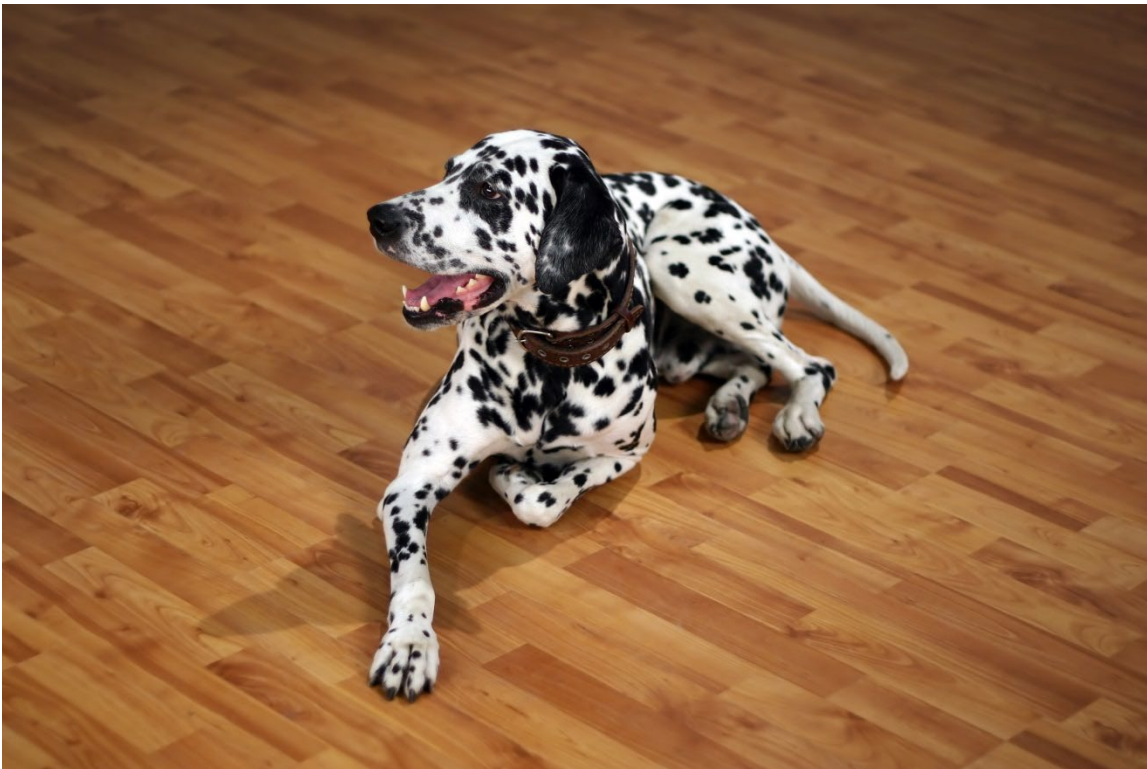


Nordic Ecolabelling of
Floor coverings



Version 6.14 • 18 November 2014 - 31 March 2025

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

Contact information

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

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It may be quoted from provided that Nordic Ecolabelling is stated as the source.

What is a Nordic Swan Ecolabelled floor covering?

A floor is defined as the bottom surface of the room and a floor covering (flooring) is the general term that describes a permanent covering for this surface. Flooring is manufactured from several different materials, some of the most common being wood (solid or parquet), linoleum, ceramic tiles, plastic and cork.

The flooring material selected is guided by factors such as requirements for sustainability/durability, sound insulation, muffling tread, comfort, price, hygiene and ease of cleaning, aesthetics, etc. Certain flooring materials must not be installed on surfaces exposed to a high moisture level.

Flooring is a heterogeneous product group and can be divided into semi-hard flooring, soft flooring, wet room panels and tiles. Nordic Ecolabelling has chosen to limit the criteria to the actual floor covering itself. The flooring contained in this product group must be intended for indoor use and must be able to be laid on a surface of concrete or timber boarding, for example.

Why choose the Nordic Swan Ecolabel?

Flooring is a large proportion of the indoor surface area, e.g. in a home or office. This means that the materials the flooring contains are important for the indoor environment and for the risk of exposure to undesirable substances. Flooring and its health and environmental impact in the indoor environment are further complicated by the fact that the flooring itself may interact with the surface on which it is laid (usually concrete), damp proofing, levelling, caulk, soundproofing material, insulating material and the flooring adhesive.

Several flooring materials, the most common of which are wood floors, linoleum, and cork flooring, largely comprise renewable materials and are often marketed by the industry as sustainable, “green” or “natural” flooring. Compilations of life cycle analyses and comparisons carried out¹ also show that bio-based flooring such as linoleum, cork and wood have a lower environmental impact in most, or all, the areas assessed compared with other types of floor covering.

A Nordic Swan Ecolabelled floor covering:

- Has a high proportion of renewable and/or recycled materials.
- Meets stringent requirements on chemicals harmful to health and the environment.
- Guarantees low emissions and a good indoor environment.
- Has been manufactured energy efficiently.
- Has good durability.

¹ According to the Building for Energy and Environmental Sustainability (BEES) program at the National Institute of Standards and Technology (NIST) at the US Department of Commerce.

What can carry the Nordic Swan Ecolabel?

Flooring that can be Nordic Swan Ecolabelled is solid timber flooring, parquet flooring, veneer flooring, laminate flooring, linoleum flooring, cork flooring, bamboo flooring and plastic flooring free from PVC.

Floor coverings that cannot be Nordic Swan Ecolabelled:

- PVC/vinyl flooring and other flooring that contains PVC. This also applies to other flooring that contains PVC, for example textile flooring with PVC backing.
- Rubber flooring. Rubber material can, however, be used, for example as an intermediate layer and/or backing for other flooring material.
- Ceramic tiles. However, the EU Ecolabel does accept this type of flooring.
- Flooring that is part of the load-bearing structure of the building.
- Flooring sold together with integrated underfloor heating systems.
- Seamless flooring laid in liquid form which then hardens.
- The concept of floor levelling, a combined name for products and methods used to achieve a surface that is either ready for a floor covering or which can itself constitute a finished floor surface.
- Textile floor coverings, carpets and mats are not included in this product group but can be labelled under Nordic Ecolabelling's criteria for textile floor coverings and carpets.

How to apply

Application and costs

For information about the application process and fees for this product group, please refer to the respective national web site. See contact information at the beginning of this document.

What is required?

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

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

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

☒ Enclose

🔍 The requirement checked on site.

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

License validity

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

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

On-site inspection

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

Queries

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

1 Terms and overview of requirements

This section describes the terms used in the requirements. To understand how the requirements are to be interpreted and applied, and to ensure that the licence application is accompanied by all the documentation required, it is important to read this section first.

1.1 Terms and definitions

Constituent substance

The term constituent substance refers to all substances in the product, including additives in the ingredients (such as preservatives and stabilisers) but does not include impurities from primary production. Impurity refers to residues from primary production which may be found in the finished product at concentrations below 100 ppm (0.01% by weight, 100 mg/kg), but not substances that have been added to a raw material or the product actively and for a particular purpose, irrespective of quantity.

Impurities of over 1% concentration in the primary product are, however, regarded as constituent substances. Substances known to be degradation products of the constituent substances are also themselves considered to be constituent substances.

For two-component products it is the added ingredients in the separate components that shall comply with the requirement. Alternatively, if it can be documented that protective equipment was worn when the hardener was mixed with the paint/varnish and the finished two-component product was applied in a closed system, the requirement may apply to the hardened product.

Additives

Additives are chemical substances which have been added to a material to obtain different characteristics such as pliancy, heat stability, impact resistance, etc. With plastic as an example, plastic is the comprehensive term for a large group of materials. Plastic consists of one or several polymers which have been mixed with additives.

Fillers

In the requirement of renewable and/or recycled raw materials, an opportunity is provided to exempt fillers from the calculation of the percentage of the floor by weight, provided that the filler is available to an, in principle, unlimited extent in nature. This is the case for the fillers normally used in flooring, such as kaolin, calcium carbonate, calcium magnesium carbonate, calcium sulphate and silicates. Pigments are not counted as a filler but as an additive.

Volatile organic compounds (VOC)

VOC are defined here as any organic compound having an initial boiling point less than or equal to 250°C measured at a standard pressure of 101.3 kPa.

1.2 Overview of requirements

Overview of the requirements that a particular material must meet. In addition to the material requirements in the table below, criteria on surface treatment (O24-O26) and the indoor environment (O27-O28) must be met in all relevant cases. Quality requirements and regulatory requirements must be met for all Nordic Swan Ecolabelled floor coverings (chapter 9).

Material	Level	Requirement	Declaration	Comments
All materials	obligatory	O1	Appendix 2	
	obligatory	O2	Appendix 2	
	obligatory	O3	Appendix 2	
	obligatory	O17	Appendix 8	Chemical requirements
	obligatory	O18	Appendix 9	Chemical requirements
	obligatory	O19	-	Chemical requirements
	obligatory	O20	Appendix 9	Chemical requirements
	obligatory	O21	Appendix 9	Chemical requirements
	obligatory	O22	Appendix 11	Chemical requirements
	obligatory	O23	Appendix 9/11	Chemical requirements
	obligatory	O29	Appendix 12 & 13	Energy requirement
	obligatory	O30	-	
	obligatory	O31	-	
	obligatory	O32	-	
Wood, cork and bamboo	More than 1% by weight	O4	Appendix 3a or 3c	
	More than 10% by weight	O5	Appendix 3b	
	More than 1% by weight	O6	Appendix 3a or 3c	
Wood and bamboo panels	More than 1% by weight	O4	Appendix 3a or 3c	Does not include HPL as a surface coating for laminate floors
	More than 10% by weight	O5	Appendix 3b	Does not include HPL as a surface coating for laminate floors
Vegetable fibres	More than 15 % by weight	O7	Appendix 5	Applies to flax, bamboo and other bast fibres
Polyamide/nylon	More than 5 % by weight	O8	test report	Both fibres and other material. Only virgin material
Polyurethane	More than 5 % by weight	O9	Appendix 6	Both fibres and other material. Only virgin material
Polyester	More than 5 % by weight	O10	Appendix 5	Both fibres and other material. Only virgin material
All virgin and recycled polymer material.	More than 5 % by weight	O11	Appendix 9	Both fibres and other material
Recycled substances in polymer material	More than 5 % by weight	O12	-	
All fibres	obligatory	O13	Appendix 5	
Foam plastic/foam rubber	More than 1% by weight	O14	test report	
Synthetic latex (SBR) and natural latex	More than 1% by weight	O15	test report	
Polyurethane foam	More than 1% by weight	O16	Appendix 7	

2 Description of products and materials

01 Information about the flooring

The applicant must provide the following information about the floor covering:

- Brand/trade name

- A description of the product/products and the materials involved. State the percentage composition of the material in the floor. State any additives, surface treatments and fillers. Product data sheets or equivalent covering all materials/more materials must be included in the application.
- A description of the manufacturing process. Suppliers must be described with the name of their business, production site, contact and the production step(s) carried out.

☒ A description in line with the requirement above. The template in Appendix 2 can be used by the flooring manufacturer to describe the composition of the materials. Product data sheets can be part of the documentation.

3 Raw material requirements

3.1 Raw materials in general

02 Renewable and/or recycled raw materials

The flooring must meet one of the following three requirements. The flooring shall consist of:

- Minimum 60% by weight of renewable raw materials*
or
- Minimum 70% by weight recycled materials**
or
- Floorings that consist of both renewable and recycled material shall comply with the following formula

$$(7/6) \times X + Y \geq 70 \% \text{ by weight}$$

X = Percentage by weight of renewable raw materials***

Y = Percentage by weight of recycled materials***

Non-organic fillers in the flooring may be exempted from the calculation of the weight percentage of the flooring where these are in principle available to an unlimited extent in nature****.

Example: A floor's total weight is 2500 g/m². It consists of 900 g/m² fillers, 1175 g/m² wool (renewable) and 425 g/m² other materials (non-renewable). The proportion of renewable raw materials is: 1175/1600 = 73%. The same principle applies to floorings with a percentage of recycled material or a combination of renewable and recycled materials.

* Renewable raw material is defined as a raw material that is continually and at a relatively fast pace reproduced in nature.

** Recycled material is defined in line with ISO 14021 and covers both pre-consumer material and post-consumer material. According to ISO 14021, recycled materials can be post-consumer materials, such as discarded plastic product- and packaging, or preconsumer such as reprocessed production waste. Production waste (scrap, rework, regrind) that can be directly traced back to the process is not considered recycled.

*** Recycled renewable materials do not count as both renewable and recycled raw material.

**** This is the case for the fillers normally used in floors such as kaolin, calcium carbonate, calcium magnesium carbonate, calcium sulphate, silicates and aluminum trihydrate (ATH). Nordic Ecolabelling reserves the right to assess whether a filler can be considered as being in such abundance that it may be considered as unlimited. Pigment does not count as fillers, but as additives.

☒ Summary of the raw materials included in the floor stating the proportion of the raw materials as a percentage by weight. State which raw materials are renewable, and which are recycled. Appendix 2 can be used.

☒ For alternative c), calculations showing that the requirement is fulfilled.

O3 Chlorinated plastics in flooring

Chlorinated plastics such as PVC (polyvinyl chloride) and PVDC (polyvinylidene chloride) must not be included in Nordic Swan Ecolabelled flooring.

- Declaration from the flooring manufacturer that the flooring is free from chlorinated plastics. Appendix 2 can be used.

3.2 Solid wood, cork, bamboo and manufactured board

In this chapter requirements O4 and O5 consist of two sets of requirements in the following way:

- Requirements marked A are the forestry requirements that were introduced in the criteria for floor coverings in conjunction with the establishment of criteria document version 6.0 on 18 November 2014.
- Requirements marked B are the (new) forestry requirements that were established by the Nordic Ecolabelling Board in November 2015. On 2 June 2020 the Nordic Ecolabelling Board decided a change in the requirement to prohibited tree species.

Licence applicants can choose to fulfil and verify either requirements marked A or requirements marked B. It is not possible to mix between the two sets of requirements.

The chapter ends with requirement O6 which is valid regardless of which set of requirements (A or B) that has been fulfilled.

For both A and B, the traceability requirement O4, covers all parts of products that contain solid wood, cork, or bamboo. The requirement also covers fibreboard, such as chipboard, MDF and OSB and parallel veneers and cross veneers/plywood. Exempted are small parts/details in the floor up to a maximum of 1% by weight. The requirements do not cover any possible constituent paper in laminate which is used as a surface layer on laminate flooring.

For both A and B, the requirement for raw materials O5, applies to solid wood, cork or bamboo and wood-based board included in the flooring at 10% or more by weight.

If the wood-based board is Nordic Swan Ecolabelled, the requirements in this section are met. State the manufacturer, licence number and name of the manufactured board.

O4 Origin

A) Origin and traceability of wood and fibre raw materials, cork and bamboo

The requirement applies to both certified and uncertified raw materials.

The licensee must:

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

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

- protected areas or areas in the process of being awarded protected status
- areas where ownership or usage rights are unclear

- genetically modified trees or plants.

Furthermore, forestry operations must not damage:

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

The requirement applies to wood chips, wood shavings, waste wood, untreated demolition wood and recycled fibre from other industrial activities used in manufactured board, but these must only meet the final documentation requirement (written procedure).

Nordic Ecolabelling may require further documentation if there is any uncertainty surrounding the origin of the raw material.

- Name (in Latin and English) and geographic origin (country/state and region/ province) of the kinds of wood, cork and bamboo used. Appendix 3a can be used by the of raw materials supplier.
- The manufacturer of flooring must have a written procedure for sustainable supply of wood, wood fibre, cork, and bamboo. The procedure shall include up-to-date lists of all suppliers of wood, wood fibre, cork and bamboo raw material.

B) Prohibited or restricted tree species

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

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

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

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

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

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

- Declaration from the applicant/manufacturer/supplier that tree species listed on a-d) are not used. Appendix 3c may be used.
- If species from the lists b), c) or d) is used:
- Declaration from the applicant/manufacturer/supplier that tree species listed on a) CITES I, II and III are not used.

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

05 Certified forestry

A) Wood, manufactured board, cork and bamboo from certified forestry

On an annual basis at least 50% of the raw material content* shall be derived from areas where forestry operations are certified pursuant to a forestry standard and certification system that meet the criteria stated in Appendix 4 or be certified as organically grown or in transition towards organic production.

**Wood chips, wood shavings, waste wood, untreated demolition wood and recycled fibre from other industrial activities used in manufactured board are not covered by the requirement.*

Nordic Ecolabelling may request the submission of further documentation to enable it to assess whether the requirements of the standard and certification system and certified proportion have been fulfilled. Such documentation may comprise copies of the certification body's final report, a copy of the forestry standard, including the name, address and phone number of the organisation that established the standard, as well as references to individuals representing parties and interest groups who have been involved in the development of the standard.

- ☒ The proportion of wood raw material derived from certified forests must be stated and the basis for calculations must be shown. Appendix 3b can be used.
- ☒ Copy of valid chain of custody certificates from nearest suppliers of certified wood raw material and verification in the form of an invoice/delivery note that the wood material has been accounted on the supplier's certified wood material account.

B) Wood raw material

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

Chain of Custody certification

The applicant/manufacturer must be Chain of Custody certified by the FSC/PEFC schemes.

Applicant/manufacture using only recycled material in the Nordic Swan Ecolabelled flooring are exempted from the requirement to Chain of Custody certification.

Definition of recycled material see glossary/below*.

Certified wood raw material

A minimum of 50% by weight of all raw material (virgin/recycled material) used in the Nordic Swan Ecolabelled flooring, must origin from forestry certified under the FSC or PEFC schemes or be recycled material.

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

Certified wood raw material (FSC and PEFC credits) must be accounted /recorded from the manufacturer's Chain of Custody account to the Nordic Swan Ecolabelled product/production line.

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

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

Post-consumer material: Material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose. This includes returns of material from the distribution chain.

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

- Name (species name) on the wood raw material used in the Nordic Swan Ecolabelled flooring.
- Applicant/manufacture must present a valid FSC/PEFC Chain of Custody certificate covering all wood raw material used in the Nordic Swan Ecolabelled flooring. (Exempted from this requirement is applicant/manufacture using only recycled material.
- Documentation showing that the quantity of certified wood raw material or recycled material is met by the applicant's/manufacture's Chain of Custody account.

06 Use of biocides after felling/harvesting

After felling, the timber or bamboo must not have been treated with pesticides classified as type IA and type IB by WHO.

The requirement refers to treatment of logs after felling.

WHO's website http://www.who.int/ipcs/publications/pesticides_hazard_2009.pdf contains guidelines and a list of pesticides and their classification. Any of the Nordic Ecolabelling secretariats can also be contacted.

- Account from the wood and bamboo supplier of the pesticides used and the declaration in line with appendix 3A for each individual product.

3.3 Textile fibres and polymers

The requirements in this section cover textile fibres synthetic fibres and polymers contained in more than 5% of the flooring by weight, regardless of flooring type. For requirements O14, O15 and O16, however, the limit is 1% by weight and for O7 the limit is 15% by weight.

In general, if the textile fibre is a raw material for textiles labelled with the Nordic Swan Ecolabel or the EU Ecolabel, all the fibre requirements are met as the requirements are harmonised between the labelling systems. In this case, state the producer, licence number of the textile and the name of the fibre.

3.3.1 Vegetable fibres

07 Flax, bamboo and other bast fibres

When growing bamboo, flax and other bast fibres (hemp, jute, coconut, etc.) the only pesticides which may be used are those permitted under the European Pesticides Regulation (1107/2009/EC).

The production of flax, bamboo and other bast fibres with water retting is only permitted if the effluent from the process is treated such that the chemical oxygen demand (COD) or the total amount of organically bound carbon (TOC) is reduced to at least:

- 75% for hemp
- 95% for flax and other bast fibres

Chemical oxygen demand (COD) must be analysed under ISO 6060 or another comparable method. The requirements for analysis laboratory and test methods for COD/TOC are stated in Appendix 1.

Analysis of PCOD or BOD can also be used to verify whether a correlation with COD can be demonstrated.

Bamboo must additionally meet the criteria for wood raw material (O4-O6)

- Declaration that only approved pesticides are used, Appendix 5 can be used by the fibre supplier.
- Analysis report from the producer of the bast fibre showing that the requirement has been met where water retting is used.

3.3.2 Synthetic fibres and other polymers

The requirements apply to fibres and polymers that occur in the floor covering to a level of 5% or more by weight, and include:

- virgin synthetic fibres
- virgin synthetic or biopolymers, for example in plastic flooring or as a backing material

Fibres and polymers made from recovered raw material need only comply with requirements O11 and O12.

If it were to become relevant to license synthetic fibres or polymers other than those contained in this section, Nordic Ecolabelling reserves the right to develop the criteria to include new requirements.

O8 Polyamide (nylon)

The annual average emissions to air of nitrous oxide (N₂O) from the manufacture of monomers must not exceed 10 g/kg manufactured polyamide 6 or 50 g/kg manufactured polyamide 6.6.

The requirements for analysis laboratory and test methods are stated in Appendix 1.

- Detailed information and/or test report from the manufacturer of the polyamide fibre, showing that the requirement is fulfilled on an annual basis by the manufacturing unit.

O9 Polyurethane

When manufacturing polyurethanes, isocyanate compounds must only be used in closed processes where recommended/prescribed safety equipment is worn.

Halogenated flame retardants must not be used.

- Declaration that the requirement is fulfilled. Appendix 6 can be used.

O10 Polyester

The amount of antimony in polyester fibre measured as an annual average shall not exceed 260 ppm.

Antimony shall be tested using the following method: Direct determination by atomic absorption spectrometry. The test shall be executed on raw fibre prior to wet treatment.

Requirements for testing and analysis laboratories are given in Appendix 1.

- A declaration from the polyester manufacturer that antimony is not used, or a test report showing that the antimony requirement is fulfilled. Appendix 5 can be used.

O11 Additives in polymer materials

Additives in polymer materials shall comply with requirement O20.

The requirement applies to additives irrespective of whether the material is manufactured of virgin or recycled raw materials.

Polymer materials are rubber materials (elastomers), thermosetting and thermoplastics irrespective of shape (thread-shaped fibres or layers/sheets).

- A declaration from the material's manufacturer in accordance with appendix 9.

O12 Substances in recycled raw materials

Recycled polymer materials shall not contain the following substances:

- halogenated flame retardants
- cadmium
- lead
- mercury
- chromium VI
- arsenic

Impurities of these substances up to 100 ppm are allowed.

- Documentation from the manufacturer of recycled plastic showing that the requirement is met. For example, documentation regarding the origin of the plastic or a laboratory test document.

O13 Chemical additives in fibre production

None of the substances below may occur in any of the preparations/products/formulations used in the treatment of fibres:

- alkylphenol ethoxylates (APEO)
- linear alkylbenzene sulphonates (LAS)
- dihydrogenated tallow dimethyl ammonium chloride (DHTDMAC)
- distearyl dimethyl ammonium chloride (DSDMAC)
- ditallow dimethyl ammonium chloride (DTDMAC)
- ethylenediaminetetraacetic acid (EDTA)
- diethylenetriamine pentaacetate (DTPA)

Other chemicals/chemical products which are used in the factory, e.g. for the cleaning of production equipment are not included.

- Declaration from the fibre manufacturer that the requirement is fulfilled. Appendix 5 can be used.

O14 Emissions to water from production of foam plastic/foam rubber

Emissions of oxygen demanding substances to water from the production of foam plastic/foam rubber must be reduced by 90% measured as COD or TOC. The reduction may be achieved through on-site or off-site treatment. In the case of off-site treatment, the average treatment level of the effluent treatment plant may be used.

Chemical oxygen demand (COD) must be analysed under ISO 6060. The requirements for analysis laboratory and test methods are stated in Appendix 1.

- Description of how the effluent from foam plastic production is treated and how COD emissions are measured and monitored.
- Test report showing that the limit value for chemical oxygen demand (COD) is fulfilled.

O15 Synthetic latex (SBR) and natural latex

The content of 1,3-butadiene must be less than 1 mg/kg in synthetic latex.

The content of the PAHs below must not exceed a total of 0.2 mg/kg latex (both synthetic and natural).

- Benzo[A]Pyrene, CAS no.: 50-32-8
- Benzo[E]Pyrene, CAS no.: 192-97-2
- Benzo[A]Anthracene, CAS no.: 56-55-3
- Dibenzo[A, H]Anthracene, CAS no.: 53-70-3
- Benzo[B]Fluoranthene, CAS no.: 205-99-2
- Benzo[J]Fluoranthene, CAS no.: 205-82-3
- Benzo[K]Fluoranthene, CAS no.: 207-08-9
- Chrysene, CAS no.: 218-01-9

The concentration of N-nitrosamines must not exceed 0.0005 mg/m³ measured in a climate chamber.

The impurity limit of 100 ppm does not apply in this requirement.

The requirements for analysis laboratory and test methods are stated in Appendix 1.

- Results of an analysis/test of the content in latex of 1,3-butadiene and the PAHs listed in the requirement, plus N-nitrosamines.

O16 Polyurethane foam

Tin in its organic form (tin bonded to a carbon atom) is not permitted.

CFC, HCFC, HFC (hydrofluorocarbons) or methylene chloride must not be used as a foaming agent.

Isocyanate compounds may only be used in closed processes where recommended/prescribed safety equipment is worn.

- Declaration from the applicant that the requirement is fulfilled. Appendix 7 can be used.

4 Chemical requirements

The chemical requirements cover all chemicals and chemical products added to the floor covering material or used in the manufacture of the floor covering, including surface treatments. Here, manufacture is defined as all manufacturing/treatment conducted by the manufacturer, but also by its suppliers of raw materials or constituent products. All the chemical requirements that are relevant for each flooring type must be fulfilled.

The requirements relate to areas such as adhesives, paints, stains, lacquers, impregnation, sealants, pigments, bleaching chemicals, binders, and so on. The requirements also apply to chemicals in the constituent parts of the flooring, such as manufactured boards and plastic materials.

There are also specific chemical requirements for certain materials, in addition to the general chemical requirements below. These specific supplementary requirements appear in the section for the flooring material in question.

The following sections have specific supplementary requirements concerning chemicals:

- 3.3.3 Synthetic fibres and other polymers
- 4.2 Chemical requirements applicable only to surface treatment (applies to surface treatment of all flooring types, relevant requirements fulfilled)

Constituent substance

This definition is valid for all chemical requirements:

The term constituent substance refers to all substances in the product, including additives in the ingredients (such as preservatives and stabilisers) but does not include impurities from primary production. Impurity refers to residues from primary production which may be found in the finished product at concentrations below 100 ppm (0.01% by weight, 100 mg/kg), but not substances that have been added to a raw material or the product actively and for a particular purpose, irrespective of quantity.

Impurities of over 1% concentration in the primary product are, however, regarded as constituent substances. Substances known to be degradation products of the constituent substances are also themselves considered to be constituent substances.

For two-component products it is the added ingredients in the separate components that shall comply with the requirement. Alternatively, if it can be documented that protective equipment was worn when the hardener was mixed with the paint/varnish and the finished two-component product was applied in a closed system, the requirement may apply to the hardened product.

4.1 General chemical requirements

017 Classification of chemical products

Chemical products used to manufacture Nordic Swan Ecolabelled floor coverings must not be classified / labelled pursuant to the table below. The product must be classified in line with current legislation (CLP Regulation (EC) No 1272/2008 or the EU's Dangerous Preparations Directive 1999/45/EC as amended in 2008 or later).

Note that classification under the Dangerous Preparations Directive may only be used until 31 May 2015.

Exceptions:

- Chemical products for surface treatment are exempted from the requirement concerning the classification “Toxic to aquatic organisms/Dangerous to the environment” since these are regulated in a separate requirement, O25.
- Adhesive products that contain isocyanates are exempted from the classification prohibition H351/R40 and H373. Isocyanates in the production of polyurethane and polyurethane foam are regulated in O9 and O16.
- Adhesive products with formaldehyde are exempted from the classification prohibition H350/R45 and H341/R68. Formaldehyde in wood-based panels is regulated in O27 and O28.
- Accelerators for linoleum production may be exempted from the requirements R50/53, H400, H410, and may be present in amounts up to 1% by weight of the linoleum.
- Exception is made for titanium dioxide (TiO₂) classified Carc 2 H351 which is added in powder form during the production of the floor if the following is

met: It must be added in closed systems, in suspended form or by a method that promotes a "low-dusting" working environment, for example by using protective equipment that significantly reduces dust or completely removes dust from raw materials (e.g. extraction, personal protective equipment and clear safety instructions).

- Resins with melamine are exempted from the classification prohibitions H351, H361 and H373.
- Printing inks classified H361 because of photoinitiators and used in a closed automatic production system where workers are not in direct contact/exposure with the chemicals.

Classification under CLP Regulation 1272/2008		Classification under Dangerous Preparations Directive 1999/45/EC 2008
Hazard class and category	Hazard phrases	Hazard class and risk phrases
Toxic to aquatic organisms Category acute 1 Chronic 1-2	H400, H410, H411	N with R50, R50/53, R51/53
Hazardous to the ozone layer	H420 or EUH059	N with R59
Acute toxicity Category 1-3	H300, H310, H330, H301, H311, H331,	T+ with R26, R27, R28, R39 T with R23, R24, R25, R39, R48
Specific target organ toxicity (STOT) with single and repeated exposure STOT SE category 1-2 STOT RE category 1-2	H370, H371, H372, H373	T+ with R39 T with R39, R48 Xn with R68
Carcinogenic Carc 1A/1B/2	H350, H350i or H351	T with R45 and/or R49 (Carc 1 or Carc 2) or Xn with R40 (Carc 3)*
Mutagenic Mut 1A/B/2	H340, H341	T with R46 (Mut 1 or Mut 2), Xn with R68 (Mut 3)
Toxic for reproduction Repr 1A/1B/2	H360, H361, H362	T with R60, R61, R64, R33 (Repr 1 or Repr 2), Xn with R62, R63, R64, R33 (Repr 3)

* Exemption from this risk phrase if it is due to the content of in-can preservatives, see also O19 concerning preservatives.

- Declaration from the manufacturer of the chemical product, in accordance with Appendix 8. In addition, safety data sheets pursuant to prevailing European legislation for all chemical products.
- Exception for TiO₂: Description of how TiO₂ in powder form is handled during production of the floor.
- Exception for H361 classified printing inks because of photoinitiators: Description of the application system and how workers are protected from exposure.

O18 CMR substances

The chemical products used in the manufacture of Nordic Swan Ecolabelled floor coverings must not contain chemical substances that are or may degrade into substances that are classified as carcinogenic (Carc), mutagenic (Mut) or toxic for reproduction (Rep), according to CLP Regulation (No) 1272/2008 or the EU's Dangerous Substances Directive 67/548/EEC as amended, see table below. Note that classification under the Dangerous Preparations Directive may only be used until 31 May 2015.

Classification under CLP Regulation 1272/2008		Classification under Dangerous Preparations Directive 1999/45/EC 2008
Hazard class and category	Hazard phrases	Hazard class and risk phrases
Carcinogenic Category Carc 1A/1B	H350	T with R45 and/or R49
Mutagenic Mut 1A/B	H340	T with R46
Toxic for reproduction Repr 1A/1B	H360	T with R60 or R61

Adhesive products that contain isocyanates and/or formaldehyde are exempted from the requirement but must fulfil other requirements. See O9 and O16 for requirements regarding isocyanates, and O27 and O28 for requirements regarding formaldehyde.

- Declaration from the manufacturer of the chemical product, in accordance with Appendix 9. In addition, safety data sheets pursuant to prevailing European legislation for all chemical products.

O19 Preservatives

The following preservatives are excluded from use in chemical products:

- Isothiazolinones at more than 500 ppm
- Bronopol (CAS-no 52-51-7) at more than 500 ppm.
- A blend (3:1) of CMIT/MIT (Chloromethyl isothiazolinone CAS no. 26172–55-4 and Methylisothiazolinone CAS no. 2682-20-4) at more than 15 ppm
- Methylisothiazolinone at more than 200 ppm

- Declaration from the manufacturer of the chemical product, in accordance with Appendix 9. In addition, safety data sheets pursuant to prevailing European legislation for all chemical products.

O20 Other substances excluded from use

The following substances are not permitted as additives in materials or in the chemical products used in the manufacture of Nordic Swan Ecolabelled floor coverings:

- Substances on the Candidate List*.
 - *Exemption applies to Melamine (CAS No. 108-78-1).*
- Persistent, bioaccumulative and toxic (PBT) organic substances**.
- Very persistent and very bioaccumulative (vPvB) organic substances**.
- Substances considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances that are to be investigated further for endocrine disruptive effects. See following link:
http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf (Annex L, page 238 onwards)
- APEO – alkylphenol ethoxylates and other alkylphenol derivatives (substances that release alkylphenols on degradation).
- Halogenated organic substances, for example organic chloroparaffins, fluorine compounds and halogenated fire retardants ***
- Phthalates
- Aziridine and polyaziridines

- Pigments and additives based on lead, tin, cadmium, chromium VI and mercury, or compounds of these.
- Volatile organic compounds at more than 1% by weight

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

** *PBT and vPvB substances are defined in Annex XIII of REACH (Regulation (EC) No 1907/2006). Substances that meet, or substances that form substances that meet, the PBT or vPvB criteria are listed at <http://esis.jrc.ec.europa.eu/index.php?PGM=pbt>. Substances that are “deferred” or substances “under evaluation” are not considered to have PBT or vPvB properties.*

*** *Epoxy acrylate used in surface treatment products cured by UV, are not covered by the requirement bullet point Halogenated organic substances.*

*** *Polymers containing polymerized vinylchloride are permitted in adhesives and sealants, in concentrations under 2.0 weight% polymerized vinylchloride in the final product.*

*** *Halogenated organic paint pigments that meet the EU’s requirements concerning colourants in food packaging under point 2.5 of Resolution AP (89) and DBNPA (2,2-Dibromo-3-Nitropropionamide) in bactericidal purpose and bronopol (preservatives) at a level ≤500 ppm is exempted. See O19.*

Note the national legislations concerning PFOA in the Nordic countries. In Norway PFOA is regulated in «Forskrift om begrensning i bruk av helse- og miljøfarlige kjemikalier og andre produkter (produktforskriften)», §2- 32.

- Declaration from the manufacturer of the chemical product and/or the material, in accordance with Appendix 9. In addition, safety data sheets pursuant to prevailing European legislation for all chemical products.

021 VOC in adhesives

Adhesives are permitted to contain no more than 3% by weight volatile organic compounds (VOC).

- Declaration from the manufacturer of the chemical product, in accordance with Appendix 9. In addition, safety data sheets pursuant to prevailing European legislation for all chemical products.

022 Antibacterial substances and biocides

The following substances must not be added to fibres or to the finished floor covering for the purpose of achieving a disinfectant or antibacterial treatment or a disinfectant or antibacterial surface:

- Antibacterial substances (including silver ions, nanosilver and nanocopper) and/or
- Biocides in the form of pure active substances or as biocidal products.

- Declaration from the flooring manufacturer showing that the requirement is fulfilled. Appendix 11 can be used.

023 Nanoparticles

Nanoparticles (from nanomaterial*) must not occur in chemical products or in the finished Nordic Swan Ecolabelled floor covering. The following are exempt from the requirement.

- Pigments**
- Naturally occurring inorganic fillers***
- Synthetic amorphous silica****
- Polymer dispersions

* *The definition of nanomaterials follows the European Commission’s definition from 18 October 2011 (2011/696/EU): “A nanomaterial is a natural, incidental or purposely manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for at least 50% of the particles in the number size distribution, one or more external dimensions is in the size range 1-100 nm.”*

*** nano-titanium dioxide is not considered a pigment, and is thus not covered by the requirement*

**** this applies to fillers covered by Annex V point 7 in REACH.*

***** this applies to traditional synthetic amorphous silica. Chemically modified colloidal silica may occur as long as the silica particles form an aggregate in the end product. For surface treated nanoparticles, the surface treatment must meet the chemical requirements in O17 (Classification of constituent chemical substances) and O20 (Other substances excluded from use).*

- The floor manufacturer must declare any nanomaterials that occur in the product according to Appendix 11.
- Declaration in line with Appendix 9 from the manufacturer/supplier of the chemical product.

4.2 Chemical requirements applicable only to surface treatment

The requirements in this section apply to all surface treatment of floor coverings, irrespective of material/flooring type.

O24 Quantity applied and application method

The following is to be documented: number of coats, quantity applied (g/m²) and application method(s) used.

When calculating quantities applied, the following efficacy rates* are to be used:

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

** The efficacy rates are model values. Other efficacy rates may be applied if they can be documented.*

- Number of coats, application method and quantity applied per coat per m² surface area. Appendix 10 can be used.

O25 Environmentally harmful products and substances in surface treatment systems

Chemical products used in surface treatment systems (e.g. fillers, oils, stains, lacquers) must fulfil one of the following two alternatives.

- a) None of the chemical products are classified as environmentally harmful according to the table below.

or

- b) The quantity of environmentally harmful substances applied in the surface treatment system may be no more than 60 g/m², calculated in a wet state.

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

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

If alternative b) is used, one of the formulas below is to be used first to calculate the amount of environmentally harmful substances in the respective surface treatment product (%):

100*H410 + 10*H411 + H412

H410 is the concentration of substances classified as H410 in percent

H411 is the concentration of substances classified as H411 in percent

H412 is the concentration of substances classified as H412 in percent

All environmentally harmful substances that are present in the unhardened chemical products, and are classified according to the table below, are to be included in the calculation.

Hazard class	Hazard category and hazard phrase in line with CLP Regulation 1272/2008	Hazard designations and risk phrases in line with EU Dangerous Substances Directive 67/548/EEC
Toxic to aquatic organisms	Chronic 1 with H410	N; R50-53
	Chronic 2 with H411	N; R51-53
	Chronic 3 with H412	R52-53

The quantity of environmentally harmful substances applied in the coating system is then calculated as follows:

$$\frac{\text{Applied quantity of respective product (g/m}^2\text{)} \times \text{Proportion of environmentally harmful substances in product (\%)} }{\text{Surface treatment efficacy (\%)}}$$

When calculating quantity applied, the same efficacy rates are used as those stated in O24.

If information about a substance's harmfulness to the environment (in the form of data concerning toxicity and degradability or toxicity and bioaccumulation) is not available, the substance is treated as a worst case, i.e. as environmentally harmful – H410.

For tinting systems, a worst-case calculation is made for the colour with the most tinting paste in the base paint containing the most environmentally harmful substances.

- Material Safety Data Sheet according to European legislation for all chemical products.
- Alternative b) requires a declaration from the manufacturer/supplier of the surface treatment product stating the content of environmentally harmful substances. Appendix 9 can be used. For each constituent classified substance, the concentration in the chemical product must be stated as a percentage by weight. Confidential details from the chemical manufacturer in the form of content declarations/formulations can be sent directly to Nordic Ecolabelling.
- Alternative b) requires details of the number of coats, the application method and the quantity applied per coat, stated as g/m² flooring. Appendix 10 can be used.
- For UV-curing products: Description of the process and how waste and residual waste are handled, including information about who receives the residual waste from the performer of the surface treatment.

O26 Volatile organic compounds (VOC) – surface treatment systems only

Within each surface treatment system, the total content of volatile organic compounds (VOC) in surface treatment products must either:

- a) be below 5% by weight in total, or
- b) amount to a maximum of 2 g/m² treated surface in total.

The requirement relates to the total VOC in the chemical products with the chemical composition they have in wet form. If the products required dilutions, the calculation is to be based on the content in the dilutive product. When calculating quantity applied, the same efficacy rates are used as those stated in O24.

The applied quantity of VOC according to alternative b) is calculated using the following formula:

$$\frac{\text{Applied quantity (g/m}^2\text{)} \times \text{Proportion VOC in surface treatment (\%)}}{\text{Surface treatment efficacy (\%)}}$$

- Material Safety Data Sheet according to European legislation for all chemical products.
- Alternative b) requires a declaration from the manufacturer/supplier of the surface treatment product stating the VOC content. Appendix 9 can be used. For each VOC, the concentration is to be stated as a percentage by weight. If necessary, details from the chemical manufacturer in the form of content declarations can be sent directly to Nordic Ecolabelling.
- Alternative b) requires details of the number of coats, the application method and the quantity applied per coat, stated as g/m² flooring. Appendix 10 can be used.

5 Indoor climate

Producers of wooden based floors can document requirements on indoor climate either through O27 or through O28 (in addition to the VOC requirement of surface treatment in O27).

Other, non-wood-based floors must document that they comply with relevant parts of the requirements O27.

O27 Emissions from the floor covering

The floor covering is to be tested in accordance with CEN/TS 16516, ISO 16000-3/-6/-9/-10 or an equivalent method. Sampling is to be carried out by an accredited third-party.

Emissions from Nordic Swan Ecolabelled floor coverings shall not exceed the levels in the table below.

Substances or groups of substances	Limit value after 28 days in µg/m ³ *
TVOC (C6-C16) in wooden and linoleum flooring	300
TVOC (C6-C16) in plastic flooring	160
SVOC (C16-C23) in wooden and linoleum flooring	100
SVOC (C16-C23) in plastic flooring	30
Formaldehyde in wooden and linoleum flooring	60
Formaldehyde in plastic flooring	30

* Conversion between µg/m²h and µg/m³, plus requirements for analysis laboratory and test methods are described in Appendix 1.

Other analysis methods can be accepted if they are judged to be equivalent by an independent and competent body.

- Analysis report showing that the limits in the table above are met. It should be clearly stated which test standard that is used, which laboratory that has performed the analysis and that the laboratory is accredited by an independent third party, see Appendix 1. A valid certificate from relevant indoor climate labels can also be used as documentation if an independent expert confirms that the label fulfils the requirements.

O28 Formaldehyde emission from flooring

Floors containing formaldehyde-based additives or substances that emit formaldehyde must fulfil a) or b) below.

Floors consisting of Nordic Swan Ecolabelled boards already meet the requirements. In this case, state the name and license number of the manufactured board.

a) The average content of free formaldehyde must not exceed 5 mg formaldehyde/100 g dry substance for MDF board and 4 mg/100 g dry substance for other types of manufactured board in accordance with the current version of EN 120 or an equivalent method approved by Nordic Ecolabelling, see Appendix 1.

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

If the board has a different moisture content within the range 3-10%, the measured perforator value must be multiplied by the factor F , which is calculated using the following formula:

For chipboard: $F = -0.133 H + 1.86$

For MDF panels: $F = -0.121 H + 1.78$

b) The average emission of formaldehyde must not exceed 0.08 mg formaldehyde/m³ air for MDF panels and 0.07 mg formaldehyde/m³ air for other types of manufactured board in accordance with the current version of EN 717-1 or an equivalent method approved by Nordic Ecolabelling, see Appendix 1.

- ☒ Analysis report, including measurement methods, measurement results and measurement frequency. It must be clearly stated which testing standard was used, which laboratory conducted the analysis, and that the analysis laboratory is an independent third party, see Appendix 1.

6 Energy requirements

Energy consumption is calculated as an annual average. The following delimitations apply for what is included in the energy calculation:

- Electricity and fuel consumed in drying and sawing is included in the calculation for parquet flooring, bamboo flooring and solid wood floor.
- For flooring that includes wood-based board in its structure, the energy consumed in the manufacture of the board is to be included.
- For other flooring, the only the energy used in the final manufacturing of the flooring/in the flooring factory is included in the energy consumption

At least 95% by weight of the raw materials in the flooring must be included in the calculation of energy consumption. Energy consumption in the manufacture of adhesives and lacquers used in the manufacture of the flooring is not included in the calculation.

For energy, Nordic Ecolabelling has chosen the unit kWh/m², but this can be converted as follows: 1 kWh = 3.6 MJ.

029 Energy consumption for Nordic Swan Ecolabelled floor coverings

An energy calculation is to be made, and the total must amount to at least:

$$E = \frac{A}{20} + \left(5 - \frac{B}{3}\right) + \left(5 - \frac{C}{7}\right)$$

- E shall be at least 11.0 for solid wood flooring
- E shall be at least 8.0 for linoleum flooring, parquet flooring, laminate flooring, bamboo flooring and cork flooring
- E shall be at least 8.5 for plastic flooring.

The following applies for the individual energy components:

Environmental parameters	Requirement/limit value
A = Proportion of renewable fuel (%)	—
B = Electricity consumption (kWh/m ²)	Maximum 15 kWh/m ²
C = Fuel consumption (kWh/m ²)	Maximum 35 kWh/m ²

Energy consumption relates to electricity purchased from an external supplier.

If the manufacturer has surplus energy and sells this in the form of electricity, steam or heat, the amount sold is deducted from the fuel consumption figure. Only fuel that is actually consumed in the manufacture of the floor coverings is to be included in the calculation.

The energy content of different fuels can be found in Appendix 13.

- Enclose the calculation of E as set out above.
- State which types of fuel have been used in the manufacture of the floor covering over the past year, and which fuels are renewable. State how much electricity has been used and how much flooring (m²) has been produced over the past year. Appendix 12 can be used.

7 Waste requirement

030 Handling of waste and production waste

The flooring manufacturer shall sort waste at source into the fractions that arise during production, including production waste. Furthermore, a plan for separating waste must be drawn up, stating waste fractions, and describing how the waste is dealt with (e.g. recycling, landfill and incineration).

Hazardous waste must be treated and dealt with in accordance with the regulations applicable in the country of manufacture.

- Waste plan featuring waste fractions and waste recipients. Declaration of hazardous waste, if applicable, and a statement on how hazardous waste is handled in accordance with the regulations applicable in the country of manufacture.

8 Functional requirements

031 Durability

Only the requirements associated with the specific type of flooring have to be fulfilled.

All Nordic Swan Ecolabelled floor coverings must achieve at least the following classes, see also table below:

- User class 33 for floor coverings intended for professional/public use.
- User class 23 for parquet flooring intended for private use.
- User class 22+ for other floor coverings intended for private use.

Semi-hard flooring and laminate flooring are to be tested and classified in accordance with the standards EN 14041 and ISO 10874 or EN 12104 (cork tiles).

Factory lacquered wood flooring, parquet flooring and floors with wood veneer are to be tested in accordance with EN 13696 and classification shall be done according to EN 14354. Parquet flooring can, as an alternative to test of durability, calculate durability and fulfil standard CTBA.

If the flooring has been tested according to a test method other than what is specified below, this may be acceptable if the test methods are comparable in the opinion of an independent third party.

For factory oiled, untreated wood and parquet flooring, the product must be accompanied by a recommendation for floor care to ensure that the durability of the floor will be maintained.

The wear resistance of floor coverings other than those mentioned above shall be tested according to test methods selected by an independent test institute specialized in wear tests for flooring. The test method shall be selected taking into account the intended use area of the floor.

Area of use	Class of use	Intensity of use
Private use/Domestic	21	Moderate/light
	22	General/average
	22+	General
	23	Hard
Professional/public use/offices and commercial premises	31	Moderate
	32	General
	33	Hard
	34	Very hard

The requirements for testing institutes are stated in Appendix 1.

- Test report from an independent testing institute that the requirement is fulfilled.

O32 Product information

The following product information is to be enclosed with the Nordic Swan Ecolabelled floor covering:

- Recommended subfloor for the floor covering.
- Recommended upper limit for the subfloor's relative humidity and temperature when laying the floor covering.
- Which adhesive is recommended for joining the flooring together and gluing to the subfloor. If there are suitable Nordic Swan Ecolabelled adhesives, these are to be recommended. Recommended methods for laying and joining the flooring are also to be provided.
- If the flooring is to be welded together, a method for this is to be stated.
- Recommended cleaning method including cleaning products. If there are suitable Nordic Swan Ecolabelled cleaning products, these are to be recommended.
- Recommended maintenance methods, including maintenance products. If there are suitable Nordic Swan Ecolabelled maintenance products, these are to be recommended.
- Treatment is to be recommended for oiled and untreated flooring (type/quantity of oil or lacquer) in order to achieve the intended durability.
- The flooring's areas of use are to be stated. See classes in requirement O31.
- The flooring manufacturer is to inform the customer about how the service life of the flooring can be extended through renovation, e.g. sanding and surface treatment.

- Enclose a copy of the product information given to customers.

033 Wet room approval

Floor coverings marketed and sold for wet rooms are to be approved for their intended use in wet rooms according to the national industry standard:

- approved as a surface layer in wet rooms and/or
- approved as a waterproof barrier in wet rooms, (acting as a barrier behind ceramic materials and natural stone)

Installation instructions tailored to wet rooms are to accompany the flooring and be made available on the manufacturer's website.

- Approval according to national industry standards.
- Installation instructions that accompany the flooring and are available on the website.

9 Quality and regulatory requirements

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

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

034 Legislation and regulations

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

- Declaration from the licensee that the requirement is met, and details of the regulatory authority.

035 Nordic Swan Ecolabel licence person

The company shall appoint a person responsible for ensuring the fulfilment of Nordic Ecolabelling 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.

036 Documentation

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

- ☞ Checked on site.

037 Quality of floor coverings

The licensee must guarantee that the quality of the production of the Nordic Swan Ecolabelled floor covering is 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 Swan Ecolabelled floor covering.

038 Planned changes

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

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

039 Unplanned nonconformities

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

- Procedures detailing how unplanned nonconformities are handled.

040 Traceability

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

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

Regulations for the Nordic Ecolabelling of products

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

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

Follow-up inspections

Nordic Ecolabelling may decide to check whether the floor covering fulfils Nordic Ecolabelling requirements during the licence period. This may involve a site visit, random sampling or similar test.

The licence may be revoked if it is evident that the floor covering does not meet the requirements.

Criteria version history

Nordic Ecolabelling adopted the criteria for Floor Coverings on 18 November 2014. The criteria is valid until 31 December 2019.

On 28 October 2015 the Nordic Criteria Management Group decided on the exception for the preservative bronopol in concentrations not exceeding 500 ppm. The new criteria document is 6.1.

On 27 January 2016 the Nordic Criteria Management Group decided to introduce the new requirements on forestry. Applicants can choose to either fulfil the requirements on wood introduced in version 6.0 (part A) or the new wood requirements listed in part B.

On 16 March 2016 the Nordic Criteria Management Group decided on the following adjustments of the criteria document version 6.0:

- For requirement O15 the limit is raised to 15% by weight.
- And exception is introduced in O20 to clarify that epoxy acrylate in UV-varnishes are not banned or restricted.
- Requirement O31 on durability are completed with a calculation method regarding parquet flooring.
- An error on Appendix 9 regarding CMR-substances is corrected.

All these adjustments are covered on the new criteria version 6.1.

On 14 June 2016, the Nordic Ecolabelling Board decided to change the share of raw material (wood and bamboo) from certified areas to 50 %. See requirement O5. On June 21, 2016, the Nordic Criteria Management Group decided to make an exemption for polymerized vinyl chloride in sealants and adhesives, in concentrations up to 2.0 weight%. See requirement O20. Both changes are presented in the new criteria version 6.2.

Nordic Ecolabelling's Criteria Group decided on 14 December 2017 to prolong the criteria with 24 months to the 31 December 2021. The new version is 6.3.

Nordic Ecolabelling's Criteria Group decided on 15 March 2018 to adjust the requirements O17 to harmonize with the corresponding requirements in the criteria of Nordic Ecolabelling for Textiles. The new version is 6.4.

On August 16, 2018, the Nordic Ecolabelling Criteria Group decided on adjustment in requirement O20. The adjustment allows DBNPA (2,2-Dibromo-3-Nitilopropionamide) for bactericidal purposes at the level of ≤ 500 ppm. The new version is 6.5.

Nordic Ecolabelling's Criteria Group decided on 16 December 2019 to prolong the criteria with 18 months to the 30 June 2023. The new version is 6.6.

On 2 June 2020 the Nordic Ecolabelling Board decided to make a change in requirement O4 for prohibited tree species. On 15 September 2020, Nordic Ecolabelling decided to make an exception for titanium dioxide classified Carc 2 H351 in requirement O17. The new version is 6.7.

On 9 March 2021 the Nordic Ecolabelling decided an adjustment of requirement O25 where UV-curing surface treatment products are excluded from the calculation of environmentally hazardous substances if the surface treatment takes place in a controlled closed process without discharge to sewage. The new version is 6.8.

On 8 February 2022 the Nordic Ecolabelling decided an adjustment of requirement O17 where adhesives containing isocyanates are exempted from the classification H373. The new version is 6.9.

Nordic Ecolabelling decided on 5 April 2022 to prolong the validity of the criteria to the 31 December 2024. The new version is called 6.10.

Nordic Ecolabelling decided on 28 June 2022 to make an adjustment of requirement O17 where resins with melamine are exempted from the classification prohibitions H351, H361 and H373. The new version is 6.11.

On December 7th 2022, an exemption has been added in requirement O17 for printing inks classified as Repr. 2 H361 because of photoinitiators. The new version is called 6.12.

On April 18th 2023, Nordic Ecolabelling decided to remove references made to textile flooring and some of the related requirements from the documents. Textile flooring can now be labelled under Nordic Ecolabelling's criteria for textile floor coverings and carpets instead. At the same time, an exemption to SVHC melamine was granted and it was made clearer that test for 1,3-butadiene content was irrelevant for natural latex. The new version is called 6.13.

Nordic Ecolabelling decided on 30 January 2024 to prolong the validity of the criteria to the 31 March 2025. The new version is called 6.14.

New criteria

- Investigate the possibility of developing indoor environment requirements for individual harmful volatile organic compounds based on harmonized LCI values
- Develop the energy requirement further
- Investigate the possibility of making requirements for the best PVC floors
- Investigate the possibilities and environmental benefits of setting more requirements related to climate gas emissions

Appendix 1 Laboratories and methods for testing and analysis

Requirements for testing and analysis laboratories

Sampling is to be carried out in a competent manner. The analysis laboratory/testing institute must be impartial and competent.

If accreditation is not separately required, the testing and/or analysis laboratory shall fulfil the general requirements of standard EN ISO 17025 on general requirements for the competence of testing and calibration laboratories or have official GLP status.

The applicant's own testing laboratory may be approved for analysis and testing if:

- the authorities monitor the sampling and analysis process, or if
- the manufacturer has a quality management system encompassing sampling and analysis and has been certified to ISO 9001 or ISO 9002, or if
- 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 that the manufacturer takes samples according to a set sampling plan.

Emissions to water, oxygen demanding substances (COD/TOC/BOD)

Analysis method: Oxygen demanding substances must be analysed in line with the international standard ISO 6060 Water quality-determination of the chemical oxygen demand. If another analysis method is used, the licence applicant must show that it is equivalent. Analysis of PCOD or BOD can also be used to verify whether a correlation with COD can be demonstrated. The measurement method for TOC is ISO 8245 Guidelines for the determination of total organic carbon (TOC) and dissolved organic carbon (DOC).

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

Sampling: Water samples must be taken once the process wastewater has been treated in an internal purification plant, if available. The flow at sampling must be shown. If the process wastewater is treated externally together with other effluent, the documented treatment/efficiency level of the external treatment plant must be deducted from the analysis result. Analyses must be carried out on unfiltered and un sedimented samples in line with the international standard ISO 6060.

Metal complex dyes

Analysis method: Emissions of copper (Cu) and nickel (Ni) must be analysed in line with ISO 8288. Emissions of chromium (Cr) must be analysed in line with EN 1233 or using equivalent methods.

Harmful substances in unprocessed wool and other keratin fibres

Sampling and analysis of the specified substances must be carried out according to IWTO (Draft) Test Method 59.

Azo dyes

Analysis method: Standard EN 14362-1 for analysing aromatic amines derived from azo colourants in textile fibres. Standard EN 14362-3 describes a supplementary method for the determination of certain aromatic amines (aniline and 1,4-phenylenediamine) derived from azo colourants.

Polyester

Analysis method: The antimony content must be determined through the method of direct determination by atomic absorption spectrometry. The analysis must be carried out on the raw fibre before wet treatment.

Acrylic

Analysis method: Emissions of acrylonitrile must be measured and analysed through extraction with boiling water and quantification with capillary gas-liquid chromatography.

Butadiene in latex

Analysis method: Sampling with headspace sampler. The sample is pulverised and weighed. Analysis with gas chromatography and detection with a flame ionisation detector.

N-nitrosamines

Sampling: A test report completed in line with the chamber test method ENV 16000-9 must be presented. Sampling must be carried out within a week of the foam being produced. The latex sample must be wrapped individually in aluminium foil and vacuum packed in polythene. The wrapped sample must be kept at room temperature for at least 24 hours before being unwrapped and immediately placed in an environmental chamber.

Testing conditions: The latex sample is placed in a holder for the test substance that allows contact with the air on all sides. The environmental conditions of the chamber must comply with ENV 13419-1. For the test results to be comparable, the area specific ventilation rate ($q=n/l$) must be 1 and the ventilation rate must be within the range 0.5-1. Taking of air samples begins 24 hours and ends no later than 30 hours after the test substance being placed in the chamber.

The following method must be applied for taking and analysing the air samples: Hauptverband der gewerblichen Berufsgenossenschaften ZH ISO 1/120.23 (or equivalent).

Test methods emissions**Emissions from the floor covering**

Emissions from the floor covering must be tested in line with the following relevant standards or equivalent methods:

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

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

Conversion between emission rate and concentration in a model room

SP Technical Research Institute of Sweden has drawn up a report for the Norwegian Green Building Council (NGBC) which compares emissions requirements at M1 level with other emission tests². Examples of conversion between the different tests are shown.

Information from this report can be used as the basis for converting the requirement limits for C (concentration in the model room, $\mu\text{g}/\text{m}^3$) to E (emission rate, $\mu\text{g}/\text{m}^2\text{h}$) to for requirement O28. The conversion assumes that the sampling is carried out in line with ISO 16000-9 or -10 at a temperature of $23 \pm 2^\circ\text{C}$ and a relative humidity of $50 \pm 5\%$. The following formula is used:

$$C = \frac{E}{q} = \frac{EA}{nV}$$

C = concentration of a VOC in the model room ($\mu\text{g}/\text{m}^3$)
 E = area specific emission rate ($\mu\text{g}/\text{m}^2\text{h}$)
 q = area specific air flow rate ($\text{m}^3/\text{m}^2\text{h}$)
 A = area of sample in the model room (m^2)
 n = air exchange rate, in changes per hour
 V = volume of the model room, in m^3

SP's report states that if a measurement is taken in line with ISO 16000-9 or -10, the concentration is calculated based on a model room with a volume of 17.4 m^3 and an air exchange rate of 0.5 h^{-1} . The floor area is 7 m^2 and the room height 2.4 to 2.5 m. This means that for flooring products q , "area specific air flow rate" is $1.25 \text{ m}^3/\text{m}^2\text{h}$. The conversion in O28 is carried out on the basis of these figures. Since 1 January 2014, M1 has referred on its website³ to a model room of 30 m^3 , but for floor coverings the ratio will remain the same⁴. The floor area is 12 m^2 , making q 1.25. This change to the model room is in line with the standard CEN/TS 16516:2013. The following conversions can be made for the levels in O28:

Substances or groups of substances	Limit value after 28 days in $\mu\text{g}/\text{m}^3$ (concentration)	Conversion to emissionrate after 28 days in $\mu\text{g}/\text{m}^2\text{h}$
TVOC (C6-C16) in wooden and linoleum flooring	300	372
TVOC (C6-C16) in plastic flooring	160	198 (comparable to M1 level, 200)
SVOC (C16-C23) in wooden and linoleum flooring	100	124
SVOC (C16-C23) in plastic flooring	30	37
Formaldehyde in wooden and linoleum flooring	60	74
Formaldehyde in plastic flooring	30	37

It is worth noting that q varies depending on how much space the product is assumed to occupy in the model room. For example, it is different for floor and wall products (in line with ISO 16000-9 and -10). If converting emission rate (E) to concentration in the model room (C) for a wall product, $q = 0.4 \text{ m}^3/\text{m}^2\text{h}$. In other words, C will be roughly 3 times higher for a wall product than for a flooring product. It is important to be aware of this for products that can be used for both walls and flooring, e.g. manufactured board.

Formaldehyde in wood-based board

To determine the content of free formaldehyde, the latest applicable European standard for the perforator method must be used. Subsequently the EN 120 standard applicable at the time must be

² Emission test methods in BREEAM-NOR and comparisons with other emission test methods, SP Technical Research Institute of Sweden, 2013, http://ngbc.no/sites/default/files/SP-rapport%20om%20emisjonskrav%20i%20BREEAM-NOR%20vs%20andre%20ordninger_3.pdf

³ www.rakennustieto.fi

⁴ Correspondence with SP Technical Research Institute of Sweden, January 2014

applied until the method is ultimately replaced by another EN method. Other test methods such as JIS A 1460 or equivalent can be used on application to Nordic Ecolabelling. It must be clearly stated which test method has been used and if conversion factors have been used, this must be documented.

European standard EN 717-1 is recommended as an appropriate chamber method for wood-based board. An alternative method for EN 717-1 can be EN 16000-9 with measuring of formaldehyde after 28 days. Subsequently the EN-standard applicable at the time for determining reference emission values must be applied. Other test methods such as ASTM D6007-2 or equivalent can be used on application to Nordic Ecolabelling. It must be stated which method has been used and if conversion factors have been used, this must be documented.

Cleaning quality of textile floors

Prior to testing, the carpet's cleanliness shall be examined by Method A or Method B. If the result gives a dust index exceeding 0.0 the carpet shall be cleaned by vacuuming until the result is dust index 0.0.

The carpet should be smudged with 2.0 g/m² test dust of type "AC Spark Plug, Fine Air Cleaner Test dust from natural Arizona dust", which shall give a dust index of about 30% (Method A)/ approx. 1.5% (method B).

The carpet shall be vacuumed with a Nilfisk Advance GU 350A vacuum cleaner (900 W) or equivalent, with carpet nozzle (without brushes). Nozzles shall run 1x over the surface with a speed of 0.1 m/sec.

Residual dust is measured by Method A or Method B.

Appendix 2 Material composition

This appendix shall be completed and signed by the floor manufacturer.

Flooring manufacturer:
Name of the product(s):

The table below shall give a description of:

- The materials involved and the percentage composition of the material in the floor and the name of all the suppliers of materials.
- The function of every material/component (e.g. fillers and surface treatment agents).
- If case recycled materials is used, specified which type of recycled material is used, see O2.

Nordic Ecolabelling will also accept complete worksheets or similar from the applicant as long as all required information is given.

Supplier	Material/component	Function	Weight in kg	Weight %

Is the flooring free from chlorinated plastics (PVC/vinyl and PVDC/polyvinylidene chloride)?

 Yes

 No

Signature of flooring manufacturer:

Date	Company
Signature by contact person	
Name of contact person	Phone

Appendix 3a Declaration of wood, cork or bamboo raw materials (supplier)

Flooring manufacturer
Product/wood/cork/bamboo raw material
Manufacturer/supplier of wood/cork/bamboo raw material

For the documentation of wood raw material:

- Type of wood and geographical origin (country/state and region/province).

The following table can be used if a supplier supplies more than one product:

Component/part of flooring*	Supplier of wood/cork/bamboo raw material	Type of wood/cork/bamboo (in a nordic language)	Geographical origin (country/state and region/province).	Possible certification code

*The column is filled in by the manufacturer of flooring

Has the wood, cork or bamboo raw materials been treated with pesticides classified by WHO as type 1A and/or type 1B after felling? Yes No

Signature of manufacturer or supplier of wood

Date	Company
Signature by contact person	
Name of contact person	Phone

Appendix 3b Basis for calculation of certified proportion wood, cork or bamboo raw material

To verify that, at least 50% of the wood, cork and bamboo content, on an annual basis are derived from areas where forestry operations are certified pursuant to a forestry standard and certification system that meet the criteria stated in Appendix 4 the:

- Table and calculation below, shall be filled in by the manufacturer of floor coverings.
- Documentation shall be submitted, to verify that certified wood/cork/bamboo is delivered to the manufacturer of the Nordic Swan Ecolabelled product. For example, a copy of a contract and/or specified invoices.

Financial figures are not relevant and are not necessary to be cleared.

Supplier	Product/wood raw material	Amount*	Geographical origin	Certification code (e.g. FSC/PEFC)	Proportion (%)certified

**Either volume or weight can be used as long as the same unit is used all through the table.*

The proportion of timber/cork/bamboo derived from certified forests is calculated as follows:

$$\frac{\text{Amount wood/cork/bamboo from certified forestry}}{\text{Total amount wood/cork/bamboo in the floor}}$$

Signature of floor manufacturer

Date	Company
Signature by contact person	
Name of contact person	Phone

Appendix 3c Declaration of tree species not permitted or restricted to be used in Nordic Swan Ecolabelled products

Name of the Nordic Swan Ecolabel applicant
Product group/type
Version and date of the list of prohibited and restricted tree species used

It is hereby declared that tree species listed in the list of prohibited and restricted tree species (Nordic Ecolabelling – Prohibited Wood) is not used in the Nordic Swan Ecolabelled product.

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

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

Applicant / manufacturer / supplier's signature

Date	Company
Signature by contact person	
Name of contact person	Phone

Appendix 4 Directions for forestry certification

Nordic Ecolabelling sets requirements on the standards to which forestry is certified. These requirements are described below. Each individual national forestry standard and each certification system is reviewed by Nordic Ecolabelling as to fulfilment of the requirements. When a forestry standard is revised, it is re-reviewed.

Requirements on forestry standards

The standard must balance economic, ecological and social interests and comply with the Rio Declaration's forestry principles, Agenda 21 and the Forest Principles, and respect relevant international conventions and agreements.

The standard must contain absolute requirements and promote and contribute towards sustainable forestry. Nordic Ecolabelling places special emphasis on the standard including effective requirements to protect the forest from illegal felling and that the requirements protect the biodiversity of the forest.

The standard must be available to the general public. The standard must have been developed in an open process in which stakeholders with ecological, economic and social interests have been invited to participate.

The requirements related to forestry standards are formulated as process requirements. The basis is that if stakeholders agree on the economic, social and environmental aspects of the forestry standard, this safeguards an acceptable requirement level.

If a forestry standard is developed or approved by stakeholders with ecological, economic and social interests, the standard may maintain an acceptable standard. Accordingly, Nordic Ecolabelling requires that the standard balances these three interests and that representatives from all three areas are invited to participate in development of the forestry standard.

The standard must set absolute requirements that must be fulfilled for the certification of the forestry. This ensures that the forest management fulfils an acceptable level regarding the environment. When Nordic Ecolabelling requires that the standard shall "promote and contribute towards sustainable forestry", the standard must be assessed and revised regularly to initiate process improvement and successively reduce environmental impact.

Requirements on certification system

The certification system must be open, have significant national or international credibility and be able to verify that the requirements in the forestry standard are fulfilled.

Requirements on certification body

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

The purpose of certification is to ensure that the requirements regarding forestry standards are fulfilled.

The certification system must be designed to verify that the requirements of the forest standard are fulfilled. The method used for certification must be repeatable and applicable to forestry. Certification must be in respect to a specific forestry standard. The forest must be inspected prior to certification.

Requirements on Chain of Custody (CoC) certification

Chain of Custody certification must be issued by an accredited, competent third party (as for forest certification).

The system shall stipulate requirements regarding the chain of custody that assure traceability, documentation, and controls throughout the production chain.

If recycled fibre, wood shavings or sawdust are used, the pulp manufacturer must verify that this originates from recycled materials.

Requirements on organic production

With regard to certified organic fibre raw material or production that is in the transition to organic production, the vegetable raw materials must be produced and checked in accordance with Council Regulation (EEC) No 2092/91 or 834/2007, or produced and checked in an equivalent way according to an equivalent regulatory system such as KRAV, SKAL, IMO or OCIA.

NB! Bamboo may either be certified according to a sustainable forestry standard or organic production.

Documentation

Copy of forestry/ fibre raw material standard, name, address, and telephone number to the organization who has worked out the standard and audit reports.

References to persons who represents stakeholders with ecological, economic and social interests who have been invited to participate.

Nordic Ecolabelling may request further documents to examine whether the requirements of the forestry standard and certification system in question can be approved.

Appendix 5 Textile fibres

This appendix shall be completed and signed by the fibre supplier.

Manufacturer/supplier:
Name of the product:

Req. O7 Flax, bamboo and other bast fibres

Are all pesticides used, permitted under the European Pesticides Regulation (1107/2009/EC)? Yes No Not applicable

Req. O10 Polyester

Does the amount of antimony in the polyester fibre measured as an annual average exceed 260 ppm? Yes No

Alternatively attach a test report showing that the requirement is fulfilled

Requirements for testing and analysis laboratories are given in Appendix 1.

Req. O13 Chemical additives in fibre production

Does any of the substances below occur in any of the preparations/products/formulations used in fibre production? Yes No Not applicable

- alkylphenol ethoxylates (APEO)
- linear alkylbenzene sulphonates (LAS)
- dihydrogenated tallow dimethyl ammonium chloride (DHTDMAC)
- distearyl dimethyl ammonium chloride (DSDMAC)
- ditallow dimethyl ammonium chloride (DTDMAC)
- ethylenediaminetetraacetic acid (EDTA)
- diethylenetriamine pentaacetate (DTPA)

Signature of fibre supplier:

Date	Company
Signature by contact person	
Name of contact person	Phone

Appendix 6 Polyurethane

This appendix shall be completed and signed by polyurethane supplier

Manufacturer/supplier:
Name of the product:

Req. 09 Polyurethane

Are isocyanates used in a closed process? Yes No

Is prescribed protective equipment used? Yes No

Are halogenated flame retardants used in the polyurethane material? Yes No

Signature of polyurethane supplier:

Date	Company
Signature by contact person	
Name of contact person	Phone

Appendix 7 Foamed material

This appendix shall be completed and signed by the foamed material supplier

Manufacturer/supplier:
Name of product:

Req. O16 Additional requirements for polyurethane foam

Is tin in its organic form (tin bonded to a carbon atom) used? Yes No

Is CFC, HCFC, HFC (hydrofluorocarbons) or methylene chloride used as a foaming agent? Yes No

Describe the expansion process: _____

Are isocyanates used in a closed process? Yes No

Is prescribed protective equipment used? Yes No

Are requirements from authorities regarding the use of isocyanates followed? Yes No

If no, please explain:

Signature of foam material supplier:

Date	Company
Signature by contact person	
Name of contact person	Phone

Appendix 8 Classification of chemical products

The chemical requirements cover all chemicals and chemical products added to the floor covering material or used in the manufacture of the floor covering, including surface treatments. Here, manufacture is defined as all manufacturing/treatment conducted by the manufacturer, but also by its suppliers of raw materials or constituent products.

This appendix is completed and signed by the chemical supplier based to the best of his/her knowledge at the time of the application, also based on tests and/or declarations from raw material manufacturers, with reservations for new advances and new knowledge.

Chemical product name:
Manufacturer/supplier:
Type of chemical product (e.g. adhesive, paint) and its area of use:

Req. O17 Classification of chemical products

Is the product/raw material classified according to the table below? Yes No

If yes, which classification? _____

Classification under CLP Regulation 1272/2008		Classification under Dangerous Preparations Directive 1999/45/EC 2008
Hazard class and category	Hazard phrases	Hazard class and risk phrases
Toxic to aquatic organisms Category acute 1 Chronic 1-2	H400, H410, H411	N with R50, R50/53, R51/53
Hazardous to the ozone layer	H420	R59
Acute toxicity Category 1-3	H300, H310, H330, H301, H311, H331,	T+ with R26, R27, R28, R39 T with R23, R24, R25, R39, R48
Specific target organ toxicity (STOT) with single and repeated exposure STOT SE category 1-2 STOT RE category 1-2	H370, H371, H372, H373	T+ with R39 T with R39, R48 Xn with R68
Carcinogenic Carc 1A/1B/2	H350, H350i or H351	T with R45 and/or R49 (Carc 1 or Carc 2) or Xn with R40 (Carc 3)
Mutagenic Mut 1A/B/2	H340, H341	T with R46 (Mut 1 or Mut 2), Xn with R68 (Mut 3)
Toxic for reproduction Repr 1A/1B/2	H360, H361, H362	T with R60, R61, R64, R33 (Repr 1 or Repr 2), Xn with R62, R63, R64, R33 (Repr 3)

- Chemical products for surface treatment are exempted from the requirement concerning the classification "Toxic to aquatic organisms/Dangerous to the environment" since these are regulated in a separate requirement, O25.

- Adhesive products that contain isocyanates are exempted from the classification prohibition H351/R40 and H373. Isocyanates in the production of polyurethane and polyurethane foam are regulated in O9 and O16.

- Adhesive products with formaldehyde are exempted from the classification prohibition H350/R45 and H341/R68. Formaldehyde in wood-based panels is regulated in O27 and O28.

- Accelerators for linoleum production may be exempted from the requirements H400 and H410, and may be present in amounts up to 1% by weight of the linoleum.
- In can preservatives are exempted from the requirement's hazard statement H351 but shall fulfil O19.
- Exception is made for titanium dioxide (TiO₂) classified Carc 2 H351 which is added in powder form during production of the floor.
- Resins with melamine are exempted from the classification prohibitions H351, H361 and H373.

Signature of chemical product manufacturer:

Date	Company
Signature by contact person	
Name of contact person	Phone

Appendix 9 Declaration on the contents of chemical products and/or flooring material

Applies to all substances, chemicals and chemicals products added to the flooring material or used in the manufacture of the floor, including surface treatments. Applies also to any flooring material that is manufactured from virgin and recycled plastic and rubber. Here, manufacture is defined as all manufacturing/treatment conducted by the flooring manufacturer, but also by its suppliers of raw materials or constituent products.

This declaration is completed and signed by the chemical product or material supplier/manufacturer based on the knowledge we have at the time of the application, based on tests and/or declarations from raw material manufacturers, with reservations for new advances and new knowledge.

Product name:
Manufacturer/supplier:
Product's function/product group (e.g. adhesive, paint):

The term constituent substance refers to all substances in the product, including additives in the ingredients (such as preservatives and stabilisers) but does not include impurities from primary production. Impurity refers to residues from primary production which may be found in the finished product at concentrations below 100 ppm (0.01% by weight, 100 mg/kg), but not substances that have been added to a raw material or the product actively and for a particular purpose, irrespective of quantity.

Impurities of over 1% concentration in the primary product are, however, regarded as constituent substances. Substances known to be degradation products of the constituent substances are also themselves considered to be constituent substances.

For two-component products it is the added ingredients in the separate components that shall comply with the requirement. Alternatively, if it can be documented that protective equipment was worn when the hardener was mixed with the paint/varnish and the finished two-component product was applied in a closed system, the requirement may apply to the hardened product.

Req. O18 CMR substances

Does the chemical product contain any of the following CMR substances? Yes No

- Carcinogenic category 1A/1B (Carc with R45/H350 and/or Carc R49/H350i)
- Mutagenic category 1A/1B (Mut with R46/H340)
- Toxic for reproduction category 1A/1B (Rep with R60/H360F and/or R61/H360)

Is the declaration about CMR substances done for a hardened two component product? Yes No

If yes, the chemical product is part of a two-component product, is safety equipment used when the hardener is mixed with the paint/lacquer and is the application of the finished two-component product done in a closed system? Yes No

Req. O19 Preservatives

Does the product contain any of the following?

- Isothiazolinones at more than 500 ppm Yes No
- Bronopol (CAS-no 52-51-7) at more than 500 ppm Yes No
- A blend (3:1) of CMIT/MIT
(Chloromethylisothiazolinone CAS no. 26172-55-4 and
Methylisothiazolinone CAS no. 2682-20-4) at more than
15 ppm Yes No
- Methylisothiazolinone at more than 200 ppm Yes No

Req. O20 Other substances excluded from use

Does the chemical product contain or is the flooring material being added any of the following:

- Substances on the Candidate List*. Yes No
- Persistent, bioaccumulative and toxic (PBT) organic substances**. Yes No
- Very persistent and very bioaccumulative (vPvB) organic substances**. Yes No
- Substances considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances that are to be investigated further for endocrine disruptive effects. Yes No
- APEO – alkylphenol ethoxylates and alkylphenol derivatives (substances that release alkylphenols on degradation). Yes No
- Halogenated organic substances*** Yes No
- Phthalates? Yes No
- Aziridine and polyaziridines Yes No
- Pigments and additives based on lead, tin, cadmium, chromium VI and mercury, or compounds of these. Yes No
- Volatile aromatic compounds at more than 1% by weight Yes No

* The Candidate List can be found on the ECHA website at: <http://echa.europa.eu/sv/candidate-list-table>. Melamine (CAS No. 108-78-1) is exempted.

** PBT and vPvB substances are defined in Annex XIII of REACH (Regulation (EC) No 1907/2006). Substances that meet, or substances that form substances that meet, the PBT or vPvB criteria are listed at <http://esis.jrc.ec.europa.eu/index.php?PGM=pbt>. Substances that are "deferred" or substances "under evaluation" are not considered to have PBT or vPvB properties.

***Epoxy acrylate used in surface treatment products cured by UV, are not covered by the requirement bullet point Halogenated organic substances.

****Polymers containing polymerized vinylchloride are permitted in adhesives and sealants, in concentrations under 2.0 weight% polymerized vinylchloride in the final product.*

****Halogenated organic paint pigments that meet the EU's requirements concerning colourants in food packaging under point 2.5 of Resolution AP (89) and bronopol up to 500 ppm are exempted. See O19.*

Req. O21 VOC in adhesives

Does the adhesive contain VOC (volatile organic compounds) in more than 3% by weight? Yes No

Req. O23 Nanoparticles

Does any chemical product used in the finished Nordic Swan Ecolabelled floor covering contain nanoparticles (from nanomaterial*)? Yes No

The following are exempt from the requirement.

- Pigments**
- Naturally occurring inorganic fillers***
- Synthetic amorphous silica****
- Polymer dispersions

** The definition of nanomaterials follows the European Commission's definition from 18 October 2011 (2011/696/EU): "A nanomaterial is a natural, incidental or purposely manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for at least 50% of the particles in the number size distribution, one or more external dimensions is in the size range 1-100 nm."*

*** nano-titanium dioxide is not considered a pigment, and is thus not covered by the requirement*

**** this applies to fillers covered by Annex V point 7 in REACH.*

***** this applies to traditional synthetic amorphous silica. Chemically modified colloidal silica may occur as long as the silica particles form an aggregate in the end product. For surface treated nanoparticles, the surface treatment must meet the chemical requirements in O18 (Classification of constituent chemical substances) and O20 (Other substances excluded from use).*

Req. O25 Environmentally harmful substances

Does the surface treatment product contain any environmental hazardous substances? Yes No

If yes, state chemical name, CAS-no and content in % by weight:

Req. O26 Volatile Organic Compounds (VOC)

Does the surface treatment product contain VOCs? Yes No

If yes, state chemical name, CAS-no and content in % by weight:

Signature of chemical product or material manufacturer

Date	Company
Signature by contact person	
Name of contact person	Phone

Appendix 10 Chemical requirements applicable only to surface treatment

This declaration shall be completed and signed by the surface treatment contractor.

Surface treatment contractor:
Name of the product:

Req. O24 Quantity applied and application method

Give a short description of the surface treatment:

Number of coats: _____

Quantity applied (g/m²): _____

Application method(s): _____

Req. O25 Environmentally harmful products and substances in surface treatment systems, alternative b)

Is the quantity of environmentally harmful substances applied in the surface treatment system not more than 60 g/m², calculated in a wet state? Yes No

Follow a calculation example in "Appendix 10, continuation" and instruction below:

1) First, one of the formulas below is to be used to calculate the total amount of environmentally harmful substances in the surface treatment system (%):

$$100 \cdot H410 + 10 \cdot H411 + H412$$

H410 is the concentration of substances classified as H410 in percent

H411 is the concentration of substances classified as H411 in percent

H412 is the concentration of substances classified as H412 in percent

All environmentally harmful substances included in the unhardened chemical products are to be included in the calculation. Classification according to the table below.

Hazard class	Hazard category and hazard phrase in line with CLP Regulation 1272/2008	Hazard designations and risk phrases in line with EU Dangerous Substances Directive 67/548/EEC
Toxic to aquatic organisms	Chronic 1 with H410	N; R50-53
	Chronic 2 with H411	N; R51-53
	Chronic 3 with H412	R52-53

2) Thereafter, the amount of applied substances in the surface treatment system is calculated according to below equation:

$$\frac{\text{Applied quantity of respective product (g/m}^2\text{)} \times \text{Proportion of environmentally harmful substances in product (\%)} }{\text{Surface treatment efficacy (\%)}}$$

Req. O26 Volatile organic compounds (VOC) – surface treatment systems only, alternative b)

State the total amount of VOC in the surface treatment system in g/m²:

Signature of surface treatment contractor

Date	Company
Signature by contact person	
Name of contact person	Phone

Appendix 10, continuation:**Calculation example over applied sum environmentally harmful substances (O25) and application sum of VOC (O26) in surface treatment systems:**

The manufacturer of flooring uses 3 products in the surface treatment system and roller coating technique is used (efficiency rate 95 %).

The products contain:

Product A: applied with 10 g/m²

Product B: applied with 20 g/m²

Product C: applied with 10 g/m²

First, the environmental hazardousness is weighted for each surface treatment chemical product according to the weight equation in O25:

Product	Content of env.hazardous substances (%)			
	H410	H411	H412	= weighted env.hazardous content (%)
A	0	1	0	10
B	0	18	0,5	180,5
C	1	5	1	151

Thereafter the sum of the applied environmental hazardous substances in the surface treatment system is calculated using the above presented weighted content for each product (with consideration taken for the efficacy of the application method). Below equation is used:

$$\text{Applied quantity of each surface chemical product (g/m}^2\text{)} \times \text{proportion env.hazardous substances in the respective product (\%)} \\ / \text{surface treatment efficacy}$$

Hence:

Product	Applied amount (g/m ²)	Weighted env.hazardous content (%), see above	Applied amount env.hazardous substances (g/m ²)
A	10	10	1
B	20	180,5	36,1
C	10	151	15,1
Total application of env. hazardous substances:			52,2 g/m ²
Total application of env. hazardous substances (considering application method efficacy):			54,9 g/m ²

The surface treatment system has therefore applied a weighted total sum env.hazardous substances of 54,9g/m² which fulfils the limit value of 60g/m².

Appendix 11 Antibacterial treatment of the floor

The appendix is completed and signed by the floor manufacturer:

Floor manufacturer:
Name of product:

Req. O22 Antibacterial substances and biocides

Have any of the below substances been added to fibres or to the finished floors surface for the purpose of achieving a disinfectant or antibacterial treatment/surface? Yes No

- Antibacterial substances (including silver ions, nanosilver and nanocopper)
- Biocides in the form of pure active substances or as biocidal products

Req. O23 Nanoparticles

Does the floor contain nanoparticles (from nanomaterial*)? Yes No
The following are exempt from the requirement.

- Pigments**
- Naturally occurring inorganic fillers***
- Synthetic amorphous silica****
- Polymer dispersions

* The definition of nanomaterials follows the European Commission's definition from 18 October 2011 (2011/696/EU): "A nanomaterial is a natural, incidental or purposely manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for at least 50% of the particles in the number size distribution, one or more external dimensions is in the size range 1-100 nm."

** nano-titanium dioxide is not considered a pigment, and is thus not covered by the requirement

*** this applies to fillers covered by Annex V point 7 in REACH.

**** this applies to traditional synthetic amorphous silica. Chemically modified colloidal silica may occur as long as the silica particles form an aggregate in the end product. For surface treated nanoparticles, the surface treatment must meet the chemical requirements in O18 (Classification of constituent chemical substances) and O20 (Other substances excluded from use)

Signature of floor manufacturer

Date	Company
Signature by contact person	
Name of contact person	Phone

Appendix 12 Declaration of energy consumption

Floor manufacturer:
Name of product:

Please declare following energy data, based on annual average figures. Different delimitations for the energy consumption calculation are relevant for different floor types:

- Electricity and fuel consumed in drying and sawing is included in the calculation for parquet flooring, bamboo flooring and solid wood floor.
- For flooring that includes wood-based board in its structure, the energy consumed in the manufacture of the board is to be included.
- For other flooring, the only the energy used in the final manufacturing of the flooring/in the flooring factory is included in the energy consumption

Energy consumption in the manufacture of adhesives and lacquers used in the manufacture of the flooring is not included in the calculation.

Declare the electricity consumption used in the production of the floor [kWh/MJ]:

Declare the fuel consumption for each fuel type used in the production of the floor [kWh/MJ]:

Declare the production quantity of the floor [m²]:

Signature of floor manufacturer

Date	Company
Signature by contact person	
Name of contact person	Phone

Appendix 13 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 (1 kWh = 3.6 MJ)

Energy source/ Fuel type	Energy content FIN ¹⁾ GJ/ton	Energy content SE ²⁾ GJ/ton	Energy content DK ³⁾ GJ/ton	Energy content NO ⁴⁾ GJ/ton	2012/27/EC Energy content* GJ
Petrol	44,3	43,7 (37,8 MJ/l)	43,8	43,9	44,0
Diesel	42,8	43,3 (35,3 MJ/l)	42,7	43,1	
LPG	46,2	46,0	46,0	46,1	45,2
Eo1 oil	42,8	40,6 (35,8 MJ/l, EO-1)	-	43,1	42,3
Eo5 oil	41,1 (sulphur<1%)	43,1 (40,5 MJ/l, EO-5)	40,65 (fuel olie)	40,6	440,0
Natural gas	36,0 (GJ/1000 m ³)	44,1 (GJ/1000 m ³)	39,55 (GJ/1000 m ³)	40,3 (GJ/1000 Sm ³)	47,2
Power station coal	25,0	27,2	24,23	28,1	28,5
Pellets (7% W)	16,0	16,8	17,5	16,8	16,8
Peat	10,1 - 12,3	9,3 - 12,8 (50 % - 35 % W)	-	-	7,8 - 3,8
Straw (15% W)	13,5		14,5		
Biogas	23,0 (GJ/1000 m ³)		23,0 (GJ/1000 m ³)		
Wood chips (45% W)	10,5		9,3		13,8 (25 %W)
Waste wood	12,0	12,1 (30 % W)	14,7	16,25 - 18 (dry)	

* Energy efficiency directive, 2012/27/EC, Annex IV, «Energy content of selected fuels for end use».

1) Statistiskcentralen i Finland, Fuel classification 2013.

2) Värmeforsk, Miljöfaktaboken 2011.

3) Energistyrelsen, Energy statistic 2012

4) Statistisk Centralbyrå. Notater Documents 30/2013. The Norwegian Emission Inventory 2013.

(% 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:⁵⁾

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.

5) 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.