

Nordic Ecolabelling for
Panels and mouldings for interior use



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This document is a translation of an original in Danish. In case of dispute, the original document should be taken as authoritative.

Addresses

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:

Denmark

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

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

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 timber that is legally harvested and certified under a traceability system. Furthermore, at least 70% of the timber 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 properties are documented. This means that the panels and mouldings comply with harmonised standards in accordance with the Construction Products Regulation (EU/305/2011) or voluntary CE marking according to ETA.

** Except from cement-based panels which only consist of minimum 30% recycled materials.*

Why choose the Nordic Swan Ecolabel?

- The license holder 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 cost-effective and simple way of communicating environmental work and commitment to customers and suppliers.
- Reducing environmental impact often creates scope for lowering costs, such as by cutting the consumption of energy and reducing amounts of packaging and waste.
- Environmentally suitable operations prepare the license holder for future environmental legislation.
- Environmental issues are complex. It can take a long time and extensive resources to gain an understanding of a specific area. The Nordic Swan Ecolabel can be seen as aid in this work.
- 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 license can also be seen as a mark of quality.

What can carry the Nordic Swan Ecolabel?

The product group includes panels in which the main function is one or more of the following: interior cladding of walls and ceilings, construction panels, sound absorbent panels, panels for subfloors, panels for sub roofs and panels for production of furniture, internal fittings, etc.

Mouldings for indoor use, such as skirtings/baseboard, can also be Nordic Swan Ecolabelled. The mouldings shall consist of the same materials as specified below for panels and meet the points under "The product group does not include the following product types".

The following material types are included in the product group:

- Wood-based panels with or without laminated surface.
- Solid wood (untreated or surface-treated) which is assembled into an interior panel, e.g. by the consumer.
- Panels based on renewable raw materials other than wood.
- High pressure laminate panels (HPL and compact laminate according to EN 438 series).
- Plasterboards.
- Mineral wool panels (where the main function is **not** thermal insulation).
- Cement-based panels for example fibre cement and cement panels.
- Cross Laminated Timber (CLT) according to EN 16351.

The product group does not cover the following product types:

- Panels/mouldings with total more than 15% by weight of materials other than the above are not included in the product group.
- Panels or cladding in which the main function is to insulate against heat or cold loss. Panels which are marketed as insulation panels or insulation products are thus not included.
- Wet room panels.
- Magnesium oxide panels for outdoor use.
- Roofing panels (outer roof).
- Whole prefabricated wall elements are not included in the product group.
- Floor coverings, as these can be ecolabelled under the Nordic Ecolabelling criteria for floors.

Nordic Ecolabelling reserves the right to determine whether a product can be ecolabelled according to the Nordic Swan Ecolabelling criteria, and to determine the criteria to be used for any product application. For further information please contact the Nordic Ecolabelling organisation (see addresses in the beginning of this document).

Fibre-based panels/mouldings with more than 15% cement will be included in the functional unit "Cement-based panels/mouldings". Panels/mouldings based on renewable raw materials other than wood must fulfil the energy requirement for wood-based panels.

How to apply

Application and costs

For information about the application process and fees for this product group, please refer to the respective national websites. For addresses see in the beginning of this document.

What is required?

The application must consist 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. The icons are:

☒ Enclose

📍 The 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 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 an on-site inspection 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 addresses first in this document. Further information and assistance (such as calculation sheets or electronic application help) may be available. Visit the relevant national websites for further information.

What are the requirements of the Nordic Swan Ecolabel?

To be awarded a Nordic Swan Ecolabel licence, all requirements must be fulfilled.

1 Definition of terms used in the criteria

Material: Materials means the constituent materials such as wood, paper, cardboard, pulp, plastic, mineral raw materials, metal, etc.

Chemical products: Chemical products means liquid products, e.g., for surfacetreatment, additives, glues, and other adhesives.

Ingoing substance: Ingoing substances are defined as, unless stated otherwise, all substances in the product – including additives (e.g., preservatives or stabilisers) in the raw materials, but not residuals from the production, incl. the production of raw materials.

Contamination limit: Impurities include residuals from production, incl. production of raw materials is defined as residuals, pollutants and contaminants derived from the production, incl. production of the raw materials, which are present in the final product in amounts less than 100 ppm (0.0100 w/w %, 100 mg/kg), but not substances added to the raw materials or product intentionally and with a purpose – regardless of amount. Residuals in the raw materials above 1.0% are regarded as ingoing substances. Known substances released from ingoing substances are also regarded as ingoing substances.

Renewable raw material: Renewable raw material is here defined as a biological material which is reproduced in nature. It includes the degradable part of products, waste and residues from agriculture and aquaculture (both vegetable and animal), forestry and similar industries and the biodegradable fraction of industrial waste and municipal waste.

Panel types: the following panel types are used in the criteria:

- Wood based panels with or without laminate coating.
- Solid wood (untreated and surface treated) which are joined to an interior panel, for example when installed by the consumer.
- Panels based on other renewable raw materials than wood.
- High Pressure Laminate panels.
- Plasterboard.
- Mineral wool panels (where the main function **is not** thermal insulation).
- Cement based panels for example fibre cement-, cement- and magnesium panels.
- Cross Laminated Timber (CLT)

The main material (material with the greatest percentage by weight) determines which of these panel types, the panel belongs to in terms of the resource and energy requirement. In addition, the energy requirement for paper shall be documented for all panel types where the paper/cardboard portion represents more than 30% by weight of the finished panel.

Self-produced energy: Refers to energy (electricity and heat) which is 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 quantity sold is deducted from the energy consumption. Internally produced fuel sources and residues are not counted as self-produced energy.

2 Product information

Table 1 Overview of materials and in which section the requirements are

Section	Level	Requirement	Appendix	Relevant
Product information.	Information about the product.	O1	2	For all
Mineral raw materials. <i>Applies in cases with more than 10% by weight in the product</i>	General.	O2-O3	-	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Selected raw materials.	O4	-	Yes <input type="checkbox"/> No <input type="checkbox"/>
Wood raw materials, paper, cardboard, and paper pulp. <i>Applies in cases with more than 5% by weight in the product.</i>	Wood fibres, cardboard, and pulp.	O5	3	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Solid wood, veneer, bamboo, and cork.	O6-O8	4	Yes <input type="checkbox"/> No <input type="checkbox"/>
	COD from paper and cardboard.	O9	-	Yes <input type="checkbox"/> No <input type="checkbox"/>
Resource requirements.	Plasterboards/mouldings.	O10	5	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Cement-based and mineral wool panels/mouldings.	O11	5	Yes <input type="checkbox"/> No <input type="checkbox"/>
Energy requirements.	Energy requirements for paper and pulp production <i>Applies in cases with more than 30% by weight in the product</i>	O12	6	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Energy requirements for different types of panels and mouldings	O13–O17	-	Yes <input type="checkbox"/> No <input type="checkbox"/>
Chemical products.	General.	O18-O22	7	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Nanoparticles.	O23	7	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Environmental hazard (e.g., surface treatment).	O24	8	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Environmental hazard in surface treatment.	O25	8	Yes <input type="checkbox"/> No <input type="checkbox"/>
	VOC in adhesive.	O26	9	Yes <input type="checkbox"/> No <input type="checkbox"/>
	VOC in surface treatment.	O27	9	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Free formaldehyde.	O28	7	Yes <input type="checkbox"/> No <input type="checkbox"/>
Emissions.	COD (wet processes in panel/moulding production).	O29	-	Yes <input type="checkbox"/> No <input type="checkbox"/>
	HPL production.	O30	-	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Dust emissions. <i>Applies in cases with more than 10% by weight minerals- or wood materials in the product</i>	O31	-	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Formaldehyde.	O32	-	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Emission requirement for the panel/moulding (only panels within the building envelope).	O33	-	Yes <input type="checkbox"/> No <input type="checkbox"/>
Use and quality requirements.	General.	O34-O35	-	For all
Quality and environmental management requirements.	General.	O36-O43	-	For all

01 Information about the product(s)

The applicant must submit the following information about the product(s):

1. Brand name(s) and trade name(s).
 2. Description of product(s) included in the application). A product datasheet or similar for each product must be forwarded.
 3. Description of manufacturing process of the product. Subcontractors must be described with company name, production location, contact person and the production processes used.
 4. For each product: Attach a list of materials and chemical products used in the production of the product and any surface treatment of the product. The list must contain the weight percentage of the constituent materials/chemical products in the panel/mouldings. Safety datasheets for each chemical product must be included.
- Any information requested by the requirement. A product datasheet may be sent as part of the documentation. Information about materials, cf. Table 2 in Appendix 2, must be given. It is possible to use a separate Excel spreadsheet corresponding to Table 2 in Appendix 2 as a materials list.
- Table 1 in Appendix 2 should be completed and forwarded by the applicant for each product.

3 Environmental requirements

3.1 Mineral raw materials

The requirements apply to mineral raw materials and mineral byproducts (e.g., fly ash) which make up more than 10% by weight of the finished panel/moulding.

02 Heavy metals

Mineral raw materials or mineral byproducts must as a maximum contain the following quantities of heavy metals as indicated in table 2 in accordance with the used test method:

Table 2 Requirement Level for heavy metal content by either partial opening or total opening of the test sample

Heavy metal	Partial digestion of the sample by EN 259 Maximum content in mg/kg	Partial digestion of the sample by EN 13656 Maximum content in mg/kg
Arsenic	10	30
Lead	25	25
Cadmium	1	10
Mercury	0,5	0,5
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.

03 Dust emissions

The production and refining of mineral raw materials must not generate dust emissions to the atmosphere (via a chimney) of more than 7 mg dry dust/m³ air and 21 mg wet dust/m³ air.

For a description of the measurement method, see section on dust emissions in Appendix 1.

- ☒ The declaration from the raw materials producer/refiner, containing measurement results, measurement methods and measurement frequency.

04 Radioactive substances

The requirement covers all constituent mineral materials described below (> 10% by weight in the panel/moulding). The requirement applies for panels/mouldings for interior uses such as walls, ceilings, sub-floors, fittings, and joists.

For products which contain:

Natural materials such as alum shale or building materials or additives of natural volcanic origin, e.g.:

- granitoids (such as granites, syenite and orthogneiss)
- porphyries
- tufa
- pozzolana
- lava

or

materials containing residues from industries which process naturally occurring radioactive material, e.g.:

- fly ash
- phosphogypsum
- phosphorus slag
- tin slag
- copper slag
- red mud (residue from aluminium production)
- residues from steel production

It must be documented that the gamma index ($m\gamma$) or activity index (I₁) is less than 0.5.

The requirement applies to all constituent materials used in panels for internal uses such as walls, ceilings, sub-floors, fittings, or joists. Radioactive substances in the panel material are expressed as a gamma/activity index in accordance with the following formula:

$$C_K/3000 + C_{Ra}/300 + C_{Th}/200 < 0.5$$

In the above formula, C_K , C_{Ra} and C_{Th} are the concentrations of potassium-40, radium-226 and thorium-232, expressed as becquerel per kilogram (Bq/kg) of the material. 1% potassium is equivalent to 310 Bq/kg potassium-40, 1 ppm uranium is equivalent to 12.3 Bq/kg of radium-226 and 1 ppm thorium is equivalent to 4.0 Bq/kg of thorium-232.

- ☒ Sampling programme, including measurement methods, measurement result and measurement frequency. For the analysis method, see section in Appendix 1.

3.2 Wood raw materials, paper, cardboard, and paper pulp

The following requirements cover wood fibres, paper, cardboard, paper pulp, veneer, and solid wood, as used in the product where the raw materials individually constitute

more than 5% by weight of the finished panel/moulding.

For solid wood, veneer, bamboo and cork, the applicants can choose to fulfil and verify either requirements O6 and O7 below or new forestry requirements (both A and B) in appendix 10. It is not possible to mix between the two sets of requirements O6/O7 and A/B in appendix 11.

Requirement O5, O8 and O9 is valid regardless of which set of requirements (O6/O7 or appendix 10), that has been fulfilled.

O5 Wood fibre and waste wood in paper, cardboard and pulp

The requirement covers raw materials purchased as wood fibre in paper, cardboard, and pulp. The requirement does not apply to paper labels attached to the product.

Nordic Swan Ecolabelled paper products as well as pulp and paper controlled under the existing Nordic Swan Ecolabel basic module for paper, is automatically approved in this requirement.

Annually, at least:

1. 30% of the fibre raw material in paper, cardboard or pulp must come from forest areas in which operation has been certified under the forestry standard and certification system stated in Appendix 4d or which is certified as organically cultivated or where cultivation is in the process of being converted to organic production,

or

2. 70% of the fibre raw material in paper, cardboard or pulp must be recycled fibre or biproducts such as shavings or sawdust,

or

3. a combination of 1 and 2. If the fibre raw material in paper, cardboard or pulp consists of less than 70% recycled fibre, the proportion of fibre raw material from certified areas must be calculated according to the following formula:

Requirement for proportion of fibre raw material from certified areas in paper, cardboard, or pulp (Y):

$$Y (\%) \geq 30 - 0.4x$$

where x = proportion of recycled fibre or biproducts such as shavings and sawdust.

- The declaration and any calculations from the supplier of the paper, cardboard, or pulp that the requirement has been satisfied. The declaration must contain the name of the paper, cardboard, or pulp. Appendix 3 may be used.
- Where points 1 or 3 apply, the paper, cardboard or pulp manufacturer must send a copy of the relevant forestry certificate which complies with the guidelines for forest certification and organic cultivation, as described in Appendix 4c.
- By using the Nordic Swan Ecolabelled paper, cardboard or pulp submit trade name and license number of the product. When using products controlled by the existing Nordic Ecolabel paper basic module the producer, production plant, name of mass or paper quality and grammage shall be described.

O6 Solid wood, veneer, bamboo, and cork - origin and traceability

Constituent raw materials of solid wood, veneer, bamboo, cork, and fibre products in the panel must comply with the following requirements.

Secondary raw materials from trees, e.g., palm leaves, are exempted from the requirement.

Residues and waste from other activities in the form of sawdust/wood chips/wood waste/untreated demolition wood and recycled wood fibres are exempt from this

requirement. This requires, however, a statement from the supplier, that the raw material is residues, waste or recycled.

The licensee must:

- demonstrate traceability for all wood, veneer, and bamboo materials.
- State the name (in Latin and one Nordic language) and geographic origin (country/state and region/province) of the kinds of wood and bamboo used.
- have a written procedure for sustainable wood and bamboo supply.

Wood, veneer, and bamboo raw materials may not be sourced from:

- protected areas or areas in the process of being awarded protected status.
- areas where ownership or usage rights are unclear.
- genetically modified trees or plants.

Furthermore, forestry operations must not damage:

- standing natural timber, biodiversity, special ecosystems or important ecological functions.
- important social and/or cultural values.

The Nordic Swan Ecolabel may require further documentation in case of uncertainty about the raw materials origin.

- Name (Latin and a Nordic language or English) and geographical origin (country/state and region/province/municipality) for the wood raw materials used. Appendix 4a must be used.
- The traceability system must be described. The Chain of Custody Certificate or certificate number on Traceability Certification may be used as documentation for point 2.
- Written routines for ensuring sustainable bamboo and wood supply. A requirement for a Chain of Custody Certificate from a supplier may be used as part of the procedure. The procedure must ensure updated lists of all suppliers.
- For residual, waste, or recycled wood raw materials a statement confirming this must be submitted.

07 Certified solid wood, veneer, and bamboo

The requirement applies to solid wood, veneer, bamboo, and cork included as rawmaterial in the panel/moulding.

Secondary raw materials from trees, e.g., palm leaves, are exempted from therequirement.

Residues and waste from other activities in the form of wood waste and untreated demolition wood and recycled wood are exempt from this requirement. This requires, however, a statement from the supplier, that the raw material is residues, waste or recycled.

70% by weight of all wood for parts made of solid wood, veneer, bamboo, and cork must come from certified forests. Alternatively, the bamboo may be organically cultivated, or the cultivation may be in the process of conversion to organic production.

The requirement may be documented as purchased wood and bamboo on an annual basis either for the whole company or the Nordic Swan Ecolabelled production alone(minimum 70% certified wood must be credited to the Nordic Swan Ecolabelled production).

Certification must be performed by an independent third party.

Certification must be to a valid forestry standard which fulfils the requirements for standards and certification systems laid down in Appendix 4c.

- ☒ The proportion (%) of certified wood or bamboo included in the applicant's annual ecolabelled production. Appendix 4b may be used.
- ☒ Copy of forestry certificated signed and approved by a certification body.
The Nordic Swan Ecolabel may require further documentation to assess whether the requirements for standards, certification system and certified proportion have been satisfied. E.g., a copy of the certification body's approval report, a copy of the forestry standard including name, address and telephone number of the organization which drew up the standard, and references to persons who represent the parties and interest groups invited to participate in the development of the forest standard.
- ☒ For residual, waste, or recycled wood raw materials a statement confirming this must be submitted.

08 Use of biocides in tree felling

The requirement applies to solid wood, veneer, and bamboo as constituent rawmaterials.

After felling, the wood must not be treated with pesticides with WHO classifications 1A and 1B.

The requirement relates to the treatment of logs after felling.

WHO classification: An overview can be obtained from internet address http://www.who.int/ipcs/publications/pesticides_hazard/en/, "The WHO recommended classification of pesticides by hazard and guidelines to classification 2009" or on application to one of the secretariats.

- ☒ A statement from the wood suppliers as to the pesticides used and a declaration in accordance with Appendix 4a for each product.

Specific requirements for paper and cardboard (incl. craft paper)

The requirement applies to paper or cardboard (incl. craft paper) which constitute >10 percent by weight of the finished panel/moulding. The requirement should therefore be documented for paper and paperboard commodities, that individually represent more than 10 percent by weight of the panel/moulding.

09 Emissions of COD from paper and cardboard production

The total emissions of acid-consuming organic material (COD - chemical oxygen demand) to water must be less than the specified COD value in Table 14 for the paper or cardboard used (for unfiltered sample). Each type of pulp has its own level in the requirement. The COD emission from pulp production must be included in the total COD calculation for the paper or cardboard used.

COD emissions is thus calculated by adding the emissions COD mass kg/ADT (weighted mean of incoming pulps) + COD emission paper machine kg/t.

Nordic Swan Ecolabelled paper products as well as pulp and paper controlled under the existing Nordic Ecolabel basic module for paper, is automatically approved in this requirement.

Table 3 COD requirement levels for different pulp and paper types

Pulp type	Total COD level kg/ADt for pulp and paper
Bleached chemical pulp (sulphate and other chemical pulps except sulphite pulp)	22.0
Bleached chemical pulp (sulphite pulp)	29.0
Unbleached chemical pulp	14.0
CTMP pulp	19.0
TMP/Groundwood pulp	7.0
Recycled fibre pulp	4.0

- ☒ Submit a description of the sampling programme, including measurement methods, measurement results from previous 12 months and measurement frequency, see also Section 1 of Appendix 1.
- ☒ By using the Nordic Swan Ecolabelled paper, cardboard or pulp submit trade name and license number of the product. When using products controlled by the existing Nordic Ecolabel paper basic module the producer, production plant, name of mass or paper quality and grammage shall be described.

3.3 Resources

010 Resource requirements for plaster

As a minimum, at least 20% by weight of recycled gypsum must be used in the plasterboard/moulding, in the form of waste gypsum from demolition and refurbishment of buildings.

The remainder of the constituent gypsum raw material must be industrial gypsum (residual product from power stations).

This requirement may be documented as an annual average for the production of the plasterboard/moulding..

- ☒ A declaration from the recycled materials supplier, showing the amount of recycled material received in accordance with the requirement. Appendix 5 may be used.
- ☒ Applicant's calculation showing that the requirement level has been reached.

011 Resource requirements for cement based and mineral wool panels/mouldings

As a minimum there must be 30% by weight recycled or renewable material in the panel/moulding. The requirement may be documented annually for the panel/moulding production.

For mineral wool panels/mouldings an exemption is given from this requirement if the reduced energy requirement of 10 MJ/kg in requirement O16 can be fulfilled.

In this requirement recycled raw materials are defined in this requirement as post-consumer, cf. definition in ISO 14021 and waste products such as fly ash and industrial slag.

- ☒ A declaration from the recycled materials supplier, showing the amount of recycled material received in accordance with the requirement. Appendix 5 may be used.
- ☒ Applicant's calculation showing that the requirement level has been reached.

3.4 Energy

The energy requirements include the final energy consumption. The requirements must be documented in the form of energy consumed without the use of primary energy factors. The Nordic Swan Ecolabelled panel/moulding must comply with either requirement O13, O14, O15, O16, or O17 depending on the material in the

panel/moulding.

Please note that although the requirements below refer to panel production, the requirements also apply to mouldings produced in the corresponding material.

Furthermore, the energy requirement for paper and mass will be activated, when more than 20% by weight of paper or mass in the finished panel/moulding. The energy requirement for paper and pulp O13 is explained in detail in Annex 6. All energy requirements are further explained in the background document.

O12 Energy requirements for paper and pulp production

The requirement covers paper and pulp which individually are present at more than 30% by weight in the finished panel/moulding.

Nordic Swan Ecolabelled paper products as well as pulp and paper controlled under the existing Nordic Swan Ecolabel basic module for paper, is automatically approved in this requirement.

The following requirements must be satisfied for paper or pulp:

$$P_{\text{electricity(total)}} < 1.25$$

$$P_{\text{fuel(total)}} < 1.25$$

P stands for energy point for paper/pulp production. In $P_{\text{electricity(total)}}$ and $P_{\text{fuel(total)}}$, energy points are included from both paper production and the pulps used in the paper. See further explanation in Appendix 6.

- The pulp and paper manufacturer must submit a calculation according to Appendix 6 which shows that the point limits are being satisfied. The calculation sheet developed by Nordic Ecolabelling must be used for the calculation.
- By using the Nordic Swan Ecolabelled paper, cardboard or pulp submit trade name and license number of the product. When using products controlled by the existing Nordic Swan Ecolabel paper basic module the producer, production plant, name of mass or paper quality and grammage shall be described.

O13 Energy requirements for HPL panel production:

The requirement covers the applied energy for production of the panel and may be documented either for the ecolabelled panel production or for the company's total annual production of HPL panels.

HPL panels ≤ 2 mm thin:

No more than 18 MJ/kg panel may be used for producing the panel.

HPL panels > 2 mm thick:

No more than 14 MJ/kg panel may be used for producing the panel.

The requirement does not include extraction of resources or production of incoming raw materials. Paper has its own energy requirements in O12. Self-produced energy and resold surplus energy should be stated but will not count as applied energy in the calculation.

- A calculation should be submitted documenting compliance with the requirement. The calculation must contain information about quantity of produced panels, sub-divided into thick and thin, applied electricity and fuel, and which fuel sources are being used.

O14 Energy requirements for wood-based panels

Energy consumption is calculated as an annual average for either just the ecolabelled production or for the whole enterprise.

Energy consumption calculated as MJ/kg panel must include the primary panel production and the production of the constituent main raw materials.

Main raw materials are the raw materials which make up more than 2% by weight of the finished panel (for example wood fibre and adhesive).

System boundary for the requirement: Energy consumption for obtaining raw materials is not included in the calculation.

For the panel production, the energy calculation must be based on data available from the time of raw materials handling (including drying of wood and conveyor belts both in the saw works and on the production line) up to the finished product prior to any surface treatment. The calculation is thus exclusive cultivation and felling the tree but including wood drying and conveyor both at the sawmills and in the production line and the panel production. Transport in all phases and energy consumption by surface treatment, should not be included. Lamination of the panel should be included in the calculation.

Energy consumption for surface treatment must not be included. In production of chemicals such as adhesives, the energy calculation is based on data available from the time of the production of the adhesive and of the constituent raw materials. The energy content of the raw material must not be included. In exceptional cases, a table value for adhesive of 15 MJ/kg (ready-to-use solution) may be used.

When using multiple suppliers for the same type of raw material it is accepted, that the calculation is done using the most frequently used supplier.

Chipboards:

No more than 7 MJ/kg panel may be applied for producing panels (excluding any surface treatment).

Other wood-based panels:

No more than 11 MJ/kg panel may be applied for producing panels (excluding any surface treatment).

In relation to fuel energy, then both energy from purchased fuel, domestically produced fuel and energy from waste products are included. The requirement does not include extraction of resources. Self-produced energy and resold surplus energy should be stated but will not count as applied energy in the calculation.

- ☒ A calculation should be submitted documenting compliance with the requirement. The calculation must contain information about quantity of produced panels, applied electricity and fuel and which fuel sources are being used.

015 Energy requirements for plasterboards

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

No more than 4 MJ/kg plasterboard may be applied for total applied electricity and fuel in panel production.

The requirement does not include extraction of resources and production of incoming raw materials. Paper has its own energy requirements in O12. Self-produced energy and resold surplus energy should be stated but will not count as applied energy in the calculation.

- ☒ A calculation should be submitted documenting compliance with the requirement. The calculation must contain information about quantity of produced panels, applied electricity and fuel, and which fuel sources are being used.

016 Energy requirements for mineral wool panels

The requirement covers the applied energy for production of the panel incl. the production of mineral wool. The requirement may be documented either just for the ecolabelled panel production or for the company's total annual production.

In total, no more than 20 MJ/kg mineral panel may be applied for electricity and fuel.

For panels, that do not comply with the requirement for recycled material in O11, applies a maximum level of 10 MJ/kg panel.

The requirement does not include extraction of resources. Self-produced energy and resold surplus energy should be stated but will not count as applied energy in the calculation. See definition of self-produced energy in section 1.

- ☒ A calculation should be submitted documenting compliance with the requirement. The calculation must contain information about quantity of produced panels, applied electricity and fuel, and which fuel sources are being used.

017 Energy requirements for cement-based panels

The requirement covers the total energy impact from the constituent materials in the panel. The requirement covers all materials used in the panel which are present at more than 1% by weight. To calculate this, table values are applied from Table 4 for each material, weighting them in proportion to the amount of material present in the finished panel.

Requirement for panels: No more than 8 MJ/kg panel may be applied.

The table values express the energy impact of the material with the system limit cradle to gate, e.g., the calorific value. It is not permitted to use privately obtained values.

Nordic Ecolabelling reserves the right to assess which table values are to be used when using materials not specifically laid down in the table or in case of doubt over choice of table value.

Portland cement is defined in accordance with Standard EN 197-1.

Table 4 Table value for energy for material production cradle to gate

Material	Primary energy MJ/kg (both renewable and fossil-based)
Portland Cement	8
Kaolin	5.4
Fly ash (hard coal ash from furnace)	0.4
Limestone flour	0.4
Silicate sand	0.6
Aluminium hydroxide	10
Magnesium oxide	2.7
Magnesium chloride (value for MgO)	2.7
Pozzolanic filler	83
Residual wood (hardwood u=80% moisture content dry basis)*	5
Residual wood (softwood u=140% moisture content dry basis)	2
Sawdust (chips u=70% moisture content dry basis)*	2
Wood chips (chips u=70% moisture content dry basis)*	1.5
PVA fibre (synthetic fibre)	202
Clay, expanded	4.8
Glass foam	25.2
Fibreglass	35.2
Polyacrylonitrile (PAN) fibre	82
Other plastic fibres	200

* 70% "moisture content dry basis" means 0.7 m³ water per 1 m³ dry wood. This is the same as a moisture content of 41% "moisture content wet basis".

In the case of a different moisture content in the wood raw material, a conversion must be made by using an energy figure for dry wood, which would be 2.5 MJ/kg dry substance wood (water content of 0%) for wood chips. A similar conversion must be made for other wood raw materials.

- ☒ A calculation should be submitted documenting compliance with the requirement.

3.5 Requirements for chemical products

The requirements cover the chemical products included in the production of the ecolabelled panels/mouldings. Either as additives to the panel/moulding or in surface

treatments. The requirement relates to chemical products such as adhesive, additives and surface treatment. Auxiliary chemicals such as lubricating oil for mechanical equipment are not covered by the requirement.

Several of the requirements are aimed at the ingoing substances in the chemical product. See definition of ingoing substance in Section 1.

O18 Ecolabelled product

If the product is ecolabelled, all requirements in section 3.5 except of O24, O25 and O27 are automatically fulfilled.

- If the product is ecolabelled, the product type and manufacturer and licence number must be specified.

O19 Classification of the chemical product

The chemical product used in the production of the ecolabelled panel/moulding must be classified in accordance with the current legislation (CLP Regulation 1272/2008 or the EU's Dangerous Preparations Directive 1999/45/EEC 2008, or later) and may not be reclassified in accordance with Table 5 below.

Exemptions:

Resins in HPL panels/mouldings with up to max. 10% phenol are exempted from the prohibition of classification with H341/R68 and H301, H331/R23, R24, R25, R48.

Adhesives with methylene diphenyl diisocyanate (MDI) are exempted from the prohibition of classification with H351/R40.

An exemption for the classification from formaldehyde are given in this requirement. The formaldehyde content in chemical products is instead regulated in requirement O28 and in O32 and O33, which are requirements addressing formaldehyde emission from the panel/moulding. Emissions from HPL production is regulated in requirement O30.

Methanol in concentrations up to 10% by weight in adhesives and resins are exempted from the prohibition of classification according to the requirement.

Resins with melamine are exempted from the prohibition of classification with H351 and H361.

Table 5 List of non-permitted classifications of chemical products in accordance with the CLP Regulation 1272/2008 - or later

CLP Regulation 1272/2008		EU Dangerous Substance Directive 67/548/EC	
Signal words	Hazard statement	Indication of danger	Risk phrase
Danger, Carc. 1A or 1B Danger, Carc. 1A or 1B Warning, Carc. 2	H350 H350i H351	Carcinogenic T T Xn	R45 and/or R49 R40
Danger, Muta. 1A or 1B Warning, Muta. 2	H340 H341	Mutagenic T Xn	R46 R68
Danger, Repr. 1A or 1B Danger, Repr. 1A or 1B Warning, Repr. 2 Warning, Repr. 2 - -	H360 H360 H361 H361 H362 H362	Reprotoxic T T Xn Xn - -	R60 R61 R62 and/or R63 R33 R64

Danger, Acute Tox. 1 or 2	H330	Very toxic Tx	R26
Danger, Acute Tox. 1	H310	Tx	R27
Danger, Acute Tox. 2	H300	Tx	R28 and/or
Danger, STOT SE 1	H370	Tx	R39
Danger, Acute Tox. 2 or 3	H330 or H331	Toxic T	R23
Danger, Acute Tox. 3	H331	T	R24
Danger, Acute Tox. 3	H301	T	R25
Danger, STOT SE 1	H370	T	R39 and/or
Danger, STOT RE 1	H372	T	R48

The classification applies in accordance with the EU's Dangerous Substances Directive 67/548/EC with subsequent amendments and adjustments and/or CLP Regulation 1272/2008 with subsequent amendments. During the transition period, i.e., up to 1 June 2015, classification in accordance with the EU's Dangerous Substances Directive or the CLP Regulation may be used. After the transition period, only classification in accordance with the CLP Regulation is allowed.

- Declaration from the producer of the chemical product used in the Nordic Swan Ecolabelled product that the requirement has been satisfied. Appendix 7 may be used.
- A safety data sheet for the chemical product used in the Nordic Swan Ecolabelled product in accordance with Appendix II of Reach (Regulation 1907/2006/EC with subsequent amendments and additions).

O20 CMR classification of constituent substances

The requirement covers all constituent substances in the chemical products used in production of the panel/moulding and for surface treatment.

The constituent substances used in chemical products in the panel/moulding production (e.g., additives, adhesives, and surface treatment) must not have any classifications listed in Table 6 below.

Exemptions:

From 04/01/2015 formaldehyde is up classified under CLP ATP 6 (EU no. 605/2014) then an exemption for formaldehyde with H350 (Carc.1B)/R45 and/or R49 and H341 (Muta.2)/R68 are given in this requirement.

The formaldehyde content in adhesives is instead regulated in requirement O28 and O32 and O33, which are requirements addressing formaldehyde emission from the panel. Emissions from HPL production is regulated in requirement O30.

Table 6 List of non-permitted classifications of constituent substances in chemical products

CLP Regulation 1272/2008:		EU Dangerous Substance Directive 67/548/EC:	
Signal words	Hazard statement	Indication of danger	Risk phrase
Danger, Carc. 1A or 1B Danger, Carc. 1A or 1B	H350 H350i	Carcinogenic T T	R45 and/or R49
Danger, Muta. 1A or 1B	H340	Mutagenic T	R46
Danger, Repr. 1A or 1B Danger, Repr. 1A or 1B	H360 H360	Reprotoxic T T	R60 R61

The classification applies in accordance with the EU's Dangerous Substances Directive 67/548/EC with subsequent amendments and adjustments and/or CLP Regulation 1272/2008 with subsequent amendments. During the transition period, i.e., up to 1 June 2015, classification in accordance with the EU's Dangerous Substances Directive or the CLP Regulation may be used. After the transition period, only classification in accordance with the CLP Regulation is allowed.

- Declaration from the producer/supplier of the chemical product that the requirement has been satisfied. Appendix 7 may be used.

021 Specific excluded substances in chemical products

The requirement covers all constituent substances in the chemical products used.

The following substances must not be present in the chemical product:

- Substances on the EU Candidate List*
 - Undtagelse: Melamin (CAS nr. 108-78-1)
- Persistent, bioaccumulative and toxic (PBT) organic substances**
- Very persistent and very bioaccumulative (vPvB) organic substances**
- Substances regarded as potentially endocrine disrupting in category 1 or 2 on the EU Candidate List*
- Priority List of substances for further investigation for endocrine disrupting effects***
- Halogenated organic compounds, such as organic chloroparaffins, fluorine compounds and halogenated flame inhibitors****
- Bisphenol A
- Alkylphenols, alkylphenol ethoxylates and other alkylphenol derivatives
- Phthalates
- Aziridine and polyaziridines
- Pigments and additives based on lead, tin, cadmium, chromium VI and mercury, and their compounds

* Candidate List pursuant to REACH, 1907/2006/EC Article 59, Par. 10 is available on the ECHA website: <http://echa.europa.eu/sv/candidate-list-table>

** PBT and vPvB substances are defined in Annex XIII of the Reach Regulation (Regulation 1907/2006/EG).

Substances which meet the PBT or vPvB criteria or which liberate substances which meet these criteria are listed on <http://esis.jrc.ec.europa.eu/index.php?PGM=pbtt>. Substances which have been "deferred" or are "under evaluation" are not deemed to possess PBT or vPvB properties.

*** See following link:

http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf (Annex L, page 238 ff.)

The biocide bronopol Cas. Nr. 52-51-7 is exempted from this requirement up to 0,05% by weight. The biocide CMIT, in combination with MIT, is an exemption from this rule and is regulated by Requirement O22.

- Declaration from the raw materials producer or supplier showing that the requirement has been complied with. Appendix 7 may be used.

022 Biocides (preservatives and antibacterial treatment)

Antibacterial treatment (all types of panel and mouldings)

- No biocides or biocide products may be applied to the surface of the finished panel/moulding, or to parts of these, for the purpose of providing a disinfectant or antibacterial effect.

Preservatives in chemical products (all types of panel/mouldings)

- The total content of Kathon mixture (CMIT/MIT) 5-chloro-2-methyl-2H-isothiazolin-3-one (CAS no.: 26172-55-4) and 2-methyl-2H-isothiazolin-3-one (CAS no.: 2682-20-4) (3:1) in the chemical mixture may not exceed 15 ppm (0.0015% by weight, 15 mg/kg).

All types of panel/mouldings:

- The total content of isothiazolinone compounds in the chemical product may not exceed 500 ppm (0.05% by weight, 500 mg/kg).

- The total content of 2-Methyl-3(2H)-isotiazolon in the chemical product may not exceed 200 ppm.

☒ Declaration from producer/supplier of all constituent chemical products, showing that the requirement has been met. Appendix 7 may be used.

023 Nanoparticles

The product may not contain nanoparticles (from nanomaterial*).

Exemptions from the requirement are granted for the following:

- Pigment**
- Synthetic amorphous silicate***
- Naturally occurring inorganic fillers****
- Polymer dispersions

* The definition of nanomaterials follows the EU Commission's definition of nanomaterials of 18 October 2011: "Nanomaterials": a natural, incidental, or manufactured material containing particles in an unbound state or as an aggregate or an agglomerate and where at least 50% of the particles in the size distribution by number, in one or more external dimensions, are in the size range of 1-100 nm.

** Nano titanium dioxide is not considered to be a pigment and is therefore a subject to the requirement.

*** This applies to conventional synthetic amorphous silicate.

Chemically modified colloidal silica can be included if the silica particles form aggregates in the finished product. Any surface treatment must meet the chemical requirements of the criteria.

**** This applies to fillers covered by Annex V Point 7 of REACH.

☒ Declaration from producer/supplier of chemical product (except for polymer emulsion, pigment, and synthetic amorphous silicate) that the product does not contain nanomaterial as defined by the requirement. Appendix 7 may be used.

024 Environmentally harmful substances in the panel/moulding (not surface treatment)

The total quantity of added chemical substances in the panel/moulding which are classified as environmentally harmful according to Table 7 has been restricted and must comply with a required level of maximum 2% by weight environmentally harmful substances by means of the following formula:

$100 \cdot H410 + 10 \cdot H411 + H412 \leq 2\%$ by weight environmentally harmful substances

or

$100 \cdot (R50/53) + 10 \cdot (R51/53) + (R52/53) \leq 2\%$ by weight environmentally harmful substances

where:

H410 is the total concentration of substances classified as H410 (and the same for R50/53) as a percentage of the panel/moulding

H411 is the total concentration of substances classified as H411 (and the same for R50/53) as a percentage of the panel/moulding

H412 is the total concentration of substances classified as H412 (and the same for R50/53) as a percentage of the panel/moulding

The requirement relates to the chemical products used in the panel/moulding (e.g., adhesives) with the chemical composition they have when mixed in the panel/moulding material.

The following exemptions apply:

- Ammonia in a concentration of over 24% is exempted and not counted here.
- Phenol (CAS: 108-95-2) classified H411 in resins in HPL panels/mouldings with up to a maximum of 10% by weight of phenol is excluded from the

calculation. Note that there are requirements for emission of phenol in O30.

- Acrylates in UV-curing products are exempted from the calculation if the products are used in a controlled closed process where no discharge to recipient takes place. Spills and residual waste (e.g., residues from cleaning) must be collected in containers that are approved for hazardous waste and handled by a waste contractor.

Table 7 Environmental hazard statements and risk phrases covered by the requirement

Hazard class	Hazard code and hazard statement according to CLP Regulation 1272/2008	Indication of danger and R-phrase according to EU Dangerous Substances Directive (67/548/EC)
Hazardous to aquatic life	Chronic 1 with H410	N; R50-53
	Chronic 2 with H411	N; R51-53
	Chronic 3 with H412	R52-53

- ☒ Declaration from producer/supplier of chemical product showing the content of environmental hazard classified substances covered by the requirement, stated specifically for each indication of danger/R phrase. Appendix 8 may be used.
- ☒ Calculation from panel/moulding manufacturer showing the content of environmentally hazardous substances in the panel/moulding in relation to the requirement. Here information from Appendix 8 should be used.
- ☒ For UV-curing products: a description of the process and how waste and residual waste are handled, including information on who receives the residual waste.

025 Environmentally harmful substances in surface treatment

Chemical products used in the surface treatment system (e.g., coating, oil, paint and lacquer) of the panel/moulding must satisfy one of the two following requirement alternatives.

- a) No chemical product in the surface treatment may be classified as environmentally harmful according to Table 7 below.

or

- b) The total amount of environmentally harmful substances applied (indicated in Table 8) in the surface treatment system must not amount to more than 40 g/m² calculated in wet condition.

Acrylates in UV-curing surface treatment products are exempted from a) and b) if the following is fulfilled:

UV curing surface treatment products must be applied to the material during a controlled closed process where no discharge to recipient takes place. Spills and residual waste (e.g., residues from cleaning) must be collected in containers that are approved for hazardous waste and handled by a waste contractor.

For alternative b) one of the following formulae must be used to calculate the weight percentage of constituent environmentally harmful substances in the surface treatment system (to be done as a total for all each chemical product in the surface treatment):

$100 \cdot H410 + 10 \cdot H411 + H412 = \% \text{ by weight environmentally harmful substances}$

or

$100 \cdot (R50/53) + 10 \cdot (R51/53) + (R52/53) = \% \text{ by weight environmentally harmful substances}$

H410 is the concentration of substances classified as H410 (and the same for R50/53) as a percentage

H411 is the concentration of substances classified as H411 (and the same for R50/53) as a percentage

H412 is the concentration of substances classified as H412 (and the same for R50/53) as a percentage.

All environmentally hazardous substances in unhardened chemical products must be included in the calculation.

Table 8 Environmental hazard statements and indications of danger covered by the requirement

Hazard class	Hazard code and hazard statement according to CLP Regulation 1272/2008	Indication of danger and R-phrase according to EU Dangerous Substances Directive (67/548/EC)
Hazardous for aquatic life	Aquatic acute 1 with H400	N; R50
	Aquatic chronic 1 with H410	N; R50-53
	Aquatic chronic 2 with H411	N; R51-53
	Aquatic chronic with H412	R52-53

The amount of applied environmentally hazardous substances (g/m²) is then calculated as:

Applied amount $\frac{\text{g}}{\text{m}^2} \times \text{weighted \% environmentally hazardous substances in total surface treatment}$

For tone systems, a worst-case calculation is made for the surface treatment with the most tone in the basic colour containing the most environmentally hazardous substance under the weighted formula for the classifications.

- ☒ For alternative a), a declaration is required from the producer/supplier of each chemical product that the product is not classified as environmentally hazardous under the above table. Appendix 7 may be used.
- ☒ For alternative b) Declaration from producer/supplier of chemical product showing the content of environmental hazard classified substances covered by the requirement. The concentration of substances must be stated specifically for each indication of danger/R phrase. Appendix 8 may be used. Confidential information from the chemicals supplier may be sent directly to Nordic Ecolabelling.
- ☒ The calculation from the manufacturer of the finished panel/list showing the number of coats of surface treatment, the application method and the applied amount per coat indicated as g/m² panel/list. And the weighted calculation of environmentally hazardous substances as shown by the requirement. Here information from Appendix 8 should be used.
- ☒ For UV-curing products: Description of the process and how waste and residual waste are handled, including information about who receives the residual waste from the performer of the surface treatment.

026 Volatile organic compounds (VOC) in adhesives

Volatile organic compounds* including volatile aromatic hydrocarbons (VAH), must not be present in the adhesive by more than 3% by weight. Of these, VAHs (volatile aromatic hydrocarbons) may not amount to more than 0.1% by weight of the adhesive.

Resins/adhesives for HPL panel/moulding production are exempted from this requirement. Instead, the HPL panel/moulding shall fulfil emission requirements to formaldehyde and phenol and VOCs in general are set in requirement O30 and O33.

** Volatile organic compounds are here defined as:*

Organic compounds with a steam pressure exceeding 0.01 kPa, at 20°C.

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.

- ☒ Declaration from the producer/supplier of the chemical compound that the requirement has been fulfilled. Appendix 9 may be used.

027 VOC in surface treatment

The content of volatile organic substances (VOC) in the chemical products in the surface treatment system must be either

- a) below 5% by weight for each chemical product, or
- b) a maximum of 10 g/m² surface of panel/moulding for the total surface treatment system

The requirement relates to the chemical products used in surface treatment with the chemical composition they have in wet form. If the product is to be diluted, the calculation must be based on the content of the ready-diluted product.

Volatile organic compounds are here defined as:

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.

- ☒ Declaration from the producer/supplier of each chemical product in the surface treatment. The declaration must state the content of VOC in the product. If necessary, VOC information from the producer of the chemical product may be sent directly to Nordic Ecolabelling. Appendix 9 may be used.
- ☒ When using alternative b), the applicant must submit a calculation showing the total amount of VOC in the surface treatment system in g/m² panel/moulding. The calculation must be based on the declared VOC content of each chemical product and the amount present in the surface treatment system.

028 Content of free formaldehyde in chemical products

The requirement does not apply to resin used for impregnation in HPL and laminate production.

HPL and laminate production must instead comply with Requirement O30 Emissions from HPL production as well as requirement O33 Emissions from the panel/list.

The content of free formaldehyde in chemical products used for production of the panel may be up to 0.2% by weight (2000 ppm), except for adhesive products mixed with hardener. For adhesive products mixed with hardener, up to 0.2% by weight (2000 ppm) of free formaldehyde is permitted in the ready-to-use mixture.

The content of free formaldehyde in chemical products used for stone wool may be no more than 0.5% by weight (5000 ppm).

- ☒ Declaration from the producer of the chemical products used in the construction panel/moulding. Appendix 7 may be used.

3.6 Emissions

029 Emissions to water in wet processes

The requirement covers wet processes in panel/moulding production where organic material is included. For panels/mouldings manufactured with wet processes, the COD emission to water may be no more than 20 g COD/kg product (unfiltered sample).

- ☒ The sampling program, including measurement method, measurement results for the last 12 months, and measurement frequency. For processing and analysis methods, see Appendix 1.

030 Emissions from HPL production

In the case of production in countries where the mandatory national requirements are less stringent than the emission levels in this requirement, it must be documented that the following emissions levels have not been exceeded.

The requirement relates to panels/mouldings in which the content of HPL (High Pressure Laminate) accounts for more than 10% by weight of the panel/moulding.

The following limit values for emissions to air at the workplace may not be exceeded during production of HPL (High Pressure Laminate):

The limit value is expressed in relation to a reference period of 8 hours' time-weighted average (TWA):

Limit value for formaldehyde cas. no. 50-00-0: 0.5 ppm or
0.6 mg/m³ Limit value for phenol cas. no. 108-95-2: 2 ppm
or 8 mg/m³

The limit value is expressed in relation to a short-term value of max. 15 min.:

Limit value for formaldehyde cas. no. 50-00-0: 1.0 ppm or

1.2 mg/m³ limit value for phenol cas. no. 108-95-2: 4 ppm

or 16 mg/m³

- Air measurements for phenol and formaldehyde for the past 12 months, containing a description of the sampling program, including measurement methods and measurement frequency. For analysis methods, see Appendix 1.

or

- Description of mandatory national regulatory requirements, showing that the requirement automatically is followed.

031 Dust emissions

In the case of production in countries where the mandatory national requirements are less stringent than the emission levels in this requirement, it must be documented, that the following dust emission levels have not been exceeded.

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/mouldings in which the content of mineral raw materials or wood raw materials individually accounts for more than 10% by weight of the panel/moulding:

Mineral dust, inert: 10 mg/m³

Mineral dust, inert, breathable:

5 mg/m³ Mineral wool: 1

fibre/cm³

Wood dust, breathable:

2 mg/m³ Organic dust,

total: 5 mg/m³

- Dust measurements according to the requirement for the past 12 months, containing a description of the sampling program, including measurement methods and measurement frequency. For analysis methods, see Appendix 1.

Or

- Description of mandatory national regulatory requirements, showing that the requirement automatically is followed.

032 Formaldehyde emissions from wood-based panels/mouldings

The requirement covers all wood-based panels/mouldings. For panels/mouldings, which contain formaldehyde-based additives or where the surface treatment includes formaldehyde, one of the two following requirements must be met:

1. The average content of free formaldehyde must not be more than 5 mg formaldehyde/100 g dry substance for MDF panels/mouldings or 4 mg/100 g dry substance for all other panels/mouldings as determined according to the current version of EN-120 or similar methods approved by Nordic Ecolabelling (see section in Appendix 1).

The requirement applies to panels/mouldings in wood with a moisture level of H = 6.5%.

If the products have a different moisture level within the range 3-10%, the analysed perforator value must be multiplied by a factor F, derived with the following formula:

For chipboard: $F = -0.133 H + 1.86$ For MDF: $F = -0.121 H + 1.78$

- The average emission of formaldehyde must not exceed 0.08 mg/m³ air for MDF panels/mouldings or 0.07 mg/m³ air for all other panels/mouldings as determined according to the current version of EN 717-1 or similar methods approved by Nordic Ecolabelling (see description in Appendix 1).

EN 717-1 shows correlation with test methods ASTM E 1333 and JIS A 1460. Alternative 2 of this requirement may be alternatively documented with these in relation to emission values in table 9.

Table 9 Correlation between EN 717-1 and other test methods

Test method:	EN 717-1 (23 grC/45%RH)	ASTM E 1333 (25grC/50%RH)	ASTM E 1333 25grC/50%RH	JIS A 1460
MDF	0,09 mg/m ³	0,06 ppm	0,07 mg/m ³	0,66 mg L-1
Other panels/mouldings	0,07 mg/m ³	0,08 ppm	0,10 mg/m ³	0,53 mg L-1



Analysis report including measurement methods, measurement results and measurement frequency. It must be clearly stated which method has been used, who carried out the analyses and that the testing institution is an independent third party. Test methods other than those specified may be used if there is correlation between test methods and this can be confirmed by an independent competent third party. For more information on the test method, see Annex 1.

033 Emission requirements for the panel/moulding

The finished panel/moulding must comply with the emission levels set out in Table 10 Emissionlevels.

The panel/moulding must be tested in accordance with CEN/TS 16516, ISO 16000-3/-6/-9/-10 or equivalent test method. Testing must be carried out by an accredited third party.

The requirement includes the following panels/mouldings:

- The formaldehyde requirement in the table does not apply for wood-based panels/mouldings, which instead must fulfil requirement "O32 Formaldehyde emissions from wood-based panels/mouldings".
- For wood-based panels/mouldings (including products in solid wood) the VOC requirements in the table 10 below only applies to products with surface treatment. All other types of panels must comply with the emission levels for both TVOC, SVOC and formaldehyde.

Table 10 Emission levels

Substance groups	Limit value after 28 days in µg/m ³ *
TVOC (C6-C16): other panels/mouldings than wood based	160
TVOC (C6-C16): wood based with surface treatment	400
SVOC (C16-C23): other panels/mouldings than wood based	30
SVOC (C16-C23): wood based with surface treatment	100
Formaldehyde: other panels/mouldings than wood based	30

* Conversion between µg/m³h and µg/m³, requirements for analysis laboratory and testing methods are described in Appendix 1.

Other analysis methods are acceptable if considered equivalent by an independent competent body.

- ☒ The test report showing that the limit values in the table above have been satisfied. Valid certificate from subsequent indoor climate labelling scheme may be used as documentation: M1 after 01.07.2014. It must be clearly stated which test standard is being used, which laboratory has carried out the analysis and that the analysis laboratory is accredited by an independent third party, see Appendix 1.
- ☒ The certificate and underlying test report from other indoor climate labelling schemes, e.g., Danish Indoor Climate Labelling, may be used as verification/documentation if an independent expert can confirm that the certificate from the indoor climate labelling scheme fulfils the requirements.

3.7 Quality, properties, and maintenance of the product

034 Quality and properties of the product

For products covered by a harmonised standard, the properties, and functions with which the product is marketed must be documented by a declaration of performance (DoP). As documentation, an example of CE marking and declaration of performance pursuant to the Construction Products Regulation (305/2011/EC) should be submitted.

For products that are not covered by a harmonized product standard, the product's properties and functions may be declared by one of the following three alternatives:

- either by a voluntary CE marking and declaration of performance in accordance with an ETA (European Technical Assessment).
- or alternatively to an ETA, the product's properties may be declared by a relevant third-party verification of the performance of the product. In this case, this third-party verification shall be approved by Nordic Ecolabelling.
- or for non-load bearing products, the properties can be declared with relevant standardized quality test with integrated internal factory control. In this case, the choice of test standard shall be approved by Nordic Ecolabelling.

- ☒ For products covered by a harmonised product standard, it should be stated which product standard(s) cover the product and the declaration of performance should be submitted.
- ☒ For products not covered by a harmonized standard there shall be submitted either:
 - a declaration of performance in accordance with an ETA for the Nordic Swan Ecolabelled product.
 - other third-party verification of the properties and performance of the product.
 - a description of the quality standard and test results as described in the requirement.

035 Information about the product

The manufacturer/supplier must inform the consumer about how best to use, maintain and store the product. The information must be given in the official language of the country in which the Nordic Swan Ecolabelled product is marketed.

The product must be accompanied by written instructions which state:

- The area of use for which the product is intended.
- How the product is to be stored on the building site.
- Assembly and instructions for any surface treatment.
- How the product is to be maintained, which maintenance products are suitable for the product (paint, oils, etc.) and how often these maintenance products must be used.

- ☒ Copy of information material, which accompanies the construction panel.

4 Quality and regulatory requirements

To ensure that Nordic Swan Ecolabel requirements are fulfilled, the following procedures must be implemented.

If the licensee's environmental management system is certified to ISO 14 001 or EMAS, and the following procedures implemented, it is sufficient for the accredited auditor to certify that the requirements are observed.

036 Nordic Swan Ecolabel licence person

The company shall appoint a person responsible for ensuring the fulfilment of Nordic Swan Ecolabel requirements, and a contact person for communications with Nordic Ecolabelling.

- A chart of the company's organizational structure detailing who is responsible for the above.

037 Documentation

The licensee must be able to present a copy of the application, and factual and calculation data supporting the documents submitted an application (including test reports, documents from suppliers and such like).

- 🔑 Checked on site.

038 Quality of the product

The licensee must guarantee that the quality of the production of the Nordic Swan Ecolabelled panel/moulding is maintained throughout the validity period of the licence.

- Procedures for collecting and, where necessary, dealing with claims and complaints regarding the quality of the Nordic Swan Ecolabelled panels and mouldings for interior use.

039 Planned changes

Written notice must be given to Nordic Ecolabelling of planned changes in products and markets that have a bearing on Nordic Swan Ecolabel requirements.

- Procedures detailing how planned changes in products and markets are handled.

040 Unplanned nonconformities

Unplanned nonconformities that have a bearing on Nordic Swan Ecolabel requirements must be reported to Nordic Ecolabelling in writing and journaled.

- Procedures detailing how unplanned nonconformities are handled.

041 Traceability

The licensee must have a traceability system for the production of the Nordic Swan Ecolabelled panel/moulding.

- Description of procedures for the fulfilment of the requirement.

042 Take-back system

The Nordic Ecolabelling's Criteria Group decided on the 9 October 2017 to remove this requirement.

043 Legislation and regulations

The licensee must guarantee adherence to safety regulations, working environment legislation, environmental legislation, and conditions/concessions specific to the operations at all sites where the Nordic Swan Ecolabelled product is manufactured.

No documentation is required, but Nordic Ecolabelling may revoke the licence if the requirement is not fulfilled.

Regulations for the Nordic Swan Ecolabelling of products

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

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

Follow-up inspections

Nordic Ecolabelling may decide to check whether the construction or façade panel fulfils Nordic Swan Ecolabel 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 the panels does not meet the requirements.

Random samples may also be taken in-store and analysed by an independent laboratory. If the requirements are not met, Nordic Ecolabelling may charge the analysis costs to the licensee.

How long is a licence valid?

Nordic Ecolabelling adopted the criteria for construction and facade panels on 25 February 2015. The criteria are valid until 31 March 2020.

On 8 January 2016, the Nordic Ecolabelling's Criteria Group approved to insert an exception for bronopol up to 0.05% by weight in requirement O21. New version is 6.1.

On 30 March 2016, the Nordic Ecolabelling's Criteria Group approved an adjustment in requirement O34. New version is 6.2.

On 21 June 2016, the Nordic Ecolabelling's Criteria Group approved an alternative version of the requirements O6 and O7 included as Annex 10. The new version is called 6.3.

On 16 August 2018, the Nordic Ecolabelling's Criteria Group approved an adjustment in requirement O33 regarding TVOC and formaldehyde. The new version is called 6.4.

On the 9 October 2017 Nordic Ecolabelling's Criteria Group decided to remove

O42 Take-back system and on the 19 December 2018 Nordic, Ecolabelling decided to prolong the criteria with 24 months to the 31 March 2022. The new version is called 6.5.

On the 31 March 2020 Nordic Ecolabelling decided to prolong the criteria to the 30 June 2023. The new version is called 6.6.

On 2 June 2020, the Nordic Ecolabelling Board decided to make a change in requirement O10 for prohibited tree species. On 12 January 2021 Nordic Ecolabelling decided on an adjustment in O24 and O25 giving exemption for UV-curing acrylates in O24 and O25. On 4 May 2021 Nordic Ecolabelling decided on an adjustment in O24 giving an exemption for phenol. The new version is called 6.7.

On 31 August 2021, Nordic Ecolabelling decided to include untreated solid wood and mouldings in similar materials that are included in the product group for indoor use. The new version is called 6.8.

On 5 April 2022 Nordic Ecolabelling decided to prolong the criteria with 12 months to the 30 June 2024. The new version is called 6.9.

On 28 June 2022 Nordic Ecolabelling decided to make an adjustment of requirement O19 where resins with melamine are exempted from the classification prohibitions H351 and H361. The new version is called 6.10.

On 14 February 2023 Nordic Ecolabelling decided to make an adjustment of requirement O21 prohibited substances regarding exemption for melamine (CAS nr. 108-78-1) and a prolongation of the criteria with 6 months to the 31 December 2024. The new version is called 6.11.

On 22 August 2023, Nordic Ecolabelling decided to split the criteria in two separate criteria for panels for indoor and outdoor use respectively. The name of these criteria has been changed to 010 panels and mouldings for interior use. Panels and cladding for exterior use is now covered by new product group 114. The new version is called 6.12.

New criteria

The work on the next version of the criteria will include following focus:

- Assess if the energy requirements can be sharpened and look at the possibility to expand the system boundaries in relation to include more raw material and material production in the energy requirement. For example, examining the potential for energy requirements for production of resin and other adhesives, with special focus on energy for raw materials.
- Looking at the opportunity for tightening requirements in favour of higher share of recycled materials, e.g., in plasterboards.
- Evaluate, whether the chemical requirements can be sharpened.

Appendix 1 Analysis and test laboratories

Requirements on the analysis laboratory (all)

The analysis laboratory used shall fulfil the general requirements of standard EN ISO 17025 or have official GLP status.

The applicant's analysis laboratory/test procedure may be approved for analysis and testing if:

- sampling and analysis is monitored by the authorities, or
- the manufacturer's quality assurance system covers analyses and sampling and is certified to ISO 9001 or
- the manufacturer can demonstrate agreement between a first-time test conducted at the manufacturer's own laboratory and testing carried out in parallel at an independent test institute, and the manufacturer takes samples in accordance with a fixed sampling schedule.

Heavy metals (O2)

Measurement must be carried out in accordance with DS 259 Water quality investigations - Determination of metals in water, soil, sludge and sediments, DS/CEN/TS 16172 Sludge, treated biowaste and soil – Determination of elements using graphite furnace atomic absorption spectrometry (GF-AAS) or another equivalent method. The analysis must be carried out with a relevant analysis method. The most suitable analysis methods are ICP-MS (Inductively coupled plasma mass spectrometry) or FAAS (Flame atomic absorption spectrometry). The analysis report must contain information about the sensitivity of both the analysis value and the method. Two representative samples must be taken each week and combined in a monthly sample. The monthly sample must be analysed. The measurement result must be calculated as the average result from three consecutive monthly samples analysed during the 12 months before the application was submitted.

Dust emissions (O3)

Dust measurement is performed according to the relevant standard measurement methods, e.g., SS 028426, NS 4861, 4862 and 4863, EN 13284: Stationary source emissions, EN 482 Workplace exposure - General requirements for the performance of procedures for the measurement of chemical agents or ISO 16911.

For dust from mineral wool, ISO 10397 is used: Determination of asbestos plant emissions.

Gamma/activity index (O4)

Normally, the analyses are carried out with gamma spectrometry, either in the laboratory on crushed material, or in the field at the extraction site, or at the manufacturer's premises using a portable gamma spectrometer.

The measurement of the gamma index (or activity index) must be based on methods recommended by either Risø Research Centre, Environment, Institute for Nuclear Safety Research and Nuclear Plant (Denmark), National Institute for Radiation Hygiene in Norway, National Radiation Protection Institute at the Environmental Laboratory in Stockholm, Radiation Safety Centre in Finland or equivalent. In Finland, Directive 12.2 Radioactivity of building materials and ash applies.

As an alternative, equivalent analysis methods are acceptable, following evaluation by an independent body.

COD emissions in wet processes (O9)

Analysis method: Oxygen-consuming substances must be analysed according to the international standard ISO 6060 Water quality – determination of the chemical oxygen demand. If another analysis method is used, the licence applicant must show that it is equivalent. An analysis of PCOD or BOD may also be used as verification if there is a correlation with COD. The method for measuring TOC is ISO 8245 Guidelines for the determination of total organic carbon (TOC) and dissolved organic carbon (DOC).

Sampling frequency: Emissions of oxygen-consuming substances must be calculated as an annual average and be based on at least one representative 24-hour measurement per week. Alternatively, a sampling frequency set by the authorities may also be approved.

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

Paper and cardboard: For campaign-produced pulp types, the requirement is that the result is based on 40 consecutive 24-hour samples. For shorter campaigns, representative 24-hour samples from each campaign are acceptable, but these must amount to at least 40 24-hour samples in total. Sample-taking must be done before an external purification plant and before mixing with other wastewater effluent. The analysis result should then be reduced by the purification plant's efficiency. The efficiency of the purification plant must be documented.

Measurement of Air quality – workplace atmospheres (O30) and (O31)

Air measurements are carried out in accordance with relevant standard test methods, including among others:

- EN 689, Air quality – Workplace atmospheres, guidance in the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy.
- EN 482, Air quality – Workplace atmospheres, general performance requirements for methods for determining the concentration of chemicals in the air.
- EN 14042, Workplace atmospheres – Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

Air measurements of phenol and formaldehyde

Air Measurements of phenol and formaldehyde submitted for the last 12 months, with a description of the sampling program, including measurement methods and measuring frequency. Air measurement is performed both for a reference period of 8 hours' time weighted average (TWA) and a short-term value of no more than 15 minutes.

Air measurement shall be conducted as the exposure measurement, which conducted a review of each employee's exposure to pollution. For these measurements measuring equipment shall be personally carried.

When sampling for exposure measurements, thus including shall be ensured:

- the sampling is carried out under normal operating conditions with normal ventilation
- including the particularly stressful phases of different work processes
- the sampling time is so long that it shows a representative average value
- the planning of sampling carried out the identification of potential variations in concentration during the work or working.

Formaldehyde emission (O32)

Determination according to EN 120: For determining the content of free formaldehyde, the latest version of the European standard for the perforator method (EN 120) is used.

Or

Determination according to EN 717-1: European Standard EN 717-1 is used for the chamber method. The relevant EN standard for the reference determination of the emission value must be used. Other testing methods, such as ASTM D6007-2 or equivalent, may be used following approval by Nordic Ecolabelling. It must be stated which method is being used. If conversion factors are used, this must be indicated.

The test method for emission analysis, forming the basis for classification M1, is described in the section "Emission Classification of Building Materials" (http://www.rts.fi/emission_classification_of_building_materials.htm).

Sampling frequency for these three tests are given in the standards (perforator) or the legislation for the individual Nordic country (air chamber method, EN 717-1), or the rules for the Finnish classification system.

Other methods, like ASTM E1333, JIS A 1460 or equivalent may be used after approval from Nordic Ecolabelling. It should clearly state the test method used. If the conversion factors is used, this must be documented and verified that a competent third party.

Emissions from the construction panel/moulding (O33)

Emissions from the construction panel/moulding must be tested in line with the following relevant standards or equivalent methods:

- ISO 16000-3:2001 Indoor air – Part 3: Determination of formaldehyde and other carbonyl compounds – Active sampling method
- EN ISO 16000-6:2011 façade Indoor air – Part 6: Determination of volatile organic compounds in indoor and test chamber air by active sampling on Tenax TA sorbent, thermal desorption and gas chromatography using MS or MS-FID
- EN ISO 16000-9:2006, Indoor air – Part 9: Determination of the emission of volatile organic compounds from building products and furnishing – Emission test chamber method
- EN ISO 16000-10:2006 Indoor air – Part 10: Determination of the emission of volatile organic compounds from building products and furnishing – Emission test cell method
- CEN/TS 16516:2013 Construction products – Assessment of release of dangerous substances – Determination of emissions into indoor air

Other analysis methods can be accepted if the method/methods are judged to be equivalent by an independent and competent body/testing laboratory or similar.

Appendix 2 Applicant's list of materials

Applicant:	Contact:
Product:	The product's total weight in kg:

Table 1 presents a general view of the current requirements. The quantities and composition of various materials may determine the requirements that apply. Applicants must complete Tables 1 and 2. For variations within the same product type, the requirements are activated even if they are only relevant for one of the variations.

Table 1 List of materials and the sections in which the requirements are found

Section	Level	Requirement	Appendix	Relevant Yes	Relevant No
Product information	Information about the product	O1	2	For all	For all
Mineral raw materials <i>Applies in cases with more than 10% by weight in the product.</i>	General	O2-O3	-		
	Selected raw materials	O4	-		
Wood raw materials, paper, cardboard, and paper pulp <i>Applies in cases with more than 5% by weight in the product.</i>	Wood fibres, cardboard, and pulp	O5	3		
	Solid wood, veneer, bamboo, and cork	O6-O8	4		
	COD from paper and cardboard	O9	-		
Resource requirements	Plasterboards	O10	5		
	Cement-based and mineral wool panels	O11	5		
Energy requirements	Energy requirements for paper and pulp production <i>Applies in cases with more than 30% by weight in the product.</i>	O12	6		
	Energy requirements for different types of panel/mouldings	O13–O17	-		
Chemical products	General	O18-O22	7		
	Nanoparticles	O23	7		
	Environmental hazard (e.g., surfacetreatment)	O24	8		
	Environmental hazard in surfacetreatment	O25	8		
	VOC in adhesive	O26	9		
	VOC in surface treatment	O27	9		
	Free formaldehyde	O28	7		

Emissions	COD (wet processes in panel/moulding production)	O29	-		
	HPL production	O30	-		
	Dust emissions <i>Applies in cases with more than 10% by weight minerals- or wood materials in the product</i>	O31	-		
	Formaldehyde <i>Does not include edge panels</i>	O32	-		
	Emission requirement for the panel/moulding (only panels with-in the building envelope)	O33	-		
Use and quality requirements	General	O34-O35	-	For all	For all
Quality and environmental management requirements	General	O36-O43	10	For all	For all

Table 2 below must be used to give an overview of:

- All suppliers of materials/raw materials/chemicals contained in the product.
- The function of the material in the product (e.g., core material, fibre, adhesive or surface treatment).
- The type of material/product (e.g., pigment, binder, fibreglass, wood fibre, cardboard, etc.).
- State which materials are renewable (bio-based) and the percentage of the individual material which has been recycled, cf. definitions in Requirements O10 to O12, with specification of pre-consumer and post-consumer fractions, cf. ISO 14021.
- The product's total weight should be stated, together with the volume of the individual materials in the product, and their weight percentage of the product's total weight.
- As an alternative to Table 2, Nordic Ecolabelling also accepts complete spreadsheets or similar from the producer if the information described here is included. Table 1 above must always be completed.

Table 2. List of materials and suppliers, function within the product and material volumes

Supplier	Function within product	Material type and composition	Percentage renewable/recycled	Weight in kg	Wt. %
1.					
2.					
3.					
4.					
5.					
6.					

7.					
8.					
9.					
10.					
11.					
Total weight					100%

Applicant's signature:

Date	Company name
Person responsible	Telephone Email:

Appendix 3 Paper, cardboard, and pulp recycled/certified fibres

Name of the raw material:
Producer/supplier of raw materials for paper, cardboard and pulp:

Does the paper, cardboard or pulp contain at least 70% by weight recycled fibre? Yes No

If the paper, cardboard, or pulp contains less than 70% by weight recycled fibre, state how much: _____

Does the paper, cardboard or pulp contain at least 30% by weight certified* wood fibre? Yes No

If the paper, cardboard, or pulp contains less than 30% by weight certified wood fibre, state how much: _____

**Where operation has been certified under the forestry standard and certification system stated in Appendix 4c or certified as organically cultivated or where cultivation is in the process of being converted to organic production*

Signature of producer/supplier of paper/cardboard or pulp:

Date	Company name
Person responsible	Telephone Email:

Appendix 4 Wood, veneer, bamboo, and cork

- 4a Origin, traceability, and certified raw materials (to be completed by wood supplier)
- 4b Description of the raw material and certified wood (to be completed by the panelmanufacturer)
- 4c Requirement for forestry certification (Requirement for forestry certification)

4a Origin, traceability, and certified raw materials (to be completed by woodsupplier)

Supplier/producer of wood, veneer, bamboo, and cork:
Producer:
Product type (e.g., solid wood, plywood, or bamboo):

As documentation of the raw material, the following shall be indicated in the table below:

- Wood type/bamboo and geographical origin (country/state and region/province)
- Copy of certificate(s) for forest certification and type standard
- Proportion (%) of wood from certified forestry/raw material (copy of invoice may be used as documentation)

Type of wood/raw material (type and name)*	Geographical origin (country/state and region/province)	Forest Management (no.) Chain of Custody (no.)	Proportion (%) from certified forestry

* Describe whether the wood is pine, spruce, beech, etc. and give the Latin name.

Have any of the above wood raw materials been treated with biocide after felling? Yes No

Is the biocide classified by WHO as type 1A and/or 1B? Yes No

Signature of producer/supplier of wood, veneer, bamboo and cork:

Date	Company name
Person responsible	Telephone Email:

4b Description of the raw material and proportion of certified rawmaterial

(To be completed by panel manufacturer)

For documentation of the raw material:

Detailed description of the supplier chain from cultivation (forest) to panel manufacturer:

Alternatively, a flow diagram showing the supply chain from cultivation to manufacturer may be submitted as a separate document.

Type of wood/raw material (type and name)*	Supplier	Volume (m ³ per year)	Proportion (%) of wood from certified forestry
Total:			

* Describe whether the wood is pine, spruce, beech, etc. and give the Latin name.

Signature of panel manufacturer:

Date:	Company name:
Person responsible:	Telephone: Email:

4c Requirements for forestry certification

Wood included in the product must be certified by a third party, cf. the applicable forestry standard which fulfils the requirement for the standard and certification system.

The following requirements apply to standards and certification systems that can be accepted by Nordic Ecolabelling.

Standards:

1. The standard must balance economic, ecological and social interests and comply with the UN's Rio document, Agenda 21, and the Forest Principles, and respect relevant international conventions and agreements.
2. The standard must include absolute requirements and promote the objective of sustainable forestry.
3. The standard must be generally available. The standard must have been developed in an open process in which ecological, economic, and social stakeholders have been invited to participate.

Certification system:

The certification system must be open and have broad national or international credibility, and it must be possible to control compliance with the requirements in the forestry standard (see above).

Certification body:

The certification body must be impartial and credible and be able to verify that the requirement in the standard has been fulfilled, be able to communicate the result, and be suitable for an effective implementation of the standard.

Documentation:

Copy of the forestry standard, name, address, and telephone number of the organisation that drew up the standard, and the certification body's approval report.

References must be given for persons representing parties and interest groups that have been invited to contribute to the development of the forestry standard.

The environmental labelling organisation is entitled to require further documentation in order to assess whether the requirements in the standard and the certification system are fulfilled.

Alternatively:

In certain cases, Nordic Ecolabelling may agree to grant a licence without the wood used in production being certified in accordance with an approved forestry standard.

It must be documented in another reliable way that the wood is sourced from sustainable forestry with a level of requirements that is equivalent to the approved forestry standards.

Appendix 5 Recycled raw material

Supplier/producer of raw material:
Producer:
Type of raw material (e.g., solid mineral wool, fly ash, gypsum):

For gypsum raw materials

How large a proportion of the gypsum raw material is waste gypsum from buildings?

_____ %

How large a proportion of the gypsum raw material is industrial gypsum (residual product from power stations)? _____ %

For raw materials other than gypsum

How large a proportion of the raw material is recycled from the pre-consumer stage?

_____ %

How large a proportion of the raw material is recycled from the post-consumer stage?

_____ %

Post-consumer and pre-consumer are defined according to ISO 14021, as described below.

Pre-consumer material

Material diverted from the waste stream during a manufacturing process. Excluded is reutilisation of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

Pre-consumer material

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.

Signature of raw material producer/supplier:

Date	Company name
Person responsible	Telephone Email:

Appendix 6 Energy requirements for paper and pulp production

6a Guidelines for energy calculation

Requirements are laid down for the application of energy in the form of fuel or electricity. The starting point is information about the actual energy consumption from production compared to a documented reference value. The quotient of these values is stated as energy points.

The energy calculations cover all the paper products: both paper production and the pulp employed. In the case of paper, the calculations are performed without regard to fillers. Energy consumption for transporting the raw materials and for conversion and packing are not included in the energy calculation.

Applied energy:

State the total energy consumption for the paper or pulp production processes per tonne of product, broken down into fuel and electricity.

Fuel:

With regard to fuel, bought-in fuel, internally produced fuel and residual products should all be stated. This means, for example, that lye, bark and wood chips must be included to the extent that their heating values contribute to energy supplies for the process. Fuel used both for heat production and internal electricity production must be stated. Fuel consumption is calculated from the effective heating value of the dry substance. The calculations may derive from internally measured heating values or values according to Appendix 6d. If the fuel is damp, the calculation method in appendix 6e may be used.

As fuel can also be used for electricity production internally, in such cases corresponding amounts of fuel must be subtracted from the actual fuel consumption ($=1.25 * \text{internally produced electricity}$). This will avoid the double counting of energy information for fuel used for internal electricity production.

Electricity:

Both bought-in and internally produced electricity must be included in the calculations.

- ☒ The calculation of electricity and fuel consumption must be based on invoices and readings from in-house electricity meters. The calculated points level must then be forwarded by the pulp producer to the paper producer and to Nordic Ecolabelling. The paper producer can then carry out a calculation of the total energy points for the finished paper. The calculation includes the energy points for all pulps used and energy points for paper production.

Internally produced electricity can be documented by readings from in-house electricity meters. In the case of bought-in fuel, the amount purchased must be reconciled with the amounts at the start and end of the year in question. Internal consumption of residual products such as lye, bark, wood chips, etc. is calculated from the estimated heating values of the fuels used (see Table 6.3 in Chapter 6d). Hence, the total consumption of electricity and fuel is reported.

Steam:

If surplus 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, the steam table in Appendix 6d 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 2.5.

Integrated production:

The energy reference values for both paper production and pulp production must be used for integrated production (Tables 6.1 and 6.2). For integrated enterprises which act both as suppliers of market pulp and pumped pulp for ecolabelled products, the reference value for drying the market pulp must be used for the market pulp but not for the pumped pulp.

Energy surplus:

Energy surpluses sold in the form of electricity, steam or heat should be subtracted from the total consumption. The amount of fuel used for producing sold-on electricity or heat is calculated by dividing the sold electricity or heat by 0.8. This corresponds to an average efficiency for the total production of electricity and heat.

Alternatively, the actual efficiency of the plant for converting fuel to heat energy may be used if this can be documented to Nordic Ecolabelling.

6b Energy calculation, paper manufacturer

Energy points for paper production

The energy points $P_{p(\text{electricity})}$ and $P_{p(\text{fuel})}$ for paper manufacture on the paper machine are calculated by the following formulae:

$$P_{p(\text{electricity})} = \frac{\text{Electricity}_{\text{used}}}{\text{Electricity}_{\text{reference}}}$$

and

$$P_{p(\text{fuel})} = \frac{(\text{Fuel}_{\text{used}} - 1.25 \cdot \text{in-house generated electricity})}{\text{Fuel}_{\text{reference}}}$$

The values for $\text{Electricity}_{\text{reference}}$ and $\text{Fuel}_{\text{reference}}$ are taken from Table 6.1 below.

Table 6.1. Energy for paper production

Processes	Fuel kWh/t Reference value	Electricity kWh/t Reference value
FBB* (folding box board)/ SBS* (solid bleached sulphate)/SBB* (solid bleached board) SUB* (solid unbleached board)WLC* (white lined chipboard)	1700	800
News	1700	750
LWC	1700	800
SC	1700	750
Uncoated fine paper	1700	750
Coated fine paper	1700	800

* Only one of the marked processes must be used

☒ Calculation of points by means of a calculation spreadsheet designed by Nordic Ecolabelling.

Energy points for a mixture of different pulp types

For a mixture of different pulp types, the following formulae are used for calculating the energy points, $P_{m(\text{electricity})}$ and $P_{m(\text{fuel})}$:

$$P_{m(\text{electricity})} = \sum_{i=1}^n P_{m(\text{electricity})i} \cdot m_i$$

and

$$P_{m(\text{fuel})} = \sum_{i=1}^n P_{m(\text{fuel})i} \cdot m_i$$

in which m_i is the proportion of the individual pulp in the total pulp mix, i.e. tonnes of individual pulp used per tonne of pulp. Due to wastage and differences in water content, the total of m_i may be greater than 1. $P_{m(\text{electricity})i}$ is the energy points for electricity for pulp number i , and $P_{m(\text{fuel})i}$ is the energy points for fuel for pulp number i .

- Calculation of points by means of a calculation spreadsheet designed by Nordic Ecolabelling.

Total energy points for paper and pulp production

The total points for both electricity and fuel consumption is calculated from the pulp and paper consumption points by weighting the reference values (X = weighting of reference value of pulp or paper production):

$$P_{el} = X_{El,m} \cdot P_{El,m} + X_{El,p} \cdot P_{El,p}$$

where

$$X_{el,m} = \frac{El_{reference,m}}{(El_{reference,m} + El_{reference,p})}$$

$$X_{el,p} = \frac{El_{reference,p}}{(El_{reference,m} + El_{reference,p})}$$

$$P_{fuel} = X_{Fuel,m} \cdot P_{Fuel,m} + X_{Fuel,p} \cdot P_{Fuel,p}$$

where

$$X_{fuel,m} = \frac{Fuel_{reference,m}}{(Fuel_{reference,m} + Fuel_{reference,p})}$$

$$X_{fuel,p} = \frac{Fuel_{reference,p}}{(Fuel_{reference,m} + Fuel_{reference,p})}$$

For a mixture of pulps, the reference values for electricity and fuel must be weighted by the proportion of pulp, m_i , in the expressions for X .

- The calculation of points with part results must be shown in the documentation. It must be clearly stated what starting values were applied for use of fuel and electricity. A calculation spreadsheet designed by Nordic Ecolabelling must be used for the calculation.

6c Energy calculation, pulp manufacturer

The energy points $P_{\text{electricity}, i}$ and $P_{\text{fuel}, i}$ for production of a pulp i should be calculated according to the formulae below:

$$P_{m(\text{electricity})i} = \frac{\text{Electricity}_{\text{used}}}{\text{Electricity}_{\text{reference}}}$$

and

$$P_{m(\text{fuel})i} = \frac{(\text{Fuel}_{\text{used}} - 1.25 \cdot \text{in-house generated electricity})}{\text{Fuel}_{\text{reference}}}$$

The values for $\text{Electricity}_{\text{reference}}$ and $\text{Fuel}_{\text{reference}}$ are taken from Table 6.2 below.

Table 6.2 Energy for pulp production

Processes	Fuel kWh/t Reference value	Electricity kWh/t Reference value
Bleached chemical pulp	3750	750
Dried, bleached chemical pulp	4750	750
Unbleached chemical pulp	3200	550
Dried, bleached chemical pulp	4500	550
CTMP	n.a.	2000
Dried CTMP	1000	2000
DIP	350	500
Dried DIP	1350	600
TMP	n.a.	2200
Dried TMP	1000	2200
Slip	n.a.	2000
Dried slip	1000	2000

- Calculation of points by means of a calculation spreadsheet designed by Nordic Ecolabelling.

6d Heating value and steam table

Table 6.3 Effective (lower) heating values for dry substance of fuel

Fuel	Heating value (lower)	Unit
Wood briquettes	10.0	GJ/m ³ loose
Wood pellets	10.0	GJ/m ³ loose
Wood powder	3.80	GJ/m ³ loose
Wood chips	3.55	GJ/m ³ loose
Saw dust	2.90	GJ/m ³ loose
Bark	2.22	GJ/m ³ loose
Lump peat	4.50	GJ/m ³ loose
Milled peat	3.75	GJ/m ³ loose
Sulphate lye	12.7	GJ/kg DS
Sulphite lye	14.7	GJ/kg DS
Tall oil pitch	36.8	GJ/m ³
Natural gas	38.9	MJ/m ³
Light fuel oil	36.0	GJ/m ³
Heavy fuel oil	38.7	GJ/m ³
LPG	46.1	MJ/kg
Coal	26.5	MJ/kg

The indicated heating values in the table are guideline values. Producers may use their own measured values if wished.

Table 6.4 Steam table

Enthalpy of measured steam, h'' as a function of absolute pressure, p or temperature, t . The enthalpy is divided by an efficiency rate 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	2747.5	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, referencing Schmidt, E.: *Properties of water and steam in SI Units*, 1969. Springer-Verlag and R. Oldenbourg 1969.

1. All values are given in tonnes except for natural gas, where they are given in kg per normal cubic metre (kg/Nm^3).
2. Natural gas in kg/Nm^3 .

Sources: Statistics Sweden: *Energy statistics 1995*. SFT (Norwegian Environment Agency) Report 9513; *Incineration plants. Guidance for project managers*. SFT (Norwegian Environment Agency): *Emission coefficients* (Andun Rosland, 1997).

6e Energy content of damp fuel

Calculation of energy content of damp fuel

The effective heating value of damp fuel can be calculated with the following formula:

$$Q_{iw} = Q_{ik} * (100 - w)/100 - 2.45 * w/100,$$

where

Q_{iw} = lower heating value of damp fuel expressed in kJ/kg

Q_{ik} = lower heating value of dry substance expressed in kJ/kg

w = water content of damp fuel expressed as water percentage.

Calculation of energy content of wood chips

The energy content of wood chips depends primarily on the water content. The following explains how this can be calculated.

The energy content (lower heating value) of dry wood is stated as 19 MJ/kg.

Energy is required for evaporating the water normally present in wood. This energy demand reduces the wood's heating value. The formula for calculating the relationship between the energy content and the water content can be formulated as follows:

$$19 \text{ MJ} * (100 - \text{water \%})/100 - 2.45 * \text{water \%}/100 = \text{xx MJ/kg}$$

It is necessary for the water content of the wood to be known.

Immediately after the tree is felled, the water content can be up to 55%. The water slowly evaporates from the wood, first during transport and then when it is cut up and seasoned for use in pulp production etc. During this period, the water content depends on the precipitation during the period. Normally, it will reduce to 20-40%.

For a 40% water content, the energy content can be calculated as:

$$19 \text{ MJ} * (100 - 40\%)/100 - 2.45 * 40/100 = 10.4 \text{ MJ/kg}$$

For a 20% water content, the energy content can be calculated as:

$$J * (100 - 20\%)/100 - 2.45 * 20/100 = 14.7 \text{ MJ/kg}$$

Appendix 7 Chemical products - generally

Page 1 of 4

The chemical product's name and area of use:
Producer/importer of the chemical product:

Conditions for declaration

The following definition must be used for "ingoing": Unless otherwise stated, ingoing substance covers all substances in the product, including additives to the raw materials (e.g., preservatives or stabiliser), but not impurities from production, incl. raw material production. Impurities are taken to be residues from production, incl. raw material production included in the product in concentrations of less than 100 ppm (0.0100% by weight, 100 mg/kg), but not substances added to a raw material or product deliberately and for a purpose, regardless of the quantity. Impurities must also be stated in the declaration. Known cleavage products of ingoing substances are also considered to be constituents.

This appendix is completed and signed by the chemical supplier based to the best of his/her knowledge at the time of the application, also based on information from raw material manufacturers, recipe, and available knowledge on the chemical product with reservations for new advances and new knowledge. Should such new knowledge arise, the undersigned is obliged to submit an updated declaration to Nordic Ecolabelling. If the information concerning the composition of the raw materials is confidential, the information can be sent directly to the environmental labelling organisation.

Classification of chemical products in and/or on the panel/moulding (e.g., adhesive, paint, coatings, etc.)

Is the chemical product classified in accordance with the table below? Yes No

If yes, state the classification: _____

Table 7 List of non-permitted classifications of the chemical product used in the panel/moulding in accordance with CLP Regulation 1272/2008 - or later

CLP Regulation 1272/2008		EU Dangerous Substance Directive 67/548/EC	
Signal words	Hazard statement	Indication of danger	Risk phrase
Danger, Carc. 1A or 1B Danger, Carc. 1A or 1B Warning, Carc. 2	H350 H350i H351	Carcinogenic T T Xn	R45 and/or R49 R40
Danger, Muta. 1A or 1B Warning, Muta. 2	H340 H341	Mutagenic T Xn	R46 R68
Danger, Repr. 1A or 1B Danger, Repr. 1A or 1B Warning, Repr. 2 Warning, Repr. 2 - -	H360 H360 H361 H361 H362 H362	Reprotoxic T T Xn Xn - -	R60 R61 R62 and/or R63 R33 R64

Danger, Acute Tox. 1 or 2	H330		Very toxic	R26
Danger, Acute Tox. 1	H310		Tx	R27
Danger, Acute Tox. 2	H300		Tx	R28 and/or
Danger, STOT SE 1	H370		Tx	R39
Danger, Acute Tox. 2 or 3	H330 or H331		Toxic	R23
Danger, Acute Tox. 3	H331		T	R24
Danger, Acute Tox. 3	H301		T	R25
Danger, STOT SE 1	H370		T	R39 and/or
Danger, STOT RE 1	H372		T	R48

Classification of constituent substances

Are the constituent substances of the chemical product classified in accordance with the table below? Yes No

If yes, state which substances, which classification, and the amount:

CLP Regulation 1272/2008:		EU Dangerous Substance Directive 67/548/EC:	
Signal words	Hazard statement	Indication of danger	Risk phrase
Danger, Carc. 1A or1B Danger, Carc. 1A or1B	H350 H350i	Carcinogenic T T	R45 and/or R49
Danger, Muta. 1A or1B	H340	Mutagenic T	R46
Danger, Repr. 1A or1B Danger, Repr. 1A or1B	H360 H360	Reprotoxic T T	R60 R61

Content and additives in the chemical product

Does the chemical product contain halogenated organic compounds? Yes No

If yes, state which substances and the amount (% by weight):

Does the chemical product contain bisphenol A? Yes No

If yes, state the amount (% by weight): _____

Does the chemical product contain alkylphenols, alkylphenol ethoxylates or other alkylphenol derivatives? Yes No

If yes, state which substances and the amount (% by weight):

Does the chemical product contain phthalates? Yes No

If yes, state which substances and the amount (% by weight):

Does the chemical product contain aziridine and polyaziridines? Yes No

If yes, state which substances and the amount (% by weight):

Does the chemical product contain pigments and additives based on lead, tin, cadmium, chromium VI and mercury, and their compounds? Yes No

* Melamine (CAS no.: 108-78-1) is exempted the requirement.

If yes, state which substances and the amount (% by weight):

Does the chemical product contain substances from the EU Candidate list in accordance with REACH 1907/2006/EC Article 59, Par. 10? Yes No

If yes, state which substances and the amount (% by weight):

Does the chemical product contain PBT and vPvB substances, cf. definition in REACH Regulation Annex XIII? Yes No

If yes, state which substances and the amount (% by weight):

Does the chemical product contain free formaldehyde? Yes No

If yes, state the amount in % by weight (for adhesives mixed with hardener, state the amount of the final mixture):

Nanoparticles (from nanomaterial*)

Exemptions from the requirement are granted for the following:

- Pigment**
- Synthetic amorphous silicate***
- Naturally occurring inorganic fillers****
- Polymer dispersions

Does the chemical product contain nanoparticles (from nanomaterial)? Yes No

* The definition of nanomaterials follows the EU Commission's definition of nanomaterials of 18 October 2011: "Nanomaterials": a natural, incidental, or manufactured material containing particles in an unbound state or as an aggregate or an agglomerate and where at least 50% of the particles in the size distribution by number, in one or more external dimensions, are in the size range of 1-100 nm.

** Nano titanium dioxide is not considered to be a pigment and is therefore a subject to the requirement.

*** This applies to conventional synthetic amorphous silicate.

Chemically modified colloidal silica can be included if the silica particles form aggregates in the finished product. Any surface treatment must meet the chemical requirements of the criteria.

**** This applies to fillers covered by Annex V Point 7 of REACH.

Biocides/preservatives in the chemical product

Is the product used for disinfectant or antibacterial treatment? Yes No

Does the chemical product contain preservatives? Yes No

If yes, state which substances and the amount (% by weight):

Isothiazolinone compounds

Does the chemical product contain isothiazolinone compounds? Yes No

If yes, state the content below:

The chemical product contains _____ ppm of the mixture of 5-chloro-2-methyl-2H-isothiazolin-3-one (CAS no.: 26172-55-4) and 2-methyl-2H-isothiazolin-3-one (CAS no.: 2682-20-4) (3:1).

The chemical product contains _____ ppm of 2-Methyl-3(2H)-isothiazolone.

The chemical product contains _____ ppm of other isothiazolinone compounds.

Classification of chemical products which are environmentally hazardous

Is the chemical product classified in accordance with the table below? Yes No

Hazard class	Hazard code and hazard statement according to CLP Regulation 1272/2008	Indication of danger and R-phrase according to EU Dangerous Substances Directive (67/548/EC)
Hazardous for aquatic life	Chronic 1 with H410	N; R50-53
	Chronic 2 with H411	N; R51-53
	Chronic 3 with H412	R52-53

Signature of producer of the chemical product:

Date	Company name
Person responsible	Telephone Email:

Appendix 8 Specification of environmentally hazardous substances in chemical products

Conditions for declaration

The following definition must be used for "ingoing": Unless otherwise stated, ingoing substance covers all substances in the product, including additives to the raw materials (e.g., preservatives or stabiliser), but not impurities from production, incl. raw material production. Impurities are taken to be residues from production, incl. raw material production included in the product in concentrations of less than 100 ppm (0.0100% by weight, 100 mg/kg), but not substances added to a raw material or product deliberately and for a purpose, regardless of the quantity. Impurities must also be stated in the declaration. Known cleavage products of ingoing substances are also considered to be constituents.

This appendix is completed and signed by the chemical supplier based to the best of his/her knowledge at the time of the application, also based on information from raw material manufacturers, recipe, and available knowledge on the chemical product with reservations for new advances and new knowledge. Should such new knowledge arise, the undersigned is obliged to submit an updated declaration to Nordic Ecolabelling. If the information concerning the composition of the raw materials is confidential, the information can be sent directly to the environmental labelling organisation.

Are the constituent substances of the chemical product classified in accordance with the table below? Yes No

If yes, use the following table to state the total % by weight of the substances classified as environmentally hazardous according to the various classification systems:

Hazard class	Hazard code and hazard statement according to CLP Regulation 1272/2008	Indication of danger and R-phrase according to EU Dangerous Substances Directive (67/548/EC)	Indicate the total % by weight of substances in the chemical product
Hazardous for aquatic life	Chronic 1 with H410	N; R50-53	
	Chronic 2 with H411	N; R51-53	
	Chronic 3 with H412	R52-53	

Signature of producer of the chemical product:

Date	Company name
Person responsible	Telephone Email:

Appendix 9 Declaration of VOC content of adhesive or product for surface treatment

The chemical product's name and area of use:

Producer/importer of the chemical product:

Conditions for declaration

The following definition must be used for "ingoing": Unless otherwise stated, ingoing substance covers all substances in the product, including additives to the raw materials (e.g., preservatives or stabiliser), but not impurities from production, incl. raw material production. Impurities are taken to be residues from production incl. raw material production included in the end product in concentrations of less than 100 ppm (0.0100% by weight, 100 mg/kg), but not substances added to a raw material or product deliberately and for a purpose, regardless of the quantity. Impurities must also be stated in the declaration. Known cleavage products of ingoing substances are also considered to be constituents.

This appendix is completed and signed by the chemical supplier based to the best of his/her knowledge at the time of the application, also based on information from raw material manufacturers, recipe, and available knowledge on the chemical product with reservations for new advances and new knowledge. Should such new knowledge arise, the undersigned is obliged to submit an updated declaration to Nordic Ecolabelling. If the information concerning the composition of the raw materials is confidential, the information can be sent directly to the environmental labelling organisation.

Does the product contain ¹volatile organic compounds? Yes No

If yes, state which substances and the amount (% by weight):

Does the product contain volatile aromatic compounds (VAH)²? Yes No

If yes, state which substances and the amount (% by weight):

Signature of producer of the chemical product:

Date	Company name
Person responsible	Telephone Email:

¹ Volatile organic compound are here defined as: Organic compounds with a steam pressure exceeding 0.01kPa, at 20°C. 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.

² Volatile aromatic compounds are volatile organic compounds in which one or several benzene rings are included in the molecule.

Appendix 10 Revised requirements for solid wood, veneer, bamboo, and cork

A) Tree species not permitted or with restricted use in Nordic Swan Ecolabelled panels/mouldings

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

- a) CITES (Appendices I, II and III)
- b) IUCN red list, categorized as CR, EN and VU
- c) Rainforest Foundation Norway's tree list
- d) Siberian larch (originated in forests outside the EU)

Tree species listed on a) CITES (Appendices I, II and III) are not permitted to be used.

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

- the tree species does not originate from an area/region where it is IUCN red listed, categorized as CR, EN or VU.
- the tree species does not originate from Intact Forest Landscape (IFL), defined in 2002 <http://www.intactforests.org/world.webmap.html>.
- the tree species shall originate from FSC or PEFC certified forest/plantation and shall be covered by a valid FSC/PEFC chain of custody certificates documented/controlled as FSC or PEFC 100% through the FSC transfer method or PEFC physical separation method.
- Tree species grown in plantation shall in addition originate from FSC or PEFC certified forest/plantation, established before 1994.

* The list of tree species is located on the website: <https://www.nordic-ecolabel.org/declare-items/pulp-and-paper/forestry-requirements/forestry-requirements-2020/>

- Declaration from the applicant/manufacture/supplier that tree species listed on a-d) are not used, or

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

- The applicant/manufacture/supplier are required to present a valid FSC/PEFC Chain of Custody certificate that covers the specific tree species and demonstrate that the tree is controlled as FSC or PEFC 100% through the FSC transfer method or PEFC physical separation method.
- The applicant/manufacture/supplier are required to document full traceability back to the forest/certified forest unit thereby demonstrating that:
 - the tree does not originate from an area/region where it is IUCN red listed, categorized as CR, EN or VU;
 - the tree species does not originate from Intact Forest Landscape (IFL), defined in 2002 <http://www.intactforests.org/world.webmap.html>;
 - For plantations, the applicant/manufacture/supplier are required to document that the tree species does not originate from FSC or PEFC certified plantations established after 1994.

Nordic Ecolabelling may request further information if in doubt about specific treespecies.

B) Wood raw material

The applicant must state the name (species name) of the wood raw material used in the Nordic Swan Ecolabelled panels/mouldings.

Chain of Custody certification

The supplier of wood raw materials must be Chain of Custody certified by the FSC/PEFC schemes.

Applicant producer using only recycled material in the Nordic Swan Ecolabelled panels, are exempted from the requirement for traceability certification. Definition of recycled material, see below.*

Certified wood raw material

A minimum of 70% by weight of all raw material (virgin/recycled material) used in the Nordic Swan Ecolabelled panels, must originate from forestry certified under the FSC or PEFC schemes or be recycled material*.

The remaining proportion of wood raw material must be covered by the FSC/PEFC control schemes regarding FSC controlled wood/PEFC controlled sources or be recycled material.

** Recycled material defined according to ISO 14021 in the following two categories:*

Pre-consumer material: Material diverted from the waste stream during a manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

Post-consumer material: 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.

Nordic Ecolabelling considers products from primary wood processing industries (sawdust, wood chips, etc.) or residues from forestry (branches, etc.) as recycled material.

- Name (species name) on the wood raw material used in the Nordic Swan Ecolabelled panels.
- Supplier of wood must present a valid FSC/PEFC Chain of Custody certificate covering all wood raw material used in the Nordic Swan Ecolabelled panels.
- Documentation showing that the quantity of certified wood raw material or recycled material is met.