



Nordic Ecolabelling of  
**Floor coverings**

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**Nordic Ecolabelling**

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

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Quotations may be made provided that Nordic Ecolabelling is stated as the source.

# Nordic Ecolabelling of Floor Coverings

Version 4.1, 11 November 2009

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## Why choose the Nordic Ecolabel?

- The floor covering manufacturer and flooring reseller may use the Nordic Ecolabel trademark for marketing. The Nordic Ecolabel is a very well-known and well-reputed trademark in the Nordic region.
- The Nordic 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.
- Environmentalised operations prepare the floor covering manufacturer 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. Nordic ecolabelling can be seen as an aid in this work.
- The Nordic 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 Ecolabel licence can also be seen as a mark of quality.

## What can carry the Nordic Ecolabel?

Examples of floor coverings that can be Nordic Ecolabelled include solid wood, parquet, laminate, linoleum and carpeting.

The floor covering must be intended for indoor use and suitable for a concrete, timber joist or similar subfloor. The floor covering shall not have a supporting function. Floor coverings with integrated heating cannot be Nordic Ecolabelled.

Seamless floor coverings that are applied as a curing liquid cannot be ecolabelled. Mineral floor coverings such as stone and clinker cannot be Nordic Ecolabelled but can be awarded the EU Flower.

## How to apply

Each requirement is marked with the letter R (requirement) and a number. All applicable requirements must be fulfilled for the award of a licence.

The requirements section can also be used as a checklist. Each requirement is followed by two checkboxes – Yes and No – to indicate whether the requirement is met.

### Icons in the text

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

Specifies which documents/data that shall be enclosed with the application.

### Application

The application shall be sent to Nordic Ecolabelling in the country in which the floor covering is sold. See page 2 for addresses. The documents required for application are an application form and documentation demonstrating fulfilment of the requirements (specified in the criteria).

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 on a larger market. The following must be submitted to Nordic Ecolabelling:

- Form for sales in the country in question.
- Production information in the local language (see R24).
- Registration number for a national product and packaging recycling system or other documentation demonstrating fulfilment of recycling system requirements (see R31).

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 the revenues produced by the floor covering carrying the Nordic Ecolabel.

## Enquiries

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

# What are the requirements of Nordic Ecolabelling?

## 1 Requirements on raw materials

### R1 Renewable raw materials

At least 50% by weight of the floor covering must comprise of renewable raw materials. Renewable raw materials are defined as those materials that are derived from biological materials that are continually reproduced in nature. Describe the product and the materials of which the floor covering is made.

- Summary of the raw materials used to make the floor covering and their proportions (% by weight). Specification of which raw materials are renewable.

### 1.1 Wood raw materials

#### R2 Wood raw material

The licensee must ensure that wood raw materials do not originate from forest environments meriting protection due to their high biological and/or social value. Nordic Ecolabelling may revoke a licence if it is found that wood raw materials are derived from forest environments of this type.

- Name (in Latin and one Nordic language) and geographic origin (country/state and region/province/municipality) of the kinds of wood used. Nordic Ecolabelling may request further documentation if there is any doubt as to whether the wood raw materials are derived from forest environments meriting protection due to their high biological and/or social value. Appendix 5a and 5b are designed for documenting details of wood raw materials.

### **R3 Wood from certified forests**

This requirement applies to floor coverings that contain a minimum of 10% wood raw material by weight.

At least 30% (annual average) of the wood must come from certified forests. Certification must be administered by a third party in accordance with a forestry standard that fulfils the requirements in Appendix 4 on standards and certification systems. The wood raw material must be traceable.

Materials/boards that are labelled according to “Nordic Ecolabelling of panels for the building, decorating and furniture industry” fulfil the requirements on wood raw materials.

- ☒ Specification of the percentage of wood raw material originating from certified forests and background data. Appendix 5a can be used by the supplier and 5b can be used for the summary of wood raw materials in the floor covering. Copy of the certificate for certified forest environments both signed and approved by the certification body. The name of the forest certification system must be clear. Details of ecolabelled panels and boards are sufficient evidence.
- ☒ To ensure that all requirements regarding standards, certification systems and certified amounts are fulfilled, the ecolabelling body may request further documentation, such as a copy of the certification body’s final report or copy of the forestry standard including the name, address and telephone number of the organisation that established the standard and references to those individuals representing parties and interest groups invited to take part in the development of the forestry standard.

## **1.2 Textile fibres and foam**

These requirements apply to textile fibres that constitute more than 15% by weight of the floor covering (normally carpets). At least 80% of the fibre content must fulfil the following requirements:

### **R4 Plant fibres (linen, hemp, coconut and similar)**

During retting, the emission of oxygen demanding substances shall be reduced by 75%:

- a) in comparison to untreated emissions, measured in TOC or COD in internal/external treatment facilities, or
- b) through internal actions that limit emissions.

This requirement does not apply to ground retting and mechanical methods.

*Information on analysis laboratories and test methods can be found in Appendix 2.*

- ☒ Evidence of a reduction of emissions shall be provided in a laboratory report. For option b), a declaration from an independent body certifying the effect of the purification methods is accepted. If the plant fibre has been awarded the Nordic Ecolabel or EU-ecolabel for textiles it fulfils these requirements.

## R5 Wool fibre – biocides

The content of biocides must not exceed a total of 0.5 ppm for group A substances, 2 ppm for group B substances, 0.5 ppm for group C substances and 2 ppm for group D substances.

| Group | Biocide                                    | CAS no.    |
|-------|--|------------|
| A     | $\alpha$ - hexachlorocyclohexane           | 319-84-6   |
| A     | $\beta$ - hexachlorocyclohexane            | 319-85-7   |
| A     | $\gamma$ - hexachlorocyclohexane (lindane) | 58-89-9    |
| A     | $\delta$ - hexachlorocyclohexane           | 319-86-8   |
| A     | Aldrin                                     | 309-00-2   |
| A     | Dieldrin                                   | 60-57-1    |
| A     | Endrin                                     | 72-20-8    |
| A     | P, p'-DDT                                  | 50-29-3    |
| A     | P, p'-DDD                                  | 72-54-8    |
| B     | Propetamphos                               | 31218-83-4 |
| B     | Diazinon                                   | 333-41-5   |
| B     | Dichlofenthion                             | 97-17-6    |
| B     | Fenchlorphos                               | 299-84-3   |
| B     | Chlorfenvinphos                            | 470-90-6   |
| C     | Cyhalothrin                                | 68085-85-8 |
| C     | Cybermethrin                               | 52315-07-8 |
| C     | Deltamethrin                               | 52918-63-5 |
| C     | Fenvalerate                                | 51630-58-1 |
| C     | Flumethrin                                 | 69770-45-2 |
| D.    | Diflubenzuron                              | 35367-38-5 |
| D.    | Triflumuron                                | 64628-44-0 |

*Information on analysis laboratories and test methods can be found in Appendix 2.*

- Certification that the listed biocides are not used or documentation from the wool supplier.
- Wool supplier: The documentation of the levels of biocides is dependent on the producer's knowledge and control of the wool delivery. Biocide levels can be documented in two ways:
- Analysis report (see Appendix 2) for the listed substances submitted to the ecolabelling body once a year and when suppliers are changed.
- If the applicant has full control over wool production, an analysis report and a description of how biocides are avoided is sufficient.

**The ecolabelling body determines whether sufficient evidence has been provided.**

- If production is biocide free but is uncertified, details of the supplier, rearing area and sufficient other information must be submitted to display that biocides are not used in wool production. This also applies to production methods that are undergoing a transition to organic production.
- If wool production/animal husbandry is organic, a certificate or transaction certificate from a competent certification body shall be submitted.

- This requirement (R5) is fulfilled if a carpet fulfils the requirements of Nordic Ecolabel or EU-ecolabel textile ecolabelling or the German GUT ecolabel.

**R6 Wool fibre – emissions**

The emission of oxygen demanding substances (COD) in degreasing wastewater released into the sewage network must not exceed 60 g/kg untreated wool.

Wastewater must be purified from at least 75% of the annual average of oxygen demanding substances.

*Information on analysis laboratories and test methods can be found in Appendix 2.*

- Declaration regarding the purification of wastewater from oxygen demanding substances and details of the facility's annual wool production. If the wool fibre has been awarded the Nordic Ecolabel or the EU-ecolabel for textiles it fulfils these requirements.

**R7 Synthetic fibres**

Synthetic fibres must comprise at least 50% recycled raw material or fulfil the requirements for the specific fibre type laid out in R8-R10. Recycled raw materials shall originate from a post-consumer product.

**R8 Polyester fibre**

The quantity of antimony in the polyester fibre must not exceed 260 ppm. If antimony is not used in production, the applicant may label the product "antimony free" (or similar) beside the Nordic Ecolabel.

*Information on analysis laboratories and test methods can be found in Appendix 2.*

- The applicant must either provide evidence that antimony is not used or submit an analysis report for antimony levels. If the polyester fibre has been awarded the Nordic Ecolabel or EU-ecolabel for textiles it fulfils these requirements.

**R9 Polyamide fibre**

The average annual emissions to air of nitrogen dioxide (N<sub>2</sub>O) from the production of the monomer must not exceed 10 g/kg of finished polyamide 6 fibres or 50 g/kg of finished polyamide 6.6 fibres.

- Applicants must certify that this requirement is fulfilled. If the polyamide fibre has been awarded the Nordic Ecolabel or the EU-ecolabel for textiles it fulfils these requirements.

**R10 Polypropylene fibre**

The use of lead-based pigments is prohibited.

Emissions of NO<sub>x</sub> and SO<sub>2</sub> from the production of PP (monomer production, polymerisation and granulation) must not exceed the limits listed in the table below.

|                 |              |
|-----------------|--------------|
| NO <sub>x</sub> | 12 kg/ton PP |
| SO <sub>2</sub> | 11 kg/ton PP |

- The fibre manufacturer must measure or calculate the quantities of NO<sub>x</sub> and SO<sub>2</sub> emitted during PP production.

**R11 Auxiliary textile chemicals**

This requirement applies to chemicals used to treat textile fibres. Other chemicals, such as those for cleaning production equipment, do not need to fulfil the requirement.

Alkylphenolethoxylates (APEO), alkylbenzen sulfonates (LAS), di(hydrogenated tallow alkyl) dimethyl ammonium chloride (DHTDMAC), distearyldimethyl ammonium chloride (DSDMAC), ditallow dimethyl ammonium chloride (DTDMAC), ethyl diamine tetracetate (EDTA) and diethylene triamine pentaacetate (DTPA) must not be used nor be an ingredient in any preparation or substance that is used.

- The chemical manufacturer must certify that this requirement is fulfilled. If the textile has been awarded the Nordic Ecolabel or the EU-ecolabel for textiles it fulfils these requirements.

**R12 Foam rubber (natural and synthetic latex) - emissions**

Emissions to water from foam rubber production shall be purified to 90% of oxygen demanding substances (measured as COD or TOC). This may be performed at an on-site or external treatment facility. If the latex production facility is connected to an external treatment plant, the plant's average degree of purification for COD or TOC shall apply.

*Information on analysis laboratories and test methods can be found in Appendix 2.*

- Details of the facility's degree of purification.

**R13 Foam rubber (natural and synthetic latex) – 1.3-butadiene**

The content of 1.3-butadiene must not exceed 1 mg/kg of latex.

- Test report for the content of 1.3-butadiene in the latex.

**R14 Foam rubber (polyurethane)**

CFC, HCFC, HFC (hydrofluorocarbons) and methylene chloride must not be used for foaming.

- Applicants must certify that this requirement is fulfilled.

## 2 Requirements on chemical products

These requirements apply to chemical products and substances that are used in or on the floor covering, such as adhesives and surface treatments.

### **R15 Toxic and ecotoxic substances**

Chemical products that are classified according to EU Directive 1999/45/EEC with amendments as carcinogenic (R45, R49, R40), toxic for reproduction (R60, R61, R62, R63), mutagenic (R46, R68) or toxic (R23-28) must not actively be added to the floor covering.

Raw materials classified as allergenic that are added to the floor covering must not exceed levels of 0.1% by weight in the finished floor covering.

Chemical products and substances must fill requirement a) or b).

- a) The floor covering must not contain chemical products that are classified as environmentally hazardous (R50, R50/R53, R51/53, R52/R53, R52, R53, R54, R55, R56, R58, R59).
- b) The total quantity of chemical substances classified as environmentally hazardous (R50, R50/R53, R51/53, R52/R53, R52, R53, R54, R55, R56, R58, R59) must not exceed 2% by weight of the floor covering. The quantity of each individual substance must not exceed 1% by weight of the floor covering.

*Classification according to EU Dangerous Substance Directive 67/548/EEC and EU Dangerous Preparation Directive 1999/45/EC with amendments.*

*Note that the chemical producer is responsible for classification.*

Chlorinated/brominated paraffins, halogenated flame retardants, organic tin compounds, phthalates and fluorinated compounds must not be actively added to the floor covering.

Cadmium (Cd), lead (Pb) and mercury (Hg) must not be actively added to the floor covering.

- Some azo-based pigments that decompose producing carcinogenic arylamines (see Appendix 6) must not be used. MSDS/product sheet complying with Directive 2001/58/EC for the constituent chemicals.
- The producer or supplier of the chemical products must provide a 16-point material safety data sheet.
- The floor manufacturer and chemical manufacturer must certify that the quantity of environmentally hazardous substances does not exceed the limit.
- The pigment manufacturer must certify that azo-based pigments that decompose to carcinogenic arylamines are not used.
- Declaration from the floor manufacturer and chemical supplier that the substances listed above have not actively been added to the floor covering.

## R16 Chemical products for surface treatment

Chemical products used for surface treatment (e.g. fillers, stains and varnishes) must fulfil either requirement a) or b).

- a) The total quantity of chemicals in the surface treatment product that are classified as dangerous for the environment (R50, R50/R53, R51/53, R52/R53, R52, R53, R54, R55, R56, R58, R59) must not exceed 5% by weight.
- b) The total quantity of chemicals in the surface treatment product that are classified as dangerous for the environment (R50, R50/R53, R51/53, R52/R53, R52, R53, R54, R55, R56, R58, R59) must not exceed 7 g/m<sup>2</sup> of floor covering. Calculated in wet state.

*Classification according to EU Dangerous Substance Directive 67/548/EEC and EU Dangerous Preparation Directive 1999/45/EC with amendments.*

- MSDS/product sheet complying with Directive 2001/58/EC for the chemical surface treatment products.
- The chemical manufacturer or supplier must certify that the surface treatment product complies with the limits for environmentally hazardous substances in surface treatments. Option b) requires details of how much surface treatment is applied to the floor covering.

## R17 Formaldehyde release from floor coverings

A floor covering that has additives that contain formaldehyde or other substances that release formaldehyde must fulfil requirement a) or b).

- a) Testing of formaldehyde emissions from the finished floor covering. Emissions to air must be less than 0.13 mg/ m<sup>3</sup> air. Testing shall follow the chamber method according to EN 717-1.
- b) For floor coverings that contain chipboard or fibreboard (e.g. MDF), this requirement can be fulfilled by testing according to the "perforator method" described in EN 120.

The following limits must be fulfilled:

Single test reading:            ≤ 8 mg/100g dry test

Six-month average:            ≤ 6.5 mg/100g dry test

*Information on analysis laboratories and test methods can be found in Appendix 2.*

- Test report from the test above.  
Nordic Ecolabelled board fulfils the requirement.  
Products with a valid licence/certificate for Danish or Norwegian "Inneklimamerke", Finnish Emission Classification of Building Materials, class M1, or Danish "Pladekontrol", class E1, fulfil the requirement.

## R18 Organic solvent emissions

This requirement does not apply to floor coverings that comprise more than 75% by weight of wood, and for which adhesives and surface treatment products contain a maximum of 1% by weight of organic solvents.

Organic solvents are defined as organic compounds that at 293.15 K have a vapour pressure of 0.01 kPa or greater.

The emission of organic solvents must not exceed 2 g/m<sup>2</sup> floor covering. The emission of organic solvents can be measured or calculated as a material ratio.

The annual average emission of organic solvents calculated as a methane equivalent detected with a flame ionization detector (FID). The emission figure for organic solvents shall be converted to an annual average per square metre of floor covering manufactured.

If the organic solvent emissions originate solely from the surface treatment, the quantity of organic solvents can be calculated using the following formula:

$$\frac{\text{Surface treatment (g/m}^2\text{)} \times \text{organic solvent content of surface treatment (\%)}}{\text{Efficiency of surface treatment (\%)}}$$

Efficiency of the surface treatment:

|  |      |
|--|------|
| Automatic spray application, no recycling  | 50 % |
| Automatic spray application with recycling | 70 % |
| Spray application, electrostatic           | 65 % |
| Spray application, bell/disc               | 80 % |
| Roller coating                             | 95 % |
| Curtain coating                            | 95 % |
| Vacuum coating                             | 95 % |

Calculations demonstrating the fulfilment of the requirement.

### 3 Requirements on raw materials and energy

Requirements R19-R21 are designed for different types of floor covering. 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. The floor covering must exceed a certain limit to fulfil each requirement. Supplementary requirements and limits are also imposed on the parameters in the formula.

#### Requirements on raw materials

For wooden floor coverings, wood that is derived from certified forests scores highly. If the floor covering comprises 30% by weight of wood, at least 30% of the wood raw material must come from sustainable forests (see R3) The proportion of wood raw material from certified, sustainable forest shall be calculated as an annual average.

For linoleum floor coverings and carpets, the use of renewable raw materials and recycled finite raw materials scores highly. An additional requirement is set that at least 50% of the floor covering must comprise of renewable raw materials. Recycled raw materials are defined as residual products from other industries and post-consumer products.

#### 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 consumption is calculated as an annual average of the energy consumed during the production process (excluding premises heating) from the raw material in bulk to the finished floor covering. This means, for example, that the energy calculation for wood-based products starts from the wooden logs.

For synthetic (non-renewable) raw materials, the calculations start from the production of the plastic monomer. The calculation shall not include the energy content of the raw material.

The energy calculation shall include at least 95% by weight of the raw materials' energy consumption. The energy required to manufacture adhesives and varnish shall not be included in the calculations.

Nordic Ecolabelling has chosen the units kWh/m<sup>2</sup>, though calculations may also be made in MJ/m<sup>2</sup> (1 kWh=3.6 MJ).

The energy contents of various fuels are given in Appendix 3.

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 the fuel that is actually used in floor covering production shall be included in the calculations.

Electricity consumption refers to electricity purchased from an external supplier.

## R19 Solid wood and laminate floor coverings

| Environmental parameter                           | Requirement                |
|---|----------------------------|
| A = Wood from certified, sustainable forest (%)   | Min. 30%                   |
| B = Proportion of recycled wood raw materials (%) | -                          |
| C = Proportion of renewable fuels (%)             | -                          |
| D= Electricity consumption (kWh/m <sup>2</sup> )  | Max. 20 kWh/m <sup>2</sup> |
| E = Fuel consumption (kWh/m <sup>2</sup> )        | Max. 50 kWh/m <sup>2</sup> |

$$P = \frac{A}{25} + \frac{B}{25} + \frac{C}{25} + \left(4 - \frac{D}{5}\right) + \left(4 - \frac{E}{12.5}\right)$$

**Requirement:**  $P \geq 11.5$  for laminate flooring

$P \geq 10.5$  for wood flooring

- Calculation of P as above.
- Wood raw material:
- Wood raw material documented in accordance with R3.  
 If Nordic ecolabelled wood-based boards are used, the minimum requirement for environmental parameter A is fulfilled. Figures higher than 30% must be documented as specified in R3.
- Recycled wood raw materials:  
 Specify the proportion of recycled wood raw materials that the floor covering contains and the type of wood raw material. Wood raw material can only be classified as either recycled or originating from certified sustainable forests, not both.
- Electricity and fuel consumption:

Specify the types of fuel that have been used in floor covering production during the last year, and which fuels are renewable. Appendix 3 contains standard values for various fuels. Specify how much electricity has been used and how much floor covering (m<sup>2</sup>) has been produced over the last year.

**R20 Linoleum floor coverings**

| Environmental parameter  | Requirement                |
|--|----------------------------|
| A = Proportion of renewable raw materials and recycled non-renewable raw materials (%) | Min. 50 %                  |
| B = Proportion of renewable fuels (%)  | -                          |
| C= Electricity consumption (kWh/m <sup>2</sup> )                                       | Max. 20 kWh/m <sup>2</sup> |
| D= Fuel consumption (kWh/m <sup>2</sup> )  | Max. 50 kWh/m <sup>2</sup> |

$$P = \frac{A}{25} + \frac{B}{25} + \left(4 - \frac{C}{5}\right) + \left(4 - \frac{D}{12.5}\right)$$

**Requirement:  $P \geq 9.0$**

- Calculation of P as above.
- Renewable raw materials/recycled non-renewable raw materials  
 Detail the raw materials used in the floor covering in accordance with R1. Specify which materials are renewable and which non-renewable materials are recycled. Describe the recycling process.
- Electricity and fuel consumption:  
 Specify the types of fuel that have been used in floor covering production during the last year. Appendix 3 contains standard values for various fuels. Specify how much electricity has been purchased and how much floor covering (m<sup>2</sup>) has been produced over the last year. Specify which fuels are renewable.

**R21 Textile floor coverings**

| Environmental parameter  | Requirement                |
|--|----------------------------|
| A = Proportion of renewable raw materials and recycled non-renewable raw materials (%) | Min. 50 %                  |
| B = Proportion of renewable fuels (%)  | -                          |
| C= Electricity consumption (kWh/m <sup>2</sup> )                                       | Max. 20 kWh/m <sup>2</sup> |
| D= Fuel consumption (kWh/m <sup>2</sup> )  | Max. 50 kWh/m <sup>2</sup> |

$$P = \frac{A}{25} + \frac{B}{25} + \left(4 - \frac{C}{5}\right) + \left(4 - \frac{D}{12.5}\right)$$

**Requirement:  $P \geq 9.0$**

- Calculation of P as above.
- Renewable raw materials/recycled non-renewable raw materials

Detail the raw materials used in the floor covering in accordance with R1. Specify which materials are renewable and which non-renewable materials are recycled. Describe the recycling process.

- Electricity and fuel consumption:
- Specify the types of fuel that have been used in floor covering production during the last year. Appendix 3 contains standard values for various fuels. Specify how much electricity has been purchased and how much floor covering (m<sup>2</sup>) has been produced over the last year. Specify which fuels are renewable.

**Example of calculations for a wooden floor covering:**

*A = Wood from certified, sustainable forest: 55 %.*

*B = Recycled wood raw materials: 0 %.*

*C = Proportion of renewable fuels: 95 %.*

*D = Electricity consumption: 5 kWh/m<sup>2</sup>.*

*E = Fuel consumption: 15 kWh/m<sup>2</sup>.*

$$P = \frac{55}{25} + \frac{0}{25} + \frac{95}{25} + (4 - \frac{5}{5}) + (4 - \frac{15}{12.5}) = 11.8$$
 The floor covering fulfils the requirement.

## 4 Requirements on waste management in floor covering production

### R22 Waste management

Waste from production that has an energy content greater than 10 MJ/kg (2.78 kWh/kg dry test) must be recycled. Recycling means that the waste shall be reintroduced into production or used as a source of energy.

The floor covering shall be designed for handling in accordance with regulatory requirements in the Nordic region.

The floor covering must not be classed as special waste or require special waste treatment in any Nordic country.

- Declaration from the floor covering manufacturer that production waste is recycled.  
Declaration from the floor covering manufacturer that the floor covering does not give rise to special waste or require special waste treatment in any Nordic country.

## 5 Product requirements

### R23 Durability

Only those requirements relating to the specific type of floor covering need be fulfilled.

If the floor covering has been tested using a test method other than that specified below, the results may be accepted if they are deemed comparable by an independent body.

#### **Classification of resilient floor coverings (EN 685):**

##### **Domestic:**

Class 21: Moderate (bedroom).

Class 22: Medium (other rooms, lounge).

Class 23: Heavy (hall).

##### **Commercial/public:**

Class 31: Moderate (e.g. office, hotel room, conference room)

Class 32: General/medium traffic (e.g. classroom, hotel).

Class 33: Heavy traffic (e.g. schools, corridors, department stores).

Class 34: Very heavy traffic.

##### **Light industrial:**

Class 41: Moderate (e.g. electronic manufacturers).

Class 42: Medium (e.g. warehouse).

Class 43: Heavy (e.g. warehouse, other production premises).

#### **Classification of hard floor coverings:**

Class 1: Bedroom (domestic).

Class 2: Other rooms (domestic).

Class 3: Office, classroom, cinema, restaurant.

Class 4: Lobby, corridor, department store.

#### **Linoleum floor coverings**

The floor covering must be Class 22 (medium) or higher.

If the floor covering combines transparent and patterned/coloured wear layers, these are counted as one wear layer.

#### **Carpets**

Classification according to EN 1307. Class 2 (general use) or higher.

### **Factory-varnished solid wood and parquet flooring**

Tested according to NS3506/SS923551/DS1097.7 (also known as the Frick-Taber test). Number of cycles until 50% of the varnish has been abraded from the test area:

Class 2: Less than 600 cycles

Class 3: 600 – (1,000) cycles

Class 4: 1,000 – (1,600) cycles

Class 5: 1,600 – (2,400) cycles

Class 6: 2,400 – (3,600) cycles

Class 7: 3,600 – (7,00) cycles

Class 8: At least 7,200 cycles

Alternatively, ASTM D 4060-90 or prEN 175.333.08 can be used, if adapted to the limits required above.

### **Factory-oiled and untreated solid wood and parquet flooring**

The product must be supplied with floor care recommendations for maintaining durability.

### **Laminate floor coverings**

Wear resistance shall be tested according to EN 13329. The use area shall be classified in accordance with the standard.

The floor covering must be Class 2 (General) or higher.

### **Other floor coverings**

The wear resistance of floor coverings other than those named above shall be tested using a method selected by an independent test institute specialised in wear testing floor coverings. The test method must take into account the intended use area of the floor covering.



Test report from the independent test institute.

## R24 Product information

The following product information must be supplied with the Nordic ecolabelled floor covering:

- Recommended subfloor. Recommended subfloor temperature and maximum relative humidity for laying the floor covering.
- Recommended adhesives for joining the floor covering and fixing it to the subfloor. If there are suitable Nordic ecolabelled adhesives, these must be recommended. Methods of laying and joining the floor covering must also be recommended.
- A method for welding seams (if applicable).
- Recommended method of cleaning including cleaning agents. If there are suitable Nordic ecolabelled cleaning agents, these must be recommended.
- Recommended methods of maintenance including maintenance preparations. If there are suitable Nordic ecolabelled maintenance preparations, these must be recommended.
- Recommended care instructions for oiled and untreated wood floor covering (type/quantity of oil or varnish) to achieve the intended wear resistance.
- The use area of the floor covering. Refer to the classes listed under R23 or in standard EN 685.
- The floor covering manufacturer must inform the customer of how to extend the life of the floor covering through refurbishing such as sanding and polishing.

Copy of the product information supplied to customers.

## 6 Quality and regulatory requirements

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

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

### R25 Laws 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 ecolabelled product is manufactured.

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

**R26 Nordic Ecolabel licence administrator**

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.

**R27 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.

**R28 Planned changes**

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

- Procedures detailing how planned changes are handled.

**R29 Unplanned nonconformities**

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

- Procedures detailing how unplanned nonconformities are handled.

**R30 Traceability**

The licensee must have a traceability system for the production of the Nordic ecolabelled floor covering.

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

**R31 Take-back system**

Relevant national regulations, legislation and/or agreements within the sector regarding the recycling systems for products and packaging shall be met in the Nordic countries in which the Nordic ecolabelled floor covering is marketed.

- Declaration from the applicant regarding adherence to existing recycling/take-back agreements.

**R32 Marketing**

Marketing of the Nordic ecolabelled floor covering shall comply with "Regulations for Nordic Ecolabelling" of 12 December 2001 or later version.

- Appendix 1 duly completed.

## Design of the Nordic Ecolabel

Design of the Nordic Ecolabel:



Licence number

Each licence has a unique, six-digit licence number that must be displayed along with the label.

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

## Follow-up inspections

Nordic Ecolabelling may decide to check whether the floor covering fulfils Nordic 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 floor covering 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 Floor coverings on 7 December 2007. The criteria are valid until 31 December 2010.

Nordic Ecolabelling decided on 11 November 2009 to prolong the validity of the criteria with one year. The new version is called 4.1 and it is valid until 31 December 2011.



## **Appendix 2                      Analysis and test laboratories**

### **Requirements on the analysis laboratory**

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

The applicant's own 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 analysis and sampling and is certified to ISO 9001 or ISO 9002, 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.

### **Test methods**

#### **Formaldehyde**

Test using the chamber method according to EN 717-1.

The content of formaldehyde can also be determined using the perforator method described in EN 120. The perforator method provides a correlation between the content of free formaldehyde, expressed in mg/100 g, and the emission level, expressed in ppm or mg/m<sup>3</sup>.

The requirements set out in R17 apply for wooden panels with a moisture content (H) of 6.5%

If the wooden panels have a different moisture content that is between 3% and 10%, the perforator value shall be multiplied by a correction factor F which is calculated as follows:

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

#### **Oxygen demanding substances (COD or TOC)**

The emission of oxygen demanding substances shall be calculated as an annual average based on at least one representative average daily sample each week, if no other method is required by regulatory requirements on wastewater.

Wastewater samples shall be taken during active production periods. The dates and times for sampling shall therefore be reported.

Test data regarding oxygen demanding substances in wastewater must be recorded for two months before a licence can be awarded. An annual average can be calculated from this data.

TOC: ISO 8245 "Water quality" or equivalent test method. "Guidelines for the determination of total organic carbon (TOC)".

COD: ISO 6060 "Water quality" or equivalent test method. "Determination of the chemical oxygen demand".

#### **Analysis of biocide residues**

Non-organic fibres: Biocide residues shall be determined using modified methods of US EPA 3540A "Soxhlet extraction", US EPA 3640A "Gel-permeation clean up" and US EPA 8270A "Semivolatile organic compounds by gas chromatography/mass spectrometry (GC/MS): capillary column technique".

### **Analysis of antimony**

The following antimony analysis method must be used: direct determination by atomic absorption spectrometry. The analysis must be performed on virgin raw fibres prior to any wet treatment.

### **Analysis of butadiene**

Determination of 1,3-butadiene in latex: Comminution and weighing of the sample. Testing with headspace sampler. Analysis by gas chromatography and detection by flame ionization detector.

### Appendix 3 Energy content of fuel

The energy content of fuel is calculated 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.

#### Standard fuel values<sup>1</sup>

(1 kWh = 3.6 MJ)

| Fuel               | Heat value<br>MJ/kg    | Heat value<br>kWh/kg    |
|--------------------|------------------------|-------------------------|
| Straw (15% W)      | 14.5                   | 4.0                     |
| Pellets (7% W)     | 17.5                   | 4.9                     |
| Waste wood (20% W) | 14.7                   | 4.1                     |
| Wood chips (45% W) | 9.4                    | 2.6                     |
| Peat               | 20                     | 5.6                     |
| Waste              | 10                     | 2.8                     |
| Natural gas        | 48.6                   | 13.5                    |
| LPG                | 46                     | 12.8                    |
| Eo1 oil            | 42.7                   | 11.9                    |
| Eo5 oil            | 40.4                   | 11.2                    |
| Power station coal | 24.5                   | 6.8                     |
| Coal, other        | 26.5                   | 7.4                     |
| Natural gas        | 39.3 MJ/m <sup>3</sup> | 10.9 kWh/m <sup>3</sup> |
| Eo1 oil            | 35.9 MJ/liter          | 10.0 kWh/liter          |

(% W) is the percentage by weight of water in the fuel and given the letter f in the formulas below. If nothing else is stated, f = 0% W and the ash content is average.

#### Formula for calculating the energy content of woodchips<sup>2</sup>:

The energy content of woodchips depends on the water content. An example of how to calculate the energy content of woodchips is given below.

The energy content of dry wood is 19.0 MJ/kg.

Energy is required to evaporate the water in the wood. This energy reduces the heat value of the woodchips. The energy content can be calculated as:

$19.0 \text{ MJ/kg} - 21.442 * f/100 = \text{MJ/kg}$ , where f is the water content in %W of the wood.

The factor "21.442" is the sum of water's heat of evaporation (2.442 MJ/kg) and the energy content of dry wood (19.0 MJ/kg).

If the applicant can refer to laboratory analyses of the heat value of a fuel, Nordic Ecolabelling may consider using this heat value for calculating the energy content.

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<sup>1</sup> Statistics Norway: Energy statistics 1995. SFT report 9513: Incineration plants. Guide for officials and SFT: Emission coefficients (Audun Rosland, 1987).

<sup>2</sup> Reference: Centre for Biomass Technology, c/o dk-TEKNIK (tel. +45 39 555 999): Videnblad fact sheet 125.2 (in Danish) first published 29 June 1998, revised 26 March 1999.

## **Appendix 4 Requirement of forest certification**

Wood used shall be certified by a third party in accordance with current forestry standards that fulfil the requirements on standards and certification systems

The following requirements apply to standards, certification systems and certification bodies approved by Nordic Ecolabelling.

### **Standards**

1. The standard must balance economic, ecological and social interests and comply with the UN Rio Declaration, Agenda 21 and the Statement of Forest Principles, and respect applicable international conventions and agreements.
2. The standard must contain absolute requirements. It must encourage and 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 open, have wide-spread national or international credibility and be able to verify that the requirements in the forestry standard (see above) are fulfilled.

### **Certification body**

The certification body must be independent and recognised. It must be able to verify that the requirements in the standard are met, able to communicate the results and be suitable for the efficient application of the standard.

Nordic Ecolabelling may request further documents to assess whether the requirements regarding standards and certification systems are met.



**Appendix 5b Specification of wood raw material in the floor covering (summary)**

**Table 1: Timber used (use the table if required)**

| Wood raw material | Supplier | Type of wood | Geographical origin |
|-------------------|----------|--------------|---------------------|
|                   |          |              |                     |
|                   |          |              |                     |
|                   |          |              |                     |

**Table 2: Timber from certified forests**

| Wood raw material | Supplier | Quantity | Quantity (%) of timber from certified forests | Quantity of timber from certified forests |
|-------------------|----------|----------|---|---|
|                   |          |          |   |   |
|                   |          |          |   |   |
|                   |          |          |   |   |
| <b>Total</b>      |          |          |   |   |

% timber from certified forests =

Quantity of timber from certified forests/total amount of timber used in the products = \_\_\_\_\_

Signature of supplier:

.....

(Date)

(Company name)

.....

(Adminstrated by)

(Telephone)

## Appendix 6 List of azo-based pigments that may produce one or several carcinogenic arylamines

| Name                               | CAS no.  |
|------------------------------------|----------|
| 4-Aminobiphenyl                    | 92-67-1  |
| Benzidine                          | 92-87-5  |
| 4-Chloro-o-toluidine               | 95-69-2  |
| 2-Naphthylamine                    | 91-59-8  |
| o-Aminoazotoluene                  | 97-56-3  |
| 5-Nitro-o-toluidine                | 99-55-8  |
| p-Chloroaniline                    | 106-47-8 |
| 4-Methoxy-m-phenylenediamine       | 615-05-4 |
| 4,4'-Methylenedianiline            | 101-77-9 |
| 3,3'-Dichlorobenzidine             | 91-94-1  |
| 3,3'-Dimethoxybenzidine            | 119-90-4 |
| 3,3'-Dimethylbenzidine             | 119-93-7 |
| 4,4'-Methylenedi-o-toluidine       | 838-88-0 |
| 6-Methoxy-m-toluidine              | 120-71-8 |
| 4,4'-Methylenebis(2-chloroaniline) | 101-14-4 |
| 4,4'-Oxydianiline                  | 101-80-4 |
| 4,4'-Thiodianiline                 | 139-65-1 |
| o-Toluidine                        | 95-53-4  |
| 4-Methyl-m-phenylenediamine        | 95-80-7  |
| 2,4,5-Trimethylaniline             | 137-17-7 |
| o-anisidin, 2-methoxyanilin        | 90-04-0  |
| 4-amino-azobenzen                  | 60-09-03 |

| Pigment                 |
|-------------------------|
| C.I. Basic Red 9        |
| C.I. Disperse Blue 1    |
| C.I. Acid Red 26        |
| C.I. Basic Violet 14    |
| C.I. Disperse Orange 11 |
| C.I. Direct Black 38    |
| C.I. Direct Blue 6      |
| C.I. Direct Red 28      |
| C.I. Disperse Yellow 3  |