

Nordic Ecolabelling of

**Panels for the building,
decoration and furniture
industries**

Draft for comment 3 August 2010

In November 1989, the Nordic Council of Ministers adopted a measure to implement an official voluntary ecolabelling scheme, the Swan. The organizations/companies listed below administer the Nordic Ecolabelling scheme on assignment from their national governments.

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Nordic Ecolabelling of Panels for the building, decoration and furniture industries

3 August 2010

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What is a Nordic Ecolabelled panel for the building, decorating and furniture industries?

The Nordic Ecolabel is an official label and represents a standard with absolute requirements. Nordic Ecolabelled panels for the building, decorating and furniture industries have less impact on the environment than other panels in the same category. The requirements are based on a life cycle assessment of the products and focus on production, use and waste. Emphasis is placed on the use of certified wood products, reduced use of substances harmful to both health and the environment as well as sustainability and recyclability.

Nordic Ecolabelling's environmental requirements provide the individual manufacturer with guidance on how to help to bring about a more sustainable society.

Why choose the Nordic Ecolabel?

- The Nordic Ecolabel offers guidelines on how to introduce environmental improvements within an enterprise. With the Nordic Ecolabel manufacturers know from the outset what environmental impacts are emphasised and accordingly how to reduce resource consumption and waste.
- The Nordic Ecolabel is a straightforward way of getting an environmental message across to customers.
- The Nordic Ecolabel enables manufacturers to reach not only a growing group of private consumers, but also central and local government purchasing agencies that are seeking to bring about environmental improvements.
- Furthermore, environmentally friendly production will prepare the enterprise for future environmental legislation.

Which panels qualify for the Nordic Ecolabel?

Products that can be labelled include:

- Wood-based panels made up of a least 85% wood in terms of weight, with or without laminate finishes,
- Plasterboard
- Mineral-based acoustic panels
- Solid wood (with finish) that has been assembled in panel form (for instance, by the consumer)

Panels for both indoor and outdoor use can carry the Nordic Ecolabel. Uses for the panels can be found in interior lining of ceilings, walls and floors, in the exterior wind-proofing of walls and ceilings and in the manufacture of furniture and fittings, such as desks, cabinets, etc.

The criteria do not pertain to metal panels or facing panels and panels that are used primarily to insulate against heat/cold loss, irrespective of the materials used in these panels. Neither do the criteria pertain to pure HPL (High Pressure Laminate) panels nor to plastics-based panels, such as those used in bathrooms.

Acoustic panels are panels with the primary function of absorbing sound. Panels that have a sound-absorbing effect only when used in combination with other materials, such as perforated plasterboard panels (which have to be used in combination with, for example, rockwool/mineral wool), are for the purposes of this document not regarded as sound-absorbing panels.

Panels intended for assembly by the customer may be permitted to be labelled if they have been surface treated, that is painted, oiled, treated with lye or similarly finished. Ordinary untreated planed and unplanned wood panels are not eligible to carry the Nordic Ecolabel.

How to apply

Producers, importers, wholesalers and dealers may seek a license.

All requirements must be met in order for a product to be licensed to carry the Nordic Ecolabel.

All information sent to Nordic Ecolabelling will be treated confidentially. Suppliers can submit documentation directly to Nordic Ecolabelling, and this will also be kept confidential.

Icons in the text

A description is provided of the procedure for demonstrating the fulfilment of each requirement. Icons are used to make this procedure clearer. These icons are:

☐ Specifies which documentation shall be submitted.

☺ Checked on site.

Application

The application shall be sent to Nordic Ecolabelling in the country in which the panel is manufactured or sold. See page 2 for addresses. The documents required for application are an application form and documentation demonstrating fulfilment of the requirements (specified under each requirement).

Further information and assistance may be available. Visit the Web site of the national ecolabelling body for more information.

Sales in other Nordic countries

Registering a licence in another Nordic country allows the Nordic Ecolabel to be used in a larger market. The following documentation must be submitted to Nordic Ecolabelling:

- Form for sales in the country in question.
- User manual/ product specification sheet in appropriate languages, see R25.
- Registration number for a national product and packaging recycling system or other documentation demonstrating fulfilment of recycling system requirements (see R24).

Registration is free of charge but an annual fee shall be paid in accordance with the national regulations.

On-site inspection

During the application process, Nordic Ecolabelling performs an on-site inspection to ensure adherence to the requirements. For this 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.

Costs

An application fee is charged to companies applying for a licence. There is an additional annual fee based on turnover related to the product carrying the Nordic Ecolabel.

Enquiries

Please contact Nordic Ecolabelling if you have any queries or require further information. See page 2 for addresses.

1 Material composition

R1 Material composition

Provide a description of the composition of the panel in terms of its various materials. List the constituent materials of the panel, stating their suppliers. Fill in the table below in order to get an overview of pertinent environmental obligations.

Environmental requirements	Level	Requirement	Declaration	Relevance
Raw materials	Wood, bamboo and willow	R2, R4		Yes <input type="checkbox"/> No <input type="checkbox"/>
	Paper and cardboard	R5-R7		Yes <input type="checkbox"/> No <input type="checkbox"/>
	Minerals	R8-R10		Yes <input type="checkbox"/> No <input type="checkbox"/>
Chemical products	General	R11-R15		Yes <input type="checkbox"/> No <input type="checkbox"/>
	Cleaning chemical	R12		Yes <input type="checkbox"/> No <input type="checkbox"/>
	Additives in chemical products	R13-R14		Yes <input type="checkbox"/> No <input type="checkbox"/>
	Surface treatment	R16-R17		Yes <input type="checkbox"/> No <input type="checkbox"/>
Energy	All panels except for sound-absorbing panels	R18		Yes <input type="checkbox"/> No <input type="checkbox"/>
	Sound-absorbing panels	R19		Yes <input type="checkbox"/> No <input type="checkbox"/>
Emissions	To air	R20		Yes <input type="checkbox"/> No <input type="checkbox"/>
	To water (wet processes)	R21		Yes <input type="checkbox"/> No <input type="checkbox"/>
Special requirements	Formaldehyde	R22		Yes <input type="checkbox"/> No <input type="checkbox"/>
Other requirements	General	K23-33		Yes <input type="checkbox"/> No <input type="checkbox"/>

Annual averages can be used to document compliance with the following requirements: R3, R5, R17, R18

2 Environmental requirements

2.1 Raw materials

Requirements in regard to wood-based raw materials

R2 Wood, bamboo and willow

The manufacturer shall ensure that the wood, bamboo and willow raw materials do not originate from:

- Protected areas or areas designated by policy with the objective of becoming protected.
- Areas where ownership or rights of exploitation are unclear.
- Illicitly felled trees and/or fibre raw material.
- Ancient virgin forest and forest of high value meriting protection.
- Genetically modified trees or plants.

The manufacturer is obliged to maintain a documented procedure for ensuring that wood or bamboo raw materials are not sourced from areas of the sort listed above. Names and geographic origin (country or region) of the types of wood used are to be supplied.

A Chain of Custody certificate may be used to document the origin of the wood/bamboo raw materials.

Name and geographic origin (country or region) of the types of wood used. Nordic Ecolabelling may require further documentation if there is any doubt as to whether the wood raw materials are sourced from forest environments meriting protection due to their high biological and/or social value. Declaration 1 in Appendix 2 may be used.

Documented procedures or agreements for ensuring that wood, bamboo or willow raw materials are not sourced from forest environments meriting protection due to their high biological and/or social value, for example as provided by suppliers.

R3 Biocides

It is prohibited to treat felled wood with pesticides classified by WHO as type 1A and type 1B.

WHO classification: An overview can be found at: <http://www.who.int/pcs>, "The WHO recommended classification of pesticides by hazard and guidelines to classification 2004" or by contacting Nordic Ecolabelling.

The requirement relates to treatment of round timber after felling.



Documentation from the wood supplier listing the pesticides used and a statement in accordance with Declaration 1 in Appendix 2 for each product. Safety specifications or similar documentation in regard to the pesticide used must be supplied.

R4 Timber from certified forests

70% by weight of all purchased pine, spruce, birch and tropical wood must be sourced from certified forests. 50% by weight of other types of wood must be sourced from certified forests.

The requirement as regards purchased wood can be documented on an annual basis for the different types of wood used. Certification must be administered by a third party in accordance with applicable forestry standards that fulfil the requirements in regard of standards and certification systems listed in Declaration 1 on page 2 of Appendix 2.

Willow and bamboo are not covered by this requirement. Wood fibres for wood-fibre panels are not subject to requirements regarding a specific threshold value for percentage of certified raw material. However, share of certified wood used according to R18 and R19, in regard to energy and raw material origin, is to be documented according to this requirement.

The amount of timber derived from certified forests must be stated and the basis for calculations must be shown. Declaration 1 in Appendix 2 may be used by suppliers. To ensure that all requirements regarding standards, certification systems and proportions of certified raw materials are fulfilled, the ecolabelling organisation has the right to request further documentation, such as a copy of the certification body's final report, a copy of the forestry standard, name, address and telephone number of the organisation that established the standard as well as references in regard to those individuals representing parties and interest groups invited to take part in the development of the forestry standard.

Paper and cardboard

These requirements pertain to paper or cardboard constituting more than 5% by weight of the finished panel.

R5 Bleaching of paper and cardboard

The use of chlorine gas in the bleaching of fibre is prohibited.

- Certification from the pulp manufacturer that chlorine gas is not used for bleaching fibre.

R6 Emission of COD from paper and cardboard

Total discharge of oxygen demanding organic material to water, COD shall be <10 g COD/kg produced paper or cardboard (unfiltered sample). COD discharge from pulp production must be included when calculating g COD/kg produced paper or cardboard.

- Sampling programme including sampling procedure, measurement results for the last 12 months and sampling frequency, see Appendix 1. For analysis methods see Appendix 1.

R7 Surfactants for de-inking reclaimed fibre

Surfactants used in de-inking reclaimed fibre or upgrading new fibrous pulp must be documented as readily biodegradable in accordance with OECD guidelines for testing of chemicals, test method no. 301 A-F or potentially biodegradable according to OECD test method 302 A-C.

Documentation for surfactants used in de-inking reclaimed fibre.

Test method and test results for biodegradability (see Appendix 1), e.g. data sheet in accordance with directive 91/155/EEC with sufficient data and specification of test methods used.

Mineral raw materials

These requirements pertain to mineral-based raw materials constituting more than 5% by weight of the finished panel.

R8 Heavy metals

Main component(s) in the mineral raw material may contain maximum amounts of heavy metals as follows:

Arsenic	20 mg/kg
Lead	50 mg/kg
Cadmium	1 mg/kg
Mercury	1 mg/kg
Chrome III	500 mg/kg

The panel manufacturer must provide:

- Documentation of measurement methods, see Appendix 1.
- Declarations from raw material producers/refiners containing measurement results, measurement methods and sampling frequency.

R9 Dust emission

Production and refinement of mineral raw materials must be performed with an atmospheric particle emission (through flue) of a maximum of 10 mg dry dust/m³ air and 25 mg wet dust/m³ air.

The panel manufacturer must provide:

- Documentation of measurement methods, see Appendix 1.
- Declarations from raw material producers/refiners containing measurement results, measurement methods and sampling frequency.

R10 Radioactive substances

For panel material containing:

- crushed material from granite/pegmatite, brick, ceramic tiles and light expanded clay aggregate
- plasterboard (gypsum)
- waste products from the smelting of iron ore, or from the ash of coal or peat

documentation must be supplied showing that the gamma index (m_γ) or activity index (I_1) is less than 1.

The requirement pertains to panel material used in walls, ceilings, floors or building frames. The requirement does not apply to products intended for outdoor use.

Radioactive substances in the panel material are expressed as gamma index/activity index in accordance with:

$$C_K/3000 + C_{Ra}/300 + C_{Th}/200 < 1.0$$

There are also requirements with regard to radium index: $C_{Ra}/100 < 1.0$

In the above mentioned formula, C_K , C_{Ra} and C_{Th} signify concentrations of Potassium-40, Radium-226 and Thorium-232 respectively, expressed in 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 with 4.0 Bq/kg of Thorium-232.

- ☒ Sampling programme including measurement methods, measurement results and sampling frequency.

For method of analysis see Appendix 1.

2.2 Chemical products

Requirements R11-17 cover all chemicals that are added to panels or are used in the factory/production site, including surface treatments. The requirements apply to chemical products such as, for example, adhesives and lacquers.

Auxiliary products, such as machine lubricating oil, are not covered by the requirements.

Chemical products used in cleaning are regulated according to R12 only.

R11 Classification of chemical products

No chemical products classified according to the table below should be added to panels carrying the Nordic Ecolabel

Classification	EU classification until December 1, 2010 * Related symbols according to 67/548/EEC and 1999/45/EC with amendments and adjustments	EU classification from 1 December 2010*. Related hazard category and statement according to regulation 1272/2008
Carcinogenic	T with R45 or R49; Xn with R40	Carc 1A/1B/2 with H350, H350i and/or H351
Mutagenic	T with R46, or Xn with R68	Mut 1B/2 with H340 and/or H341
Toxic for reproduction	T with R60 and/or R61, or Xn with R62 and/or R63	Repr 1A/1B/2 with H360F, H360D, H361f, H361d, H360FD, H361fd, H360Fd, H360Df Lact with H362
Very toxic	Tx (T+ in Norway) with R26, R27, R28 and/or R39	Acute Tox. Acute Tox. 1/2 with H330, H310, H300, STOT SE 1 with H370
Toxic	T with R23, R24, R25, R39 and/or R48	Acute Tox. 2/3 with H331, H301 STOT SE 1 with H370 STOT RE 1 with H372
May cause sensitization by inhalation. May cause sensitization by skin contact	Xn with R42, or Xi with R43	Resp. sens. 1 with H334 or Skin sens 1 with H317

Exceptions apply for chemical products used in high-pressure laminates that are classified as hazardous to health. Such substances may be present in unreacted form during the production process, but a declaration must be made that these substances do not remain present in the finished laminate. Description of methods of analysis must be supplied.

Classification according to EU Dangerous Substance Directive 67/548/EEC with amendments for REACH according to Council Directive 2006/121/EC, and EU Dangerous Preparation Directive 1999/45/EC with amendments and adjustments.

Note that the producer is responsible for correct classification.



Declaration from producer listing chemical products used in the panel. (Declaration 2 in Appendix 2 may be used.)

The safety data sheet/product specification must comply with applicable legislation in the country of application, e.g. Annex II of REACH (Council Regulation 1907/2006/EC) for all chemical products.

Statement from laminate producer declaring that hazardous substances are no longer present in the product.

• **R12 Cleaning chemicals**

Nordic Ecolabelled cleaning products fulfil the requirements.

Solvents used for cleaning production equipment must not contain halogenated hydrocarbons, alkylphenoethoxylates or > 1% by weight of aromatic compounds.

If the product carries the Nordic Ecolabel, the product's name, manufacturer and license number should be supplied.

If the product does not carry the Nordic Ecolabel, then Declaration 3 of Appendix 2 must be duly completed and supplied.

R13 Compounds and additives of undesirable substances in chemical products

(Also applies to surface treatments)

The following substances must not be added to building panels:

- halogenated organic compounds (for example PVC, chlorinated paraffins, fluorine compounds, flame retardants and organic bleaching agents)
- PFOA (perfluorooctanoic acid and its salts, esters and compounds) and PFOS (perfluorooctane sulfonate and its compounds)
- bisphenol A compounds,
- biocides chlorophenols (their salts and esters), dimethylfumarate and MIT (2-methyl-4-isothiazolin-3-one);
- Alkylphenols, alkylphenoethoxylates (APEO) or other alkylphenol derivatives;
- phthalates;
- aziridine and polyaziridines;
- pigments and additives based on lead, tin, cadmium, chromium VI and mercury or their compounds;
- The content of aromatic solvents in the chemical product must not exceed 1% by weight .

All substances in the product are regarded as added substances, including additives (e.g. pigments). Contaminants from raw material production are not included. Residues from raw material production present in the finished product in concentrations under 100 ppm (0.0% by weight, 100 mg/kg), are regarded as contaminants. Substances that are intentionally added to a raw material or product are subject to these requirements, regardless of amounts present.

A statement from the producer or supplier of the chemical product, made according to Declaration 2 of Appendix 2, is required for each chemical product added to the panel.

R14 Content of free formaldehyde in chemical products

The content of free formaldehyde in chemical products added to wood-based panels must not exceed 0.3% by weight. The content of free formaldehyde in chemical products for rockwool must not exceed 0.5% by weight.

Declaration from producer listing chemical products used in the panel. (Declaration 2 in Appendix 2 may be used.)

R15 Environmentally harmful substances in panels (excluding surface treatments)

Total amount of added chemical substances classified by suppliers as environmentally hazardous, according to the table below, must be <0.5 g/kg of the panel's constituent material. The requirement is related to the chemical composition of the chemical product at the time of use, i.e. the moment the product is added to material in the panel. Ammonia in concentrations of over 24% is not included in this amount.

Classification	EU classification until December 1, 2010 * Related symbols according to 67/548/EEC and 1999/45/EC with amendments and changes	EU classification from 1 December 2010*. Related hazard category and statement according to regulation 1272/2008
Environmentally harmful	R50, R50/53, R51/53 and/or R59	Aquatic. Acute 1 with H400 Aquatic. Chronic 1 with H410 Ozone with EUH059

Classification according to EU Dangerous Substance Directive 67/548/EEC with amendments for REACH according to Council Directive 2006/121/EC, and EU Dangerous Preparation Directive 1999/45/EC with amendments and adjustments.

Note that the producer is responsible for correct classification.



The panel manufacturer must supply a declaration of the total amount of chemical substances, in g/kg of panel material, classified as environmentally harmful by the supplier of the chemical product.

R16 Environmentally harmful substances in panel surface treatments

The total amount of added chemical substances classified as environmentally harmful, according to the table below, should either be:

- 1) below the limit for classification , or
- 2) not in excess of 5g/m² of the surface

Classification	EU classification until December 1, 2010 * Related symbols according to 67/548/EEC and 1999/45/EC with amendments and changes	EU classification from 1 December 2010*. Related hazard category and statement according to regulation 1272/2008
Environmentally harmful	R50, R50/53, R51/53 and/or R59	Aquatic. Acute 1 with H400 Aquatic. Chronic 1 with H410 Ozone with EUH059

The requirement is related to the chemical composition of the chemical product at the time of use, i.e. the moment the product is added to the panel's material.

Classification according to EU Dangerous Substance Directive 67/548/EEC with amendments for REACH according to Council Directive 2006/121/EC, and EU Dangerous Preparation Directive 1999/45/EC with amendments and adjustments.

Note that the producer is responsible for correct classification.

Declaration from producer of product used in surface treatments relating to content of environmentally harmful substances and recommended application volumes (to enable calculation of g/m²).

R17 Volatile Organic Solvents, VOC (surface treatments only)

The content of Volatile Organic Solvents, VOC, in the production of surface treatments must be either:

- 1) below 5% by weight, or
- 2) not in excess of 10g/m² of the surface

The requirement is related to the chemical composition of the chemical product at the time of use, i.e. the moment the product is added to the panel's material. If the product requires dilution, then the content of VOC in the diluted product must not exceed the aforementioned threshold values.

VOC: organic compounds with vapour pressure >0.010 kPa at 20 °C or boiling point < 250 °C at 101.3 kPa (1 atm).

Declaration from producer of product used in surface treatments relating to content of VOCs and recommended application volumes (enabling calculation of g/m²).

2.3 Energy and origin of raw materials

Requirements R18-R19 are specifically designed for different types of panel. The requirements have two parts: The first part is a formula for the calculation of a points score. The requirement comprises equations in which various environmental parameters are weighted and totalled. A panel's score must exceed a certain limit to fulfil each requirement. Supplementary requirements and limits are also imposed on the parameters in the formula.

Origin of raw material

For wood-based panels, wood that is sourced from certified forests scores highly. The proportion of wood raw material from certified, sustainable forests is calculated as an annual average. Secondary products, such as wood shavings and chips from other production, can either be included as certified or recycled raw materials. The same volumes of fibre cannot be included under both certified and recycled material categories.

For panels using secondary wood products or non-organic raw materials the use of recycled materials scores highly. Recycled raw materials are defined as residual products from other industries and post-consumer products.

The raw material may also lack documentation in regard to being recycled or from certified forests.

Energy consumption (electricity and fuel)

Low energy consumption and the use of renewable fuels score highly. Renewable fuel is defined as non-fossil fuels (peat is defined as a fossil fuel).

Energy use is calculated in terms of an annual average.

Energy consumption, kWh/kg panel, must encompass panel production and the production of the constituent key raw materials. Key raw materials are defined as raw materials that exceed 5% by weight of the finished product. Energy consumption during extraction of raw materials is not to be included.

The energy account for panel production must be based on data from the handling of raw materials (incoming conveyor belt on the production line) to the finished product before surface treatment, if any. Energy consumption during surface treatment is not included.

In the case of the production of chemical products, such as adhesive, the energy accounts must be based on production data. The energy content of the raw material must not be included. In exceptional cases a standard value of 15 MJ/kg may be used for adhesives (solution for use), comprising 12 MJ/kg for fuel and 3 MJ/kg for purchased electricity (4:1).

Nordic Ecolabelling has chosen the units kWh per kg or m³, though calculations may also be made in MJ (1 kWh=3.6 MJ).

The energy contents of various fuels are given in Appendix 4.

If the producer has an energy surplus that is sold as electricity, steam or heat, the sold quantity can be deducted from the fuel consumption. Only fuel that is actually used in panel production is to be included in the calculations.

Electricity consumption refers to electricity purchased from an external supplier.

R18 Wood-based panels and plasterboard (gypsum panels)

Environmental parameter	Requirement
A = Wood from certified, sustainable forest ¹ (%)	See R3.
B = Proportion of recycled raw materials ² (%)	-
C = Proportion of renewable fuels (%)	-
D= Electricity consumption (kWh/m ²)	Max. 1 kWh/kg
E = Fuel consumption ³ (kWh/m ²)	Max. 3.4 kWh/kg

¹annualized percentage of wood from certified forests; requirements in regard to wood from certified forests is described in R3

²Recycled raw material = waste products of other industries, recycled post-consumer material

³Definition of renewable fuel = the energy giving raw material is not fossil based or peat.

$$P = \frac{A}{25} + \frac{B}{25} + \frac{C}{25} + (4 - \frac{D}{0,25}) + (4 - \frac{E}{0,85})$$

Requirement:

the value of P must be at least 9.5 for chipboard

the value of P must be at least 8.0 for wood-fibre/veneer as well as laminated panels

the value of P must be at least 6.0 for plasterboard

Calculation of P as above.

Wood raw material documented in accordance with R3.

Specify the proportion of recycled raw materials contained in the panel. Specify the type of raw material.

Specify the types of fuel that have been used in production during the previous year, and which of these fuels are renewable. Appendix 4 contains standard values for various fuels. Specify how much electricity has been used and how much panel (kg or m³) has been produced over the last year.

R19 Sound-absorbing panels

Environmental parameter	Requirement
A = Wood from certified, sustainable forest ¹ (%)	See R3.
B = Proportion of recycled raw materials (%)	-
C = Proportion of renewable fuels (%)	-
D= Electricity consumption (kWh/m ³)	Max. 200 kWh/m ³
E= Fuel consumption (kWh/m ³)	Max. 400 kWh/m ³

¹annualized percentage of wood from certified forests; requirements in regard to wood from certified forests is described in R3

²Recycled raw material = waste products of other industries, recycled post-consumer material

³Definition of renewable fuel = the energy giving raw material is not fossil based or peat.

$$P = \frac{A}{15} + \frac{B}{25} + \frac{C}{25} + (4 - \frac{D}{50}) + (4 - \frac{E}{100})$$

Requirement:

the value of P must be at least 5.0 for sound-absorbing panels.

Calculation of P as above.

Wood raw material documented in accordance with R3.

Specify the proportion of recycled raw materials contained in the panel. Specify the type of raw material.

Specify the types of fuel that have been used in production during the previous year, and which of these fuels are renewable. Appendix 4 contains standard values for various fuels. Specify how much electricity has been used and how much panel (kg or m³) has been produced over the last year.

2.4 Emissions

Requirements in regard to emissions to air

R20 Requirements in regard to emissions to air

Emissions to air from production of panelling and its constituent key raw materials (exempting added chemical products such as adhesives and surface treatments) must fulfil the following requirements:

Wood-based panels and plasterboard (gypsum panels):

Emission of CO₂ <0.30 kg per kg panel.

Emission of SO₂ <0.40 g per kg panel.

Sound-absorbing panels:

Emission of CO₂ <55 kg pr m³ panel.

Emission of SO₂ <90 g per m³ panel.

Emissions must include the primary panel production and production of constituent raw materials (>5% by weight of the finished panel). Emissions from the extraction of raw materials are not to be included. Emissions from the extraction of raw materials are not to be included.

The panel producers must measure or calculate emissions to air from production.

Emissions shall only be calculated for energy produced on site. Renewable resources are regarded as CO₂-neutral as shown in Declaration 4, Appendix 2, where the emissions are set to 0.

☒ The panel manufacturer must provide:

For measurement of emissions of SO₂:

- If emissions are measured: sampling program for air including measurement methods, measurement results the last 12 months and measurement frequency, see Appendix 1.

For calculation of emissions of SO₂ and CO₂:

- Declaration from the fuel supplier regarding the content of S in used fuels in accordance with Appendix 1.
- Calculation of emissions of SO₂ and CO₂ in accordance with Appendix 1.

Emissions to water

R21 Emissions to water

In the case of panel materials produced by means of wet processes; COD discharges into water are = 20 kg COD/kg of product (unfiltered sample).

☒ The panel manufacturer must provide:

- Sampling program, incl. measurement methods, measurement results the last 12 months and measurement frequency.
- For methods of accumulation and analysis see Appendix 1.

2.5 Special requirements as regards the product

Requirements on panels that contain formaldehyde-based additives

R22 Formaldehyde

In the case of panels that contain formaldehyde based additives one of the two following requirements must be met:

1) The content of free formaldehyde must not be in excess of the following limit values as determined in accordance with applicable version of EN-120, the perforator method:

The requirement is identical with the Swedish and Danish special measure specified in the standard EN 120.

Single values: ≤ 5 mg formaldehyde/100 g dry matter for MDF board and ≤ 4 mg formaldehyde/100 g dry matter for all other boards.

The requirement must be met by the 95%-quartile of all measurement values.

The requirements apply to wood board with a moisture content of $H = 6.5\%$.

If the moisture content of the panels is different from the figure stated above, but falls within the range of 3% to 10%, the analyzed perforator value must be multiplied by a factor F which is derived from the following formula:

Chipboard: $F = -0.133H + 1.86$. **MDF:** $F = -0.121 H + 1.78$

2. 2) The panels must satisfy the requirement for a formaldehyde emission 0.065 mg formaldehyde/m³ air when tested in accordance with Appendix 1.



Sampling program including measurement methods, measurement results and sampling frequency, see Appendix 1. For methods of accumulation and analysis see Appendix 1.

If alternative 2 is chosen it must be documented how, by regular quality control the producer may minimize the likelihood that panels with a formaldehyde emission in excess of the set limits may be prevented from being used before the emission test results are known. For products approved by the Finnish classification system "Emission Classification of Building Materials", class M1: copy of valid licence/certificate.

For products certified as fulfilling the requirements of CARB (California Air Resources Board) by approved third party (for example SP, Technical Research Institute of Sweden): copy of valid licence/certificate.

3 Other requirements in regard to ecolabelled products

3.1 Waste disposal, recycling systems and packaging

R23 Recycling systems for packaging

Relevant national provisions, legislation and/or branch-specific agreements for products and packaging must be fulfilled in the countries where the products are on sale.

- Copy of recycling agreements and/or invoice copies regarding packaging.

R24 Packaging material

Chlorine-based plastics must not be used in packaging. The applicant must give information on materials used in transport and sales packaging for the product for which an ecolabel license is sought.

- Description of materials used in the transport and sales packaging.

Manufacturers of plastic packaging must declare that the plastic requirements are fulfilled.

3.2 User's manual/Product specification sheet

R25 User's manual/Product specification sheet

The user's manual/product specification sheet must provide information on:

- storage
- assembly and guidance in regard to surface treatments
- the technical standards with which the panel complies
- recommended maintenance methods

- User's manual/product specification sheet in the languages of the country or countries in which the product is sold.

3.3 Regulatory requirements

R26 Regulatory requirements

The licensee is responsible for ensuring that ecolabelled products and the production thereof fulfil all prevailing working environment provisions, legislation and licences in the various production countries.

3.4 Environmental and quality control

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

If the producer's environmental management system is certified to ISO 14 001 or EMAS, according to which the following procedures are applied, it is sufficient if the accredited auditor certifies that the requirements are implemented.

R27 Licence administrators

The company shall appoint an individual responsible for ensuring the fulfilment of Nordic 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.

R28 Documentation

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

- Checked on site.

R29 Panel quality

The licensee must guarantee that quality levels in the production of the Nordic Ecolabelled panel are maintained throughout the validity period of the licence.

- Procedures for collating and, where necessary, dealing with claims and complaints regarding the quality of the Nordic Ecolabelled panel.

R30 Planned changes

Written notice must be given to Nordic Ecolabelling of planned changes that have a bearing on fulfilment of Nordic Ecolabel requirements.

- Procedures detailing how planned changes are handled.

R31 Unplanned nonconformities

Unplanned nonconformities that have a bearing on fulfilment of the ecolabelling requirements must be reported to Nordic Ecolabelling in writing and recorded in an official journal.

- Procedures detailing how unplanned nonconformities are handled.

R32 Traceability

The licensee must have a traceability system for the production of the Nordic Ecolabelled product.

- Description of/procedures for the fulfilment of the requirement.

R33 Marketing

Marketing of Nordic Ecolabelled products must comply with "Regulations for Nordic Ecolabelling" of 12 December 2001 or later version.

☒ Declaration 5 in Appendix 2 duly completed.

Marketing

The Nordic Ecolabel, the Swan, is a very well-known and well-reputed trademark in the Nordic region. Nordic Ecolabelled panels may be marketed using the Nordic Ecolabel so long as the associated licence is valid.

The label must be positioned so that there is no doubt as to what the label refers and so that it is clear that the product is ecolabelled.

More information on marketing can be found in "Regulations for Nordic Ecolabelling" of 12 December 2001 or later version.

Design of the Nordic Ecolabel

The ecolabel and the allocated licence number (shown below as x10 000) shall be of the following design:



x10 000

The ecolabel is displayed on the package or the product.

Follow-up inspections

Nordic Ecolabelling may decide to check whether the labelled product fulfils the stated 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 product does not meet the requirements.

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

Validity period of the criteria document (to be changed)

Nordic Ecolabelling adopted the criteria for XX on DAY MONTH YEAR. The criteria are valid until DAY MONTH YEAR.

An 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.

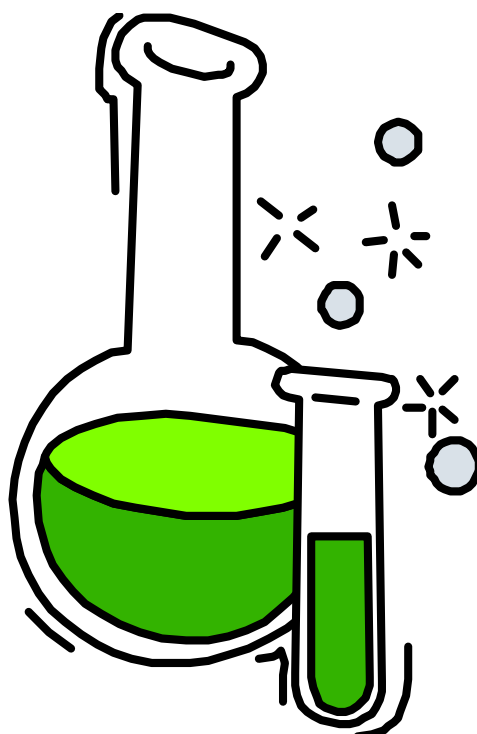
Future criteria

In future criteria the following areas will be evaluated.

To be revised following the consultation period.

Appendix 1

Tests and analyses



1 Methods of analysis and testing

Sampling for testing must be performed in a competent manner. The laboratory/test institution must be impartial and competent. The unprocessed data must be available for verification by the ecolabelling organization.

The analysis laboratory used shall fulfil the general requirements of standard EN ISO 17025 or have official GLP (Good Laboratory Practice) status. The applicant shall be liable for the documentation and analysis costs.

The manufacturer's own laboratory may be approved to perform analyses and tests if:

- the analyses and tests are monitored by the authorities, or if
- the manufacturer has a quality management system encompassing sampling and analysis and has been certified to ISO 9001 or ISO 9002, or
- the manufacturer can demonstrate that there is agreement between initial analysis/testing performed as a parallel analysis/test by an accredited laboratory and the manufacturer's own laboratory and that the manufacturer takes samples in accordance with a predetermined sampling programme.

2 Analysis methods and reporting requirements

2.1 Heavy metals

The sample must be prepared in accordance with DS 259. The analysis must be carried out with a relevant method of analysis with adequate sensitivity. The most appropriate methods of analysis are ICP or FAAS. The analysis report must contain information on both analysis results and the sensitivity of the method. Every week, 2 representative samples must be taken, and all the samples must be collected in one monthly sample. The monthly sample must be analysed. The result shall be calculated as the average result of three consecutive monthly samples analysed during the last 12 months before the application is delivered.

2.2 Emissions of COD

- Test:** When measuring emissions of oxygen demanding organic material to water ISO 6060 2nd Ed. 1989, NS 4748 alternatively DS 217, SFS 3020, SFS 5504, SS028142, DIN 38409, part 41, NFT 90101, ASTM D 1252 83 or test kits using potassium dichromate as an oxidizing agent (and with silver sulphate as a catalyst) e.g. Dr Lange, Hack or WTW . Determination of the chemical oxygen demand or similar.
- Sample frequency:** For continuous production the yearly middle value, based on minimum one representative daily sample per week, is used. When new processes are implemented or internal improvements carried out, the discharge shall be computed from samples from a minimum of 40 consecutive days.
- Sampling:** Samples of process water shall be taken after external treatment, and analyses shall be carried out on unfiltered sample. Sampling frequency set by the authorities can be approved.
- Paper and cardboard:** For intermittently produced mass types the value must be based on 40 consecutive daily samples. For pulp produced in shorter intervals, representative daily samples from each interval are acceptable, however with a minimum of 40 daily samples in total. The sample must be taken prior to treatment by external treatment plants. The emissions value may then be reduced by the effect of the treatment plant. The effect of the treatment plant must be documented. Samples of process water shall be taken after external treatment, and analyses shall be carried out on unfiltered sample.

2.3 Surfactants

Surfactants used in the production of paper must be documented as readily biodegradable in accordance with OECD-guideline for testing of chemicals, test method no. 301 a-f or 302 a-c.

2.4 Environmentally hazardous substances

Requirements as regards environmentally harmful components are made in several contexts. Classification of substances is performed on the basis of tests, with some exceptions given later on in this section.

Biodegradability, aerobic

In order to determine whether a compound is readily biodegradable, test method 301 (A-F) (OECD guideline for testing of chemicals (ISBN 92-64-1222144)) or similar methods must be used.

Bioaccumulation

A substance is considered to be potentially bioaccumulative if the analysis in the two-phase system n-octanol and water show a solubility in the organic phase that is at least 1000 times greater than in the water phase at chemical equilibrium ($\log P_{ow} > 3$), if nothing else has been shown (OECD test method 107 or 117). The bioaccumulation of such a substance can be tested on fish according to test method 305 A-E. If the biological concentration factor (BCF) of the component is 100 or more, the component is regarded as bioaccumulating.

Ecotoxicity

For ecotoxicity (aquatic toxicity) test method no. 201, 202 or 203 in OECD guidelines for testing of chemicals or similar is used.

Substances exempted from testing

The following substances are exempted from testing for aquatic toxicity, biodegradability and bioaccumulability:

- Chemicals that are known to be environmentally hazardous, i.e. those that have been classified as such by the authorities.
- Substances with a short life under test conditions (< 1 hour for octanol/water distribution test; i.e. < 1 day for all other tests). Any need to analyse degradation products is considered in each individual case.
- Substances that the applicant can reasonably prove are not environmentally harmful.

The following substances are exempted from testing for bioaccumulability:
Substances with a high molecular weight (Molecular weight > 700, lowest calculated section > 9.5 Å or length > 5.5 nm).

References to peer reviewed literature may be used to show that the constituent substances of the product fulfil the specified requirements.

2.5 Emissions of SO₂

Emissions of SO₂ are to be expressed as the average for the year based on representative samples and measurements. SO₂ is to be measured in accordance with NS 4859, SF 5265, SS 028421 or equivalent methods of measurement. As an alternative, sulphur counts based on the consumption of energy products with known sulphur content are acceptable. Sulphur counts are to be based on the annual average value. The sulphur content in oil is to be measured in accordance with ISO 8754 or ASTM D 4294. The sulphur content in other fuel is to be measured in accordance with standard practice.

2.6 Emissions of CO₂

Accounts of emissions of CO₂ are based on the average for the year. The emissions of CO₂ from different energy raw materials must be calculated from the numbers in Declaration 4 in Appendix 2.

2.7 Emissions of dust

See requirements in SS 028426, NS 4861, 4862 and 4863 or similar methods in accordance with ISO 3966.

2.8 Formaldehyde

See R22. For the purpose of determining free formaldehyde content, the most recent applicable European norm for the perforator method is to be used. The currently applicable EN 120 norm must be used, unless the method has been replaced by another EN method. A suitable chamber method is to be used for the correlation of emission potential (EN 120) expressed as mg/100g, with emission level expressed in ppm or mg/m³.

The European standard is recommended as a suitable chamber method for panels composed of wood or mineral wool. EN 717-1. The currently applicable standard for determination by reference of emissions values is to be followed. The method used must be reported.

The test method for analysis of emissions for classification M1 and M2 is given in "Emission Classification of Building Materials" (http://www.rts.fi/emission_classification_of_building_materials.htm).

The frequency for the three above mentioned tests are given in the standard (Perforator method), regulations in the respective Nordic countries (Climate Chamber method, ENV-717-1) and in the regulations of the Finnish classification system.

2.9 Gamma index/activity index

See R23. Normally the analyses are to be performed by means of gamma spectrometry in a laboratory using crushed materials, or in the field at the quarry or at the manufacturer using a portable gamma spectrometer. The measurement of gamma index (or activity index) shall be based on methods utilised by Forskningscenter Risø, Avdeling for Nukleær Sikkerhedsforskning og Nukleære Anlegg (the Research Centre Risø, Division of Nuclear Security Research and Nuclear Plants) in Denmark, Statens Institutt for Strålehygiene (The National Institute of Radiation Hygiene) in Norway, Statens Strålskyddsinstitut (the National Institute for Radiation Protection) at the Environmental Laboratory in Stockholm, Strålsäkerhetscentralen (the Radiation Safety Centre) in Finland or equivalent. In Finland Directive ST 12.2 is applicable.

As an alternative, equivalent methods of analysis will be accepted subject to assessment by an independent body.

2.10 Test methods for measuring the content of plastics

The following test methods may be used to analyse a plastic's content of lead, cadmium, halogenated paraffins, halogenated flame retardants, organic tin compound and phthalates: inductively coupled plasma - mass spectrometry (ICP-MS), scanning electron microscope (SEM) with energy-dispersive X-ray spectroscopy (EDS), Fourier Transform Infrared Spectroscopy (FTIR), or equivalent method.

3 References

References to peer reviewed literature may be used to show that the constituent substances of the chemical product fulfil the specified requirements.

Appendix 2

Declarations

Skjema for krav til trebaserte plater
Erklæring om forbudte innholdsstoffer og aromatiske løsningsmidler

Det hjemiske produktets navn: _____
Produsent/eksportør av hjemisk produkt: _____

• Er produktet tilsatt halogenerede organiske forbindelser? ja nei
• Er produktet tilsatt halogenerede organiske flammehemmere? ja nei
• Er produktet tilsatt polyklorerede bifenyler? ja nei
• Er produktet tilsatt alkylfenoler? ja nei
• Er produktet tilsatt ftalater? ja nei
• Er produktet tilsatt pigment/løsningsstoffer basert på bly, brenn, kadmium, kromVI og kvikksølv og deres forbindelser? ja nei
• Er produktet tilsatt aromatiske løsningsmidler?
Hvis ja, angi innhold i vekt-%: _____ ja nei
• Er produktet tilsatt alkylfenolatesyflater eller andre alkylfenolatesyflater eller andre som avspalter alkylfenoler ved redobrytning?
Hvis ja, angi innhold i vekt-%: _____ ja nei
Oppgi testmetoder og testresultater: _____

Produsentens underskrift: _____ (fornavn)
(stato) _____ (telefon)
(ansvarlig saksbehandler) _____ (telefon)

Bemerk: Innhold av klassifiserte stoffer dokumenteres separat ved sikkerhetsdatablad/leverandørbrukerveiledning, og ved utfylling av Vedlegg 4.

Declaration 1: Declaration in regard to wood raw materials (Section 1.1)

Declaration 2: Declaration in regard to requirements pertaining to chemical products (Chapter 1.2)

Declaration 3: Declaration in regard to requirements pertaining to cleaning chemicals (Section 1.2)

Declaration 4: Declaration in regard to calculation of energy consumption (Section 1.3)

Declaration 5: Marketing of ecolabelled products (Section 2.6)

DECLARATION 1 Page 2(2)

Requirements for forestry certification (Chapter 1.1)

Wood used in the product must be certified by a third party on the basis of an applicable forestry standard, complying with the requirements placed on standards and certification systems.

The following requirements are placed on standards and certification systems acceptable to Nordic Ecolabelling.

Standards:

1. The standard must balance economic, ecological and social interests and comply with the United Nation's Rio Declaration, Agenda 21 and the Forest Principles, as well as respecting relevant international conventions and agreements.
2. The standard must contain absolute requirements. It must promote sustainable forestry.
3. The standard must be generally available. The standard must have been developed in an open process in which stakeholders with ecological, economic and social interests have been invited to participate.

Certification system:

The certification system must be transparent, have broad national and international credibility and be capable of verifying that the requirements of the forestry standard (see above) have been met.

Certification body:

The certification body must be independent, credible and capable of verifying that the requirements of the standard have been fulfilled. It must be able to communicate the results and to facilitate the effective implementation of the standard.

Documentation:

- Copy of the forestry standard, the name, address and telephone number of the organisation that drew up the standard and the final report of the certification body.
- The names of references representing parties and interest groups invited to participate in the development of the forestry standard must be provided.
- The ecolabelling organization may request the submission of further documentation to enable it to assess whether the requirements of the standard and certification system have been fulfilled.

Nordic Ecolabelling may grant a license in certain cases without 30% of the wood used in production being certified in accordance with a valid forestry standard. There must then be reliable documentation stating that the timber is derived from sustainable forest with the same level of requirements as in the approved forestry standards.

DECLARATION 2 Page 1(2)

Declaration in regard to requirements pertaining to chemical products (Chapter 1.2)

Name and area of use of the chemical product
Manufacturer/importer of chemical product

Classification of chemical products

Are the chemical product classified as carcinogenic (R45, R49, R40), genetically harmful (R46, R68), harmful to the reproductive system (R60, R61 R62, R63), toxic (R23-R28) or allergens when inhaled (R42) or on skin contact (R43) in accordance with the EU Dangerous Substance Directive 67/548/EEC with amendments for REACH and the EU Dangerous Preparation Directive 1999/45/EC with amendments and adjustments?

- Product sheet with classification according to the EU Dangerous Substance Directive 67/548/EEC with amendments for REACH according to Council Directive 2006/121/EC, and the EU Dangerous Preparation Directive 1999/45/EC with later amendments and adjustments.

Formaldehyde

Does the chemical product contain free formaldehyde?

If yes, state the content in % by weight: _____

Is the product an adhesive for plywood panels or laminated wood panels?

Compounds and additives in chemical products

Are halogenated organic binding agents added to the product?

Are halogenated organic flame retardants added to the product?

Are polychlorinated biphenyls added to the product?

Are alkylphenols, alkylphenolethoxylates or other alkylphenol derivatives added to the product?

Are biocides chlorophenols (their salts and esters), dimethylfumarate and MIT (2-methyl-4-isothiazolin-3-one) added to the product?

Are phthalates added to the product?

Are aziridine and polyaziridines added to the product?

Are compounds of bisphenol A added to the product?

Are perfluorooctanoic acid (PFOA) and its salts, esters, and compounds added to the product?

Are perfluorooctane sulfonate (PFOS) and its compounds added to the product?

Are pigments and additives based on lead, tin, cadmium, chromium VI and mercury and their compounds added to the product?

Does the product contain alkylphenoxyethoxylates or other alkyl phenol derivatives?

If yes, state the content in % by weight: _____

Alkyl phenol derivatives are defined as compounds that release alkyl phenols upon degradation.

Does the product contain aromatic organic solvents?

If yes, state the content in % by weight: _____

Signature of manufacturer:

(Date)

(Company name)

(Administrated by)

(Phone)

DECLARATION 4, Page 1(2)

Declaration in regard to calculation of energy consumption (Section 1.3)

Energy consumption, kWh/kg panel, must encompass panel production and the production of the constituent key raw materials. Key raw materials are defined as raw materials that exceed 5% by weight of the finished product. Energy consumption during extraction of raw materials is not to be included.

The energy account for panel production must be based on data from the handling of raw materials (incoming conveyor belt on the production line) to the finished product before surface treatment, if any. Energy consumption during surface treatment is not included.

For the production of chemical products, such as adhesive, the energy accounts must be based on production data. The energy content of the raw material must not be included. In exceptional cases a standard value of 15 MJ/kg may be used for adhesives (solution for use), comprising 12 MJ/kg for fuel and 3 MJ/kg for purchased electricity (4:1).

Purchased electricity is defined as electricity purchased from external suppliers. Electricity generated by the product producer is included in the calculation of fuel consumption. For the total consumption of fuels, both purchased fuels and residual products are included.

If part of the energy consumption results in the sale of energy in the form of for example electricity, steam or heat, this part of energy consumption must be deducted from total consumption as sold.

The energy content of fuel is based on the table below. If electrical energy is produced on-site, one of the following methods can be used for calculating fuel consumption:

- Actual annual consumption of fuel.
- Consumption of electricity produced on-site multiplied by 1.25.

Theoretical energy content and emission factors

Sources: Statistics Norway: Energistatistikk 1995, SFT-rapport 9513: Forbrenningsanlegg. Veiledning for saksbehandlere og SFT: Utslipps-koeffisienter (Audun Rosland, 1987).

Energy source	Theoretical energy content GJ/ton	Density ^{*1}	Theoretical energy content MWh/m ³ 2)	Energy content GJ/unit ³⁾	Tonne CO ₂ per tonne energy source	Tonne CO ₂ per m ³ 4)	Tonne CO ₂ per GJ
Coal (anthracite)	28.1	-	7.8	28.1	2.42	-	0.08612
Coke (from coal)	28.5	-	7.9	28.5	3.19	-	0.11193
Wood fuel	16.8	0.5	4.7	8.4	0	0	0
Waste liquor (non-volatile)	14	-	3.9	14	0	0	0
Waste wood (dry)	16.8	-	4.7	16.8	0	0	0
Crude oil	43	0.85	10.2	36.6	3.2	2.72	0.074
Natural gas	49.2	0.85	11.6	0.042	2.75	2.34	0.056
LPG	46.1	0.51	6.5	23.5	3	1.53	0.065
Petrol/gasoline	43.9	0.74	9.0	32.5	3.13	2.32	0.071
Kerosene	43.1	0.79	9.5	34.0	3.15	2.49	0.073
Light fuel oil	43.1	0.84	10.1	36.2	3.17	2.66	0.074
Diesel	43.1	0.84	10.1	36.2	3.17	2.66	0.074
Marine gas oil	43.1	0.84	10.1	36.2	3.17	2.66	0.074
Heavy oil	40.6	0.97	10.9	39.4	3.2	3.10	0.079

- 1) All figures in tons except for Wood Fuel, where figures are in tons per firm cubic meter (ton/fm^3) and Natural Gas which is in kg per standard cubic meter (kg/Sm^3).
- 2) All figures in MWh/m^3 , except for Natural Gas which is given in kWh/Sm^3 and Coal, Coke, Wood Fuel, Waste liquor and Waste wood which are given in MWh/ton .
- 3) All figures in GJ/m^3 except for Coal, Coke, Waste liquor and Waste wood which are in GJ/tonne , Natural Gas which is given in GJ/ton and Wood Fuel in GJ/fm^3 .
- 4) Natural Gas in kg/Sm^3 .

DECLARATION 4, Page 2(2)

Example of calculation for chipboard

A = Wood from certified, sustainable forest: 0 %.

B = Recycled raw materials: 50 % (sawdust)

C = Proportion of renewable fuels: 80 %.

D = Electricity consumption: 0.5 kWh/kg

E = Fuel consumption: 1.3 kWh/kg

$$P = \frac{0}{25} + \frac{50}{25} + \frac{80}{25} + \left(4 - \frac{0,5}{0,25}\right) + \left(4 - \frac{1,3}{0,85}\right)$$

$$= 0 + 2 + 3.2 + 2 + 2.5 = 9.7 \Rightarrow \text{the panel fulfils the requirement!}$$

Example of a calculation using the standard value for adhesives:

A panel contains 12% adhesive (in-use solution). This represents 0.12 kg of adhesive (in-use solution) per kilogram of panel. Applying the standard value in the calculation of energy points for adhesives results in:

$$0.12 \text{ kg adhesive/kg panel} \times 15 \text{ MJ/kg adhesive} = \underline{1.8 \text{ MJ/ kg panel.}}$$

$$\text{Conversion to kWh per kg panel: } \frac{1,8 \text{ MJ/kg skiva}}{3,6} = \underline{0.5 \text{ kWh/kg panel}}$$

If the ratio of fuel to electricity is 4:1: 0.4 kWh fuel/kg panel and 0.1 kWh electricity/kg panel

DECLARATION 5 Marketing of ecolabelled products

We hereby confirm that we are aware of the rules governing the use of the Nordic ecolabel as described in “Regulations for Nordic Ecolabelling of Products”.

We hereby undertake that any marketing activities will comply with these regulations.

We also confirm that we are familiar with the criteria for the ecolabelling of Panels for the building, decorating and furniture industries.

We undertake to ensure that the persons marketing the ecolabelled products within our company will receive information on the criteria governing the ecolabelling of Panels for the building, decorating and furniture industries and “Regulations for Nordic Ecolabelling of Products”.

(date & place)

(company)

(Contact person)

(Phone)

(marketing manager)

(Phone)

A new declaration must be submitted to the ecolabelling organization in the event of changes in personnel.