H350i.*** | **Yes** | **No** |
| H400 – Toxic to the environment Aquatic Acute 1 | | |
| H410 – Toxic to the environment Aquatic Chronic 1 | | |
| H411 – Toxic to the environment Aquatic Chronic 2 | | |
| H420 – Toxic to the environment Ozone | | |
| H300 – Acute toxicity; Acute Tox 1 or 2 | | |
| H310 – Acute toxicity; Acute Tox 1 or 2 | | |
| H330 – Acute toxicity; Acute Tox 1 or 2 | | |
| H301 – Acute toxicity; Acute Tox 3 | | |
| H311 – Acute toxicity; Acute Tox 3 | | |
| H331 – Acute toxicity; Acute Tox 3 | | |
| H370 – Specific organic toxicity, STOT SE 1 | | |
| H372 – Specific organic toxicity, STOT RE 1 | | |
| H350 – Carcinogenic, Carc. 1A or 1B | | |
| H351 – Carcinogenic, Carc. 2 | | |
| H340 – Germ cell mutagenic, Mut. 1A and 1B | | |
| H341 – Germ cell mutagenic, Mut. 2 | | |
| H360 – Reproductive toxicity, Repr. 1A or1B | | |
| H361 – Reproductive toxicity, Repr. 2 | | |
| H362 – Reproductive toxicity, Lact. | | |
| **The following are exempted from the requirement:**<br>- UV curing products are exempted from classification as environmentally hazardous under the following conditions: There must be a controlled closed process where no discharge to recipient takes place. Spillage and general waste (e.g., cleaning residue) must be collected in containers approved for hazardous waste and handled by a waste contractor. | | |

**If yes**, please state the CAS no., chemical name, and level (in ppm, % by weight or mg/kg). Also, state whether the substance is contained in the form of an impurity or an added substance or if the above-mentioned exceptions apply.

| **O41 Classification of ingoing substances** | | |
|---|---|---|
| **Does the chemical product contain substances classified with any of the hazard phrases below?**<br>**Including all combinations of stated exposure routes and stated specific effect.**<br>***For example, H350 also covers classification H350i.*** | **Yes** | **No** |
| H350 – Carcinogenic, Carc 1A and 1B | | |
| H351 – Carcinogenic, Carc. 2 | | |
| H340 – Germ cell mutagenic, Mut. 1A or 1B | | |
| H341 – Germ cell mutagenic, Mut. 2 | | |
| H360 – Reproductive toxicity, Repr. 1A and 1B | | |
| H361 – Reproductive toxicity, Repr. 2 | | |
| H362 – Reproductive toxicity, Lact. | | |
| EUH380 - Endocrine disruption for human health, ED HH1 | | |
| EUH381 - Endocrine disruption for human health, ED HH2 | | |
| EUH431 - Endocrine disruption for the environment, ED ENV 1 | | |
| EUH431 - Endocrine disruption for the environment, ED ENV 2 | | |
| EUH440 - Persistent, Bioaccumulative and Toxic properties, PTB | | |
| EUH411 - Very Persistent, Very Bioaccumulative properties, vPvB | | |
| EUH450 - Persistent, Mobile, and Toxic properties, PMT | | |
| EUH451 - Very Persistent, Very Mobile properties, vPvM | | |
| **The following are exempted from the requirement:**<br>- Photo initiators classified H351, H341 or H361<br>- Titanium dioxide (CAS no. 13463-67-7) classified as H351.<br>- 1,1,1-Trimethylolpropane (TMP, CAS no. 77-99-6) classified as H361.<br>- Mequinol (CAS no. 150-76-5) classified as H361<br>- Trimethylolpropane triacrylate (TMPTA) with CAS 15625-89-5 classified as Carc 2, H351.<br>- The hardener in two-component UV products can be exempted from the requirement if the following is met: it must be documented that the workers are not exposed to the components, e.g., by using safety equipment when mixing or that the mixing takes place automatically without exposure of the workers and that the application of the finished two-component system is done in a closed system. | | |

**If yes**, please state the CAS no., chemical name, and level (in ppm, % by weight or mg/kg). Also, state whether the substance is contained in the form of an impurity or an added substance or if the above-mentioned exceptions apply.

| **O42 Prohibited substances** | | |
|---|---|---|
| **Does the chemical product contain any of the following substance groups?** | **Yes** | **No** |
| Substances on the Candidate List<br>The Candidate List can be found on the ECHA website: http://echa.europa.eu/candidate-list-table | | |
| Substances that have been judged in the EU to be PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative)<br>PBT and vPvB in accordance with the criteria in Annex XIII of REACH | | |
| Halogenated organic compounds<br>- Exemptions apply for bronopol, IPBC, MIT and CMIT/MIT (3:1). These are addressed in a separate requirement, see requirement O45). | | |
| Per- and polyfluoroalkyl substances (PFASs), e.g., PFOA and PFOS | | |
| Butylhydroxytoluene (BHT, CAS No. 128-37-0) | | |
| Aziridine and polyazidirines | | |
| Bisphenols and bisphenol derivatives<br>- Bisphenol A used in the production of epoxy acrylate is not covered by the requirement.<br>- Assessment of regulatory needs: Bisphenols. ECHA- 16 December 2021: Section 2.1: Bisphenols for which further EU RRM is proposed – restriction https://echa.Europa.eu/documents/10162/c2a8b29d-0e2d-7df8-dac1-2433e2477b02 | | |
| APEO (alkylphenol ethoxylates) and APD (alkylphenol derivatives/alkylphenols)<br>Alkylphenol derivatives are defined as substances that release alkyphenols when they break down. | | |
| Phthalates<br>- Phthalates are esters of 1,2-benzenedicarboxylic acid (orthophthalic acid). | | |
| Pigments and additives based on lead, tin, cadmium, chromium VI and mercury, and their compounds. | | |
| Endocrine disruptors: Substances on the EU member state initiative “Endocrine Disruptor Lists”, List I, List II and List III, see following links:<br>List I: https://edlists.org/the-ed-lists/list-i-substances-identified-as-endocrine-disruptors-by-the-eu<br>List II: https://edlists.org/the-ed-lists/list-ii-substances-under-eu-investigation-endocrine-disruption<br>List III: https://edlists.org/the-ed-lists/list-iii-substances-identified-as-endocrine-disruptors-by-participating-national-authorities<br>Substances that are transferred to one of the corresponding sub-lists “Substances no longer on list” and that no longer feature on Lists I–III are not prohibited. However, this does not apply to the substances listed in Sub-List II that were evaluated on the basis of regulations or directives that do not have provisions for identifying endocrine disruptors (e.g., the Cosmetics Regulation). These substances may have endocrine disrupting properties. Nordic Ecolabelling will assess these substances on a case-by-case basis, based on the background information provided in sub-List II. | | |

**If yes**, please state the CAS no., chemical name, and level (in ppm, % by weight or mg/kg). Also, state whether the substance is contained in the form of an impurity or an added substance or if the above-mentioned exceptions apply.

| O43 Antibacterial substances | | |
|---|---|---|
| **Please state:** | **Yes** | **No** |
| Does the chemical product contain nanomaterials* with antibacterial or disinfecting properties?<br><br>The term antibacterial means chemical products that prevent or inhibit growth of microorganisms, such as bacteria or fungi. Silver ions, silver nanoparticles, gold nanoparticles and copper nanoparticles are classed as antibacterial agents.<br>* Nanomaterials/-particles are defined according to the EU Commission Recommendation on the Definition of Nanomaterial (2022/C 229/01). | | |
| The following is exempted from the requirement:<br>- Preservatives used to preserve the chemical product, so-called in-can preservatives. | | |

**If yes**, please state the CAS no., chemical name, and level (in ppm, % by weight or mg/kg). Also, state whether the substance is contained in the form of an impurity or an added substance or if the above-mentioned exceptions apply.

| O44 Nanomaterials | | |
|---|---|---|
| **Please state:** | **Yes** | **No** |
| Does the chemical product contain nanomaterials/-particles?<br>Nanomaterials/-particles are defined according to the EU Commission Recommendation on the Definition of Nanomaterial (2022/C 229/01):<br>'Nanomaterial' means a natural, incidental, or manufactured material consisting of solid particles that are present, either on their own or as identifiable constituent particles in aggregates or agglomerates, and where 50 % or more of these particles in the number-based size distribution fulfil at least one of the following conditions:<br>(a) one or more external dimensions of the particle are in the size range 1 nm to 100 nm;<br>(b) the particle has an elongated shape, such as a rod, fibre or tube, where two external dimensions are smaller than 1 nm and the other dimension is larger than 100 nm;<br>(c) the particle has a plate-like shape, where one external dimension is smaller than 1 nm and the other dimensions are larger than 100 nm. | | |
| The following are exempted from the requirement:<br>- Pigments. This exemption does not include pigments added for purposes other than colouring.<br>- Naturally occurring inorganic fillers in accordance with annex V point 7 in REACH.<br>- Synthetic amorphous silica (SAS). This applies to non-modified synthetic amorphous silica and surface-treated pyrogenic silica, as long as the silica particles form aggregates or agglomerates in the end product.<br>- Polymer dispersions | | |

**If yes**, please state the CAS no., chemical name, and level (in ppm, % by weight or mg/kg). Also, state whether the substance is contained in the form of an impurity or an added substance or if the above-mentioned exceptions apply.

| O45 Preservatives | | | |
|---|---|---|---|
| **Please state if content of preservatives exceeds the limit values below** | | **Yes** | **No** |
| **Preservative:** | **Limit value** | | |
| Bronopol | < 500 ppm (0.05% by weight) | | |
| IPBC (iodopropynyl butylcarbamate) | < 2000 ppm (0.20% by weight) | | |

| | | | |
|---|---|---|---|
| Mixture (3:1) of CMIT/MIT (5 chloro-2-methyl-4-isothiazolin-3-one / 2-methyl-4-isothiazolin-3-one) | ≤ 15 ppm (0.0015 % by weight) | | |
| MIT (2-methyl-2H-isothiazol-3-one) | ≤ 15 ppm (0.0015 % by weight) | | |
| Total amount of isothiazolinones | ≤ 500 ppm (0.05% by weight). | | |

**If yes**, state the CAS no. (where possible), chemical name and level (in ppm, % by weight or mg / kg) for each preservative.

| **O46 Free formaldehyde** | | |
|---|---|---|
| **Please state:** | **Yes** | **No** |
| Does the content of free formaldehyde (from formaldehyde not deliberately added or from formaldehyde-releasing substances) exceed 0.02% by weight (200 ppm) in the chemical product?<br>For adhesive products, up to 0.2% by weight (2000 ppm) of free formaldehyde is permitted. The requirement applies to the pure adhesive before mixing with any hardener. | | |

**If yes**, please specify source of formaldehyde, i.e., actively added or because of release or decomposition from another substance and theoretical amount of formaldehyde in the product. Please state also if the above-mentioned exception applies.

# Appendix 6 Energy calculations

**Energy calculation for production of panels made from renewable raw materials; wood- and lignocellulose based panels, CLT, glulam and laminate.**

The following applies to the energy calculation in the production of wood- and lignocellulose panels and mouldings, CLT, glulam and laminate:

1. Energy consumption is calculated as an annual average for either just the ecolabelled production or for the whole enterprise that is relevant for Nordic Swan Ecolabelled panels, CLT, glulam and laminate.
2. The energy consumption is calculated as MJ/kg per panel/product, and encompasses all energy used from gate to gate at the panel production site. Separate energy consumption also needs to be calculated for production for pulp/paper and laminate (if they comprise more than 5% wt% of the panel/product).
3. Processes included in the calculation:
   Chipping, refining, drying, blending (production of any adhesive; see 4), forming, pressing, any lamination of the panel, cooling, trimming, sanding, surface treatment and packaging.
4. In the case of the production of chemical products, for example adhesive, the energy accounts must be based on data for production. The energy content of the raw material must not be included in the calculation. In exceptional cases a standard value of 15 MJ/kg (solution for use) for adhesive may be used, broken down as 12 MJ/kg for fuel and 3 MJ/kg for electricity purchased from an outside supplier (4:1).

*Example of a calculation using the standard value for adhesives:*

*A panel contains 12% adhesive (solution for use). This represents 0.12 kg of adhesive solution for use per kilogram of panel. Applying the standard value in the calculation of energy points for adhesive results in 0.12 kg adhesive/ kg panel x 15 MJ/ kg adhesive = 1.8 MJ/ kg panel.*

5. Energy consumption in the production of laminate (compact laminate and HPL) includes the production of resin/glue, the process of handling paper (dipping in resin/drying process), stacking of paper/laminate, pressing, heating, cooling, trimming, sanding and packaging. Production of paper has its own requirement.
6. The calculation includes the actual energy consumed (electricity and heat) in production without the use of primary energy factors. Self-produced energy and excess energy that is sold off should be stated but does not count as consumed energy in the calculation.

**System boundary for the requirement:** Energy consumption for obtaining raw material and transport of raw materials to sawmill/panel production site is not included in the calculation.

**Energy calculation for production of panels made from mineral- and non renewable raw materials; panels made from recycled composite, gypsum plasterboards, mineral wool-based acousitc panels, cement-based panels, panels made from other materials and production of mineral wool and cement.**

The following applies to the energy calculation in the production of panels made from recycled composite, gypsum plasterboards, mineral wool-based acoustic panels, cement base panels, panels made from other materials and production of the raw materials: mineral wool and cement.

1. Energy consumption is calculated as an annual average for either just the ecolabelled production or for the whole production site that is relevant for Nordic Swan Ecolabelled panels.

2. The energy consumption is calculated as MJ/kg product produces, and encompasses all energy used from **gate to gate** (phase A3 in EPDs) at the panel production site. Separate energy consumption also needs to be calculated for production of the following raw materials: cement, mineral wool, paper, and laminate (if they comprise more than 5 wt% of the panel/product).

3. Processes included in the calculation:

   Raw material preparation (crushing/grinding/chipping), refining, blending, forming, heating, pressing, gluing/laminating different types of material layers together, facing the panels, surface treatment, cooling, trimming, and packaging.

4. The calculation includes the actual energy consumed (electricity and heat) in production without the use of primary energy factors. Self-produced energy and excess energy that is sold off should be stated but does not count as consumed energy in the calculation.

5. **System boundary for the requirement:** Energy consumption for extraction of raw materials and transports of raw materials is not part of the energy requirement. The energy requirement for production of raw materials do not apply to raw materials that are included by less than **5 wt%** of the panel.