Nordic Ecolabelling for

Outdoor furniture, playground and park equipment

Version 4.0 • date – date

Nordic Ecolabelling

Content

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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.

Addresses

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

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What is Nordic Swan Ecolabelled outdoor furniture, playground and park equipment?

Based on a life cycle perspective, Nordic Ecolabelling sets requirements concerning constituent substances, chemical products, wood preservation methods, service life and maintenance. Requirements are also set concerning the content of recycled raw material in the products. The product must be repairable and separable in order that constituent materials can be reused or recycled, in order to contribute to circular material flows.

Nordic Swan Ecolabelled outdoor furniture, playground and park equipment:

- Guarantees that plastics and metals contain high proportions of recycled material in order to reduce the climate footprint.
- Guarantees that the wood raw material is sourced from sustainable forestry.
- Meets strict requirements concerning substances in the material that are harmful to health and the environment.
- Performs well in terms of safety, strength and stability.
- Has a documented long life span/durability and constituent parts that can be separated out, repaired and replaced in a drive to promote circular material flows.

Why choose the Nordic Swan Ecolabel?

- The licensee may use the Nordic Swan Ecolabel trademark for marketing. The Nordic Swan Ecolabel is a very well-known and well-reputed trademark in the Nordic region.
- The Nordic Swan Ecolabel is a simple way of communicating environmental work and commitment to customers.
- The Nordic Swan Ecolabel clarifies the most important environmental impacts and thus shows how a company can cut emissions, resource consumption and waste management.
- Environmentally suitable operations prepare for future environmental legislation.
- Nordic Ecolabelling can be seen as providing a business with guidance on the work of environmental improvements.
- The Nordic Swan Ecolabel covers not only environmental issues but also quality requirements, since the environment and quality often go hand in hand. This means that a Nordic Swan Ecolabel licence can also be seen as a mark of quality.

What can carry the Nordic Swan Ecolabel?

Nordic Ecolabelling's criteria for Outdoor furniture, playground and park equipment allow the Nordic Swan Ecolabel to be applied to the following examples of products intended for outdoor use, primarily in a public environment, but also for private use:

- Outdoor furniture such as chairs, tables and benches.
- Play equipment for both conventional playgrounds and nature playgrounds. These include climbing frames, swings, playhouses, sand pits and slides.
- Outdoor gym and parkour equipment.
- Other outdoor products covered by these criteria include paling, railings, noise barriers, bins, flagpoles, bike racks, sheds for wood/bikes/waste/tools and bus shelters.

Outdoor furniture, playground and park equipment that is not mentioned above may be assessed, on request, by Nordic Ecolabelling and then included in the product group.

The following cannot be Nordic Swan Ecolabelled:

- Outdoor furniture containing stuffing or fabrics
- Safety surfacing for playgrounds and surfacing for sports facilities such as artificial grass pitches
- Bicycles and toys
- Outdoor furniture mainly comprising materials other than those for which the criteria set requirements, e.g. concrete outdoor furniture
- Tools
- Swimming jetties
- Terrace/balcony flooring

How to apply

Application and costs

For information about the application process and fees for this product group, please refer to the respective national website. For addresses see page 3.

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

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

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

On-site inspection

In connection with handling of the application, Nordic Ecolabelling normally performs 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 page 3 for addresses. Further information and assistance (such as calculation sheets or electronic application help) may be available. Visit the relevant national website for further information.

1 Product description

O1 Description of the product

The applicant must provide the following information about the product that is to be Nordic Swan Ecolabelled:

- Trade name
- A description including an image/drawing of the product(s), the constituent materials and the percentage by weight of each constituent material.
- A description of production methods/treatment techniques.
- Suppliers of each material.

Any fitting for anchoring in the ground is not considered part of the outdoor furniture, playground and park equipment and is not covered by any requirements.

Small parts such as screws are excluded from the calculation, as they fall within the triviality limit (section 3.2).

✉ Duly completed Appendix 1 or equivalent documentation.

✉ Product sheet, construction product declaration or technical description, if any such document has been drawn up for the product.

Background

The requirement is important for correct processing of the licence application and assessment of which requirements must be met for the product to be Nordic Swan Ecolabelled.

2 Solid wood, wood-based panels/fibre raw material, veneers and bamboo

This chapter covers requirements concerning solid wood, veneers, wood-based panels and bamboo. Sheets of high-pressure laminate (HPL) are not covered by this chapter, and instead must meet the requirements in Chapter 7.

The chemicals used/added must comply with the requirements in Chapter 11.

Small details such as wedges, spacers and so on are exempted from the requirements in this chapter.

Nordic Swan Ecolabelled products automatically meet the requirements. Only the manufacturer, licence number and product name must be stated.

O2 Prohibited tree species

The requirement applies to all product parts that contain solid wood, veneers and bamboo.

Woods on Nordic Ecolabelling's list of prohibited tree species (http://www.nordic-ecolabel.org/wood/) must not be used in outdoor furniture, playground and park equipment.

✉ Declaration from the licence applicant/manufacturer/supplier that the requirement is fulfilled. Submit a duly completed Appendix 2.

O3 Wood from certified forestry

The requirement applies to all product parts that contain solid wood, veneers and bamboo accounting for more than 10% by weight of the product.

1. The applicant must state the names (tree/species name) of the wood raw material used in the Nordic Swan Ecolabelled product.

2. Suppliers of wood raw materials must be Chain of Custody certified by the FSC scheme or the PEFC scheme.

Suppliers who only supply product parts made of recycled material do not need to have Chain of Custody certification. For a definition of recycled material, see "Definitions".

3. At least 70% of the wood raw material must be certified by FSC or PEFC as originating from sustainable forestry or be classified as recycled material*.

The remainder of the raw material must be covered by FSC/PEFC's control schemes or be classified as recycled material*.

The requirement must be documented as the amount of wood purchased on an annual basis. If the manufacturer of the product holds Chain of Custody certification in line with FSC/PEFC, certified credits (FSC and PEFC credits) must be deducted from the manufacturer's Chain of Custody account for the Nordic Swan Ecolabelled product.

**Recycled (raw) material is defined according to ISO 14021, see section 3.2 Definitions.*

✉ Name (wood type/species name) of the wood raw materials used.

✉ Valid Chain of Custody certificate under the FSC or PEFC schemes from suppliers. Suppliers who only supply recycled material do not need to have Chain of Custody certification.

✉ Recycled raw material: Declaration from the supplier that the wood raw material has been recycled in line with the prescribed definition.

✉ If the supplier holds Chain of Custody certification, the manufacturer must demonstrate that certified wood raw material has been purchased. This is to be specified on an invoice with information on the proportion of certified wood raw material. A manufacturer who holds FSC/PEFC Chain of Custody certification must document compliance with the requirement, by showing the applicant/manufacturer's Chain of Custody account.

O4 Formaldehyde emissions from wood-based panels

The requirement relates to finished products comprising ≥ 10 wt% wood-based panels that contain formaldehyde-based additives or where the surface treatment contains formaldehyde.

The requirement does not include HPL panels, which instead must meet the requirements in Chapter 7.

One of the requirements below must be fulfilled for the panels being used:

1. The content of free formaldehyde, determined in line with ISO 12460-5 or an equivalent method approved by Nordic Ecolabelling, must not exceed an average of:

- 5 mg formaldehyde/100 g dry substance for MDF panels*
- 4 mg/100 g dry material for other types of panel

The requirement applies to panels with a moisture content of H = 6.5%.

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

- For particleboard and OSB: F = -0.133 H + 1.86
- For MDF*: F = -0.121 H + 1.78

* HDF is treated as MDF and must comply with the same limit value.

2. **Formaldehyde emissions** determined in line with EN 717-1, must not exceed an average of:

- 0.124 mg/m^3 air for MDF*
- 0.07 mg/m^3 air for other panels

As an alternative to test method EN 717-1, the methods and limit values in Table 1 may be used.

* HDF is treated as MDF and must comply with the same limit value.

Table 1 **Nordic Ecolabelling's limit values for formaldehyde emissions when using other test methods.**

	ISO 16000-9 (23°C/50% RH)	ASTM E1333 (25°C/50% RH)	JIS A 1460
MDF	0.05 mg/m^2/h	0.09 ppm	0.90 mg/l
Other panels	0.03 mg/m^2/h	0.08 ppm	0.53 mg/l

3. Certification of wood-based panels. The following certificates may be used to document the requirement:

- E1 certificate for MDF panels.
- M1 certificate for MDF panels.
- CARB ATCM Phase II certificate for all types of wood-based panels.
- Certificate according to Indoor Air Comfort or Indoor Air Comfort Gold for all types of wood-based panels.

✉ Alternatives 1 and 2: Analysis report, including measurement method, measurement results and measurement frequency. Name of the accredited test institute/laboratory that performed the analyses.

✉ Alternative 3: Valid certificate for **wood-based panels.**

✉ Declaration from the manufacturer/supplier of the **wood-based panels** stating compliance with the requirement, Appendix 3.

O5 Energy requirement

The requirement covers products that contain ≥ 10 wt% wood-based panels.

The requirement does not include HPL panels, which instead must meet the requirements in Chapter 7.

The consumption of energy, both electrical and thermal, is calculated as an annual average for either the production of the panel that will form part of the Nordic Swan Ecolabelled product or the entire operation. See Appendix 4 for the calculation's system limits.

Requirement level:

- Chipboard: max 7 MJ/kg panels produced
- Panels of wood fibre/veneer and laminated panels: max 11 MJ/kg panels produced

✉ Calculation showing that the requirement is fulfilled. The calculation must contain information on quantity of panels produced, amount of electricity and energy consumed, and energy source.

3 Durability of solid wood and wood-plastic composite materials

This chapter relates to solid wood and wood-plastic composite materials.

Wood preservatives must meet the chemical requirements in Chapter 11.

O6 Durability

The requirement only applies to solid wood and wood-plastic composite materials.

- The timber must be documented as having good durability, i.e. resistance to moisture and fungal attack. To provide sufficient durability, one of the methods/materials in Table 3 must be used.
- Impregnation with heavy metals and/or biocides is accepted only for products that are firmly anchored in the ground or other substrates and fall within user class UC 4.
- Nordic Swan Ecolabelled durable/resistant wood for outdoor use automatically meets this requirement.

Table 2 **Various methods for protecting wood and the requirements for documentation of durability that apply for each use class.**

Wood protection method	Use class as per EN 335	Required documentation of durability
Wood with natural durability	UC 3 and UC 4	Durability class DC 1 (very durable) or DC 2 (durable) as per EN 350
Preservative-treated, thermally and chemically modified wood classified in accordance with NTR	UC 3	NTR ABmod
	UC 4	NTR Amod
Preservative-treated, thermally and chemically modified wood *not* classified in accordance with NTR	UC 3	Approved testing in line with: - CEN/TS 15083-1 excluding testing with Coriolus versicolor after separate accelerated ageing in line with EN 73 and EN 84. - CEN/TS 12037 - Approved results must be assessed by an independent party with experience in the field.
	UC 4	Approved testing in line with: - CEN/TS 15083-1 including testing with Coriolus versicolor after separate accelerated ageing in line with EN 73 and EN 84. - ENV 807 - EN 252 for at least five years in three locations, two of which are in a Nordic country. - Approved results must be assessed by an independent party with experience in the field.
Preservative-treated impregnated timber		
	UC 4	NTR A

✉ State user class as per EN 335.

✉ For woods with natural durability: enclosed name of wood and durability class as per EN 350.

✉ For preservative-treated (impregnated or modified) timber: enclose NTR certificate.

✉ Declaration/document/drawing showing that the product that includes impregnated wood is firmly anchored in the ground or other substrate.

✉ For thermally or chemically modified timber that is not NTR classified: enclose test reports and assessment of the results, verified by an independent party with experience in the field. Enclose a brief description of the experience in judging and assessing the durability of wood.

✉ When using Nordic Swan Ecolabelled durable/resistant wood for outdoor use, state the producer, licence number and product name.

4 High Pressure Laminate (HPL) panels

This chapter sets requirements on two levels, depending on whether the product contains ≥ 10 wt% or ≥ 30 wt% HPL panels.

Nordic Swan Ecolabelled HPL panels automatically meet the requirements. In this case, only the manufacturer, licence number and product name must be stated.

4.1 Requirement where HPL panels are ≥ 10 wt% of the finished product

Where the product contains ≥ 10 wt% HPL, the chemical requirements in Chapter 11 must also be fulfilled for all the chemical products used in the manufacture of the HPL.

O7 Energy requirement for HPL panel production

The energy used in the production of the HPL panel must not exceed the following limit values as an annual average:

- HPL panels ≤ 2 mm thick: 18 MJ/kg HPL produced
- HPL panels > 2 mm thick: 14 MJ/kg HPL produced

The requirement does not include energy used for resource extraction or production of constituent raw materials. Self-generated energy (see section 3.2 Definitions) and surplus energy that is sold on must be stated, but not included in the calculation.

✉ Calculation showing that the requirement is fulfilled. The calculation must contain the number of panels produced (broken down according to the panels thickness), the amount of energy used and the type of energy.

O8 Emissions in the work environment during HPL production

Production of HPL panels in one of the Nordic countries is assumed to meet the statutory requirements in that country. This requirement is to be verified when the HPL production takes place outside the Nordic region.

A test method as set out in EN 689 or EN 482, or an equivalent method that is approved by Nordic Ecolabelling, must be used.

Measurement results for the past 12 months are to be submitted for assessment of employees' individual exposure to formaldehyde and phenol.

The following limit values for emissions to air in the workplace must not be exceeded during the production of HPL panels:

- **Limit value expressed in relation to a reference period of 8 hours as a time-weighted average (TWA):**
- Limit value for formaldehyde: 0.5 ppm or 0.6 mg/m^3
- Limit value for phenol: 2 ppm or 8 mg/m^3

and

- **Limit value expressed in relation to a short-term value that does not exceed 15 min.:**
- Limit value for formaldehyde: 1.0 ppm or 1.2 mg/m^3
- Limit value for phenol: 4 ppm or 16 mg/m^3

✉ Results from air measurements for phenol and formaldehyde over the past 12 months, including sampling schedule, test method and measurement frequency.

or

✉ Description showing that national statutory requirements are met for production in one of the Nordic countries.

4.2 Requirement where HPL panels are ≥ 30 wt% of the finished product

The requirements below relate only to kraft paper. Decor paper is exempt from the requirements.

Calculation sheet drawn up by Nordic Ecolabelling may be used to calculate energy.

O9 Wood in paper

The following requirements must be met for paper used in the production of HPL:

- The names of the woods used to manufacture the paper must be stated. Woods on Nordic Ecolabelling's list of prohibited tree species (http://www.nordic-ecolabel.org/wood/) must not be used. The requirement only applies to virgin fibre and thus not to recycled fibre.*
- The paper manufacturer must hold Chain of Custody certification from FSC or PEFC.
- For certified wood fibre and/or recycled fibre, one of the following three alternatives must be fulfilled on an annual basis:

a) 70% of the fibre raw material in the paper must be certified by FSC or PEFC

b) The paper must be labelled FSC or PEFC Recycled. Alternatively, 70% of the fibre raw material must comprise recycled fibre

c) If the fibre raw material in the paper comprises less than 70% recycled fibre, the proportion of fibre raw material that comes from certified areas of forest is to be calculated using the following formula:

$Y\ (\%) \geq 70 - x$

Y = proportion of fibre raw material from certified forestry

x = proportion of recycled fibre or by-products such as shavings, chips and sawdust

** Recycled material is defined as pre-consumer and post-consumer as per ISO 14021. See further definition in section 3.2.*

✉ Information on the names of the woods used and a declaration of compliance with the requirement concerning prohibited tree species.

✉ Copy of the paper manufacturer's FSC or PEFC Chain of Custody certificate.

✉ Certified wood fibre alternative a): Invoice between the paper manufacturer and the laminate manufacturer showing that FSC/PEFC certified paper is being purchased.

✉ Certified wood fibre alternative b): Invoice between the paper manufacturer and the laminate manufacturer showing that paper labelled as FSC or PEFC Recycled is being purchased. Alternatively, a declaration from the paper manufacturer that the requirement concerning content of recycled fibre is fulfilled. Recycled fibre that is not FSC/PEFC certified must be covered by EN 643 delivery notes.

✉ Certified wood fibre alternative c): Calculation by the paper manufacturer of the proportion of fibre raw material that needs to be FSC/PEFC certified and documentation of how this is being fulfilled.

O10 COD emissions from paper and pulp production

Total emissions to water of oxygen-consuming substances, measured as COD, must not exceed the value stated in Table 4. COD is calculated by adding the COD from pulp (kg/ADt) + COD emissions from the paper machine (kg/ADt).

Where paper is manufactured using blends of chemical, recycled fibre and mechanical pulps, a weighted limit value is calculated from the proportions of the different pulp types.

Table 3 **Requirement levels for COD emissions for pulp and paper**

Pulp type	Total COD emissions (kg/ADt) for pulp and paper
Unbleached chemical pulp	14.0
CTMP pulp	19.0
TMP/Groundwood pulp	7.0
Recycled fibre pulp	4.0

✉ Information on which types of pulp have been used to manufacture the paper.

✉ Description of the sampling procedure, including measurement methods and measurement results over the past 12 months, from the manufacturers of the paper and pulp.

✉ Calculation from the manufacturers of the paper and pulp, showing that the total COD emissions fall below the relevant limit value in the requirement. When using pulp that has been checked based on Nordic Ecolabelling's current Basic Module for paper products, state the producer, the production location and the name of the pulp.

O11 Energy requirement for paper and pulp production

The following total energy points (P) must be achieved for paper and pulp production:

$P_{electricity\ (total)} < 2.5$

$P_{fuel\ (total)} < 2.5$

For paper comprising solely of TPM/MGW produced on-site, the limit value for $P_{fuel\ (total)}$ is 1.25.

$P_{electricity\ (total)}$ and $P_{fuel\ (total)}$ include energy points from both the paper production and the pulps that are used in the paper, see detailed explanation in Appendix 5.

✉ The pulp/paper manufacturer must submit calculations in line with Appendix 5, showing that the requirement limit has been met. Worst case calculations are to be included, to show that each pulp recipe fulfils the requirements, unless separate calculations are reported for each pulp mix.

✉ When using pulp that has been checked based on Nordic Ecolabelling's applicable Base Module for paper, state the producer, the production location and the name of the pulp.

5 Plastic and rubber

The requirements in this chapter must be fulfilled for the parts of the product that comprise plastic and/or rubber. Small plastic parts such as screws, nails and so on that weigh less than 100 g are not subject to the requirements below. For requirements concerning constituent substances used as additives in plastic and rubber or for surface treatment, see Chapter 11.

The requirements in this chapter (O12–O17) do not apply to plastic in wood-plastic composite (WPC) materials. Instead, the requirements in Chapter 9 must be fulfilled.

O12 Information and labelling

State the types of plastic, additives and reinforcement that are included in the various plastic parts in the finished product.

Plastic parts weighing ≥ 100 g must be visibly labelled in accordance with ISO 11469 and ISO 1043.

✉ Declaration from the plastic manufacturer/supplier. Appendix 7 can be used.

O13 Polyvinyl chloride (PVC) and polyvinylidene chloride (PVDC)

The following must not contain PVC or PVDC:

1. Plastic parts in the product
2. Packaging for the product

✉ Declaration from the plastic manufacturer/supplier, Appendix 7

✉ Declaration from the packaging manufacturer/supplier, Appendix 8

O14 Nitrosamines in rubber

The following limit values must be observed:

Total level of nitrosamines: ≤ 0.01 mg/kg rubber.

Total level of nitrosamine-forming substances: ≤ 0.1 mg/kg vulcanised rubber.

✉ Declaration from the rubber manufacturer, Appendix 7

O15 PAH in plastic, silicone and rubber

The requirement applies only to playground equipment for children and only to the parts that a child will come into contact with during normal use of the product, e.g. the seat of a swing.

The limit values for selected polycyclic aromatic hydrocarbons (PAH) as listed in Table 5 must be observed. The impurity limit of 100 ppm thus does not apply for this requirement.

The PAH content may be determined using gas chromatography (GC) or mass spectrometry (MS).

Table 4 **Limit values for selected PAHs in materials**

Substance name	CAS no.	Limit value
Benzo[A]Pyrene	50-32-8	< 0.5 mg/kg
Benzo[E]Pyrene	192-97-2	< 0.5 mg/kg
Benzo[A]Anthracene	56-55-3	< 0.5 mg/kg
Dibenzo[A,H]Anthracene	53-70-3	< 0.5 mg/kg
Benzo[B]Fluoranthene	53-70-3	< 0.5 mg/kg
Benzo[J]Fluoranthene	205-82-3	< 0.5 mg/kg
Benzo[K]Fluoranthene	207-08-9	< 0.5 mg/kg
Chrysene	218-01-9	< 0.5 mg/kg

✉ Declaration from the plastic producer that the requirement is fulfilled, Appendix 7

✉ Report on the results for each of the different polymer materials, showing compliance.

5.1 Requirement when plastic accounts for more than 20 wt% of the product

The different types of plastic that make up more than 1 wt% of the plastic material are to be added up. If the sum total exceeds 20 wt% of the product, the following requirement must be fulfilled.

O16 Recycled/recovered plastic

Where products comprise more than 20% plastic by weight (wt%), at least 50% of this plastic must be recycled plastic*. Both pre- and post-consumer/industrial plastic may be counted towards the proportion of recycled plastic.

The recycled/recovered plastic must not be PVC or PVDC.

** See definition, section 3.2*

✉ Duly completed declaration from the plastic manufacturer/supplier concerning recycled plastic, see Appendix 7.

✉ Calculation, from the applicant, of the proportion of recycled plastic in the finished product.

O17 Chemicals in recycled plastic

Recycled plastic must not contain:

- brominated and chlorinated flame retardants
- cadmium
- lead
- mercury
- chromium (VI)

Impurities up to 100 ppm are permitted.

In addition, there must be a procedure in place to ensure that the recycled plastic does not risk exceeding the limit value in future deliveries.

✉ Documentation in the form of a test report (method XRF, X-ray) from the supplier of the recycled plastic, showing that the requirement is fulfilled. Alternatively, the requirement can be documented by traceability to the source, showing that these substances are not present.

✉ Description/procedure indicating how it is ensured that the recycled plastic does not risk exceeding the limit value in future deliveries.

6 Wood-plastic composite material (WPC)

O18 Wood fibre and plastic

The subsidiary requirements below must be fulfilled by the raw materials of plastic and wood fibre in the wood-plastic composite material:

a) The plastic raw material in WPC must be 100% recycled plastic.

b) The recycled plastic must not be PVC, PVDC or PET.

c) This plastic raw material must have the following composition/origin:

- The proportion of post-consumer plastic, where the source is collected consumer plastic packaging and similar, must be at least 60%.
- The proportion of pre-consumer/pre-industrial/pre-commercial plastic can be no more than 25%.

d) The wood fibre must not originate from wood impregnated with biocides or heavy metals.

✉ WPC manufacturer shall submit the completed Appendix 9.

✉ The recycled plastic supplier shall submit the completed Appendix 10.

O19 Recycled plastic

To ensure the quality of the recycled plastic raw material, it must be produced in a process that includes as a minimum:

- At least two rounds of sorting with NIR
- Sink and float separation step

Other separation and cleaning techniques for recycled plastic may be approved by Nordic Ecolabelling, if they are judged to give equivalent or better results.

✉ The supplier of the recycled plastic raw material must submit a process description showing that the recycling process includes sorting, separation, shredding and cleaning in line with the requirement.

O20 Additives

Chemicals added during WPC production, such as pigments, UV stabilisers and bonding agents, must meet the chemical requirements in Chapter 11.

✉ Submit completed Appendix 11

✉ Safety data sheet as per relevant legislation for all additives

O21 Other requirements for WPC

a) The products must be hollow and be labelled with information on:

- main component parts
- how to proceed with material recovery in the waste phase

b) The products must be covered by at least a 30-year guarantee against rot.

c) The manufacturer must guarantee to take back production waste, returns, incorrect orders and so on in order to fully reintroduce these into the production of new wood-plastic composite.

✉ Image of the WPC profile showing the hollow internal structure.

✉ An image of the labelling stating the main component parts and information on material recovery. The labelling must be placed in the product sheet/technical documentation and on the actual WPC material/profile

✉ Warranty document that includes at least a 30-year guarantee against rot for the WPC material in question.

✉ Submit completed Appendix 9.

7 Metal

O22 Proportion of recycled metal

The requirement covers products that contain ≥ 30 wt% metal.

This metal must meet one of the following requirements:

1. 70% by weight of constituent aluminium and 70% by weight of constituent steel must be recycled. The smelting works must declare the proportion of recycled metal in its production. An annual average is acceptable.

   There must be traceability along the supply chain from the smelting works to the finished product, so the proportion of recycled metal can be assured along the supply chain. This traceability can be demonstrated by presenting an invoice or a declaration from the supplier concerning the percentage of recycled content.

2. Aluminium and steel must jointly meet the following requirement concerning the percentage of recycled metal:

   reAl * kgAl + reSteel * kgSteel ≥ 0,75 * kgAl + 0,70 * kgSteel

   where:

   kgAl and kgSteel are the weight of aluminium and steel expressed in kg.

   re_{Al} and re_{Steel} are the proportion of recycled aluminium and steel, which is to be stated as a number between zero and one (corresponding to 0% to 100%). Pre- and post-consumer/industrial/commercial metal counts as recycled metal.

✉ The proportion of recycled metal in the product must be stated. Declaration from the smelting works concerning the proportion of recycled metal in their production (on an annual basis).

✉ Traceability along the supply chain is to be documented, for example in the form of a flowchart. The proportion of recycled metal in the supply chain must be documented, for example via information on an invoice or a declaration from the supplier. For aluminium, the percentage of recycled material can be documented using Hydro Circal certification.

8 Chemicals requirements

The requirements apply to all chemical products added to the product or material (e.g. in wood-based panels, HPL and WPC). The requirements apply whether the chemical use occurs in the licensee's own production/assembly process or is accounted for by suppliers.

The requirements apply to chemical products such as adhesives, varnishes, wood preservatives, surface coatings, maintenance products, primers, oils, binders and other similar products.

The requirements do not cover process or auxiliary chemicals such as lubricant oils and cleaning agents.

Plastic and rubber do not need to meet requirements O23–O28. However, additives in plastic and rubber and surface coatings on plastic and rubber must meet requirements O24–O31.

Metal plating does not need to meet requirements O23–O31. Instead, it must meet requirements O32 and O33.

In addition to the general chemical requirements in section 11.1, chemicals in surface coatings must comply with sections 11.2–11.4.

Nordic Swan Ecolabelled products and products that carry the EU Ecolabel automatically meet the requirements in this chapter. Only the manufacturer, licence number and product name must be stated. In the case of EU Ecolabelled products, however, documentation must be submitted for requirement O28 concerning nanomaterial.

8.1 General chemical requirements

O23 Classification of chemical products

The chemical products used must not have a classification listed in Table 6 below.

Table 5 **Classification of chemical products**

CLP Regulation 1272/2008:		
Hazard statement	**Hazard class and category**	**Hazard code**
Toxic to aquatic life	Toxic to aquatic life, Acute 1 Toxic to aquatic life, Chronic 1 Toxic to aquatic life, Chronic 2	H400 H410 H411
Harms public health and the environment by destroying ozone in the upper atmosphere	Hazardous to the ozone layer	H420

Acute toxicity	Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 3 Acute Tox. 3 Acute Tox. 3	H300 H310 H330 H301 H311 H331
Specific target organ toxicity: single exposure and repeated exposure	STOT SE 1 STOT RE 1	H370 H372
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
May cause genetic defects	Muta. 1A or 1B Muta. 2	H340 H341
Toxic for reproduction	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362

The classification covers all combinations of stated exposure routes and stated specific effect. For example, H350 also covers classification H350i.

The following exemptions exist

- Formaldehyde, including with the classifications H350, H341, H311 and H331, is regulated in requirement O28. Formaldehyde emissions are dealt with in requirement O4 concerning wood-based panels, while emissions during production are governed by requirement O9 for HPL panels.
- An exception is made for the preservatives bronopol, CMIT/MIT and isothiazolinones, which are classified as an environmental hazard. Preservatives are regulated in requirement O27.
- An exception is made for resins in High Pressure Laminate (HPL) classified as H341, H301 or H331 with max 10 wt% phenol.
- Phenol emissions during the production of HPL panels are dealt with in requirement O9.
- In the case of resin/adhesive, an exception is made for methanol (H301, H311, H331 and H370) in concentrations of max 10 w%.
- Wood preservatives are exempted from the ban on the hazard classes Toxic to aquatic life and Acute toxicity. In this context, wood preservative means an impregnation agent or primer that makes the wood resistant to fungal attack/rot.
- The biocide propiconazole (H360) in wood preservatives is subject to a time-limited exemption that applies until 31.10.2021.
- Surface coatings classified as Toxic to aquatic life that are used on wood-based panels and wood are exempted. Surface treatment of wood and wood-based panels is covered in section 11.2.
- Wood-based panels are subject to an exemption for adhesive products classified as H351 due to MDI (methyl diphenyl diisocyanate).

✉ Safety data sheet in line with prevailing European legislation (Annex II to REACH (Regulation 1907/2006/EEC)).

✉ Chemical producer or supplier shall submit the completed Appendix 11 .

O24 CMR substances

The constituent substances* must not have a classification listed in Table 7.

**See Definitions, section 3.2.*

Table 6 **Non-approved classifications of constituent substances in chemical products**

CLP Regulation 1272/2008:		
Hazard statement	**Hazard class and category**	**Hazard code**
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
May cause genetic defects	Muta. 1A or 1B Muta. 2	H340 H341
Toxic for reproduction	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362

The classification covers all combinations of stated exposure routes and stated specific effect. For example, H350 also covers classification H350i.

Exception:

- Formaldehyde (H350, Carc. 1B and H341, Muta. 2). Formaldehyde content is regulated in requirement O28. In addition, formaldehyde emissions are dealt with in requirement O4 for wood-based panels, while emissions during production are governed by requirement O8 for HPL panels.
- Glyoxal (H341, Muta. 2) in liquid chemical products with pH > 8.
- Methylene diphenyl diisocyanate (MDI) (H351, Carc. 2) for adhesive products in wood-based panels.
- Resin containing phenol (H341, Muta. 2) with max 10 wt% phenol. Phenol emissions during the production of HPL panels are dealt with in requirement O8.
- The biocide propiconazole (H360, Repr. 1) in wood preservatives is subject to a time-limited exemption that applies until 31.10.2021.

✉ Chemical producer or supplier shall submit the completed Appendix 11 .

✉ Safety data sheet in accordance with the statutory requirements in the country of application, e.g. Annex II to REACH (Council Regulation (EC) no. 1907/2006) for all chemical products.

O25 Other prohibited substances in chemical products

The following* are not permitted as constituent substances in a chemical product.

- Substances categorised as Substances of Very High Concern (SVHC) and included on the Candidate List: https://echa.europa.eu/candidate-list-table.
- Substances that have been evaluated in the EU to be PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative), in accordance with the criteria in Annex XIII of REACH, plus substances that have not yet been investigated but that meet these criteria.
- Substances considered to be potential endocrine disruptors in categories 1 or 2 according to official EU lists. The EU's report on endocrine disruptors can be read in its entirety at http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf (Annex L, page 238 onwards).

- Halogenated organic compounds with the following exceptions:

Bronopol, IPBC and CMIT/MIT (3:1), which are regulated in requirement O26.

- Bisphenol A, bisphenol S and bisphenol F.
- Alkylphenol ethoxylates (APEO) and other alkylphenol derivatives (substances that release alkylphenols on degradation).
- Butyl hydroxytoluene (BHT) and butyl hydroxyanisole (BHA).

  An exemption is given for BHT in UV-curing lacquers and paints in amounts up to 0.3% (3000 ppm) in the finished product (lacquer or paint). If BHT is given a harmonized official classification so that the substance does not meet the requirements of the criteria document, the exemption will no longer be valid.

- Phthalates.
- The heavy metals lead, cadmium, chromium (VI), mercury and their compounds.
- Organic tin compounds
- Volatile organic compounds (VOC) must not be present at a level of more than 1% by weight.

[*] *See Definitions, section 3.2*

✉ Safety data sheet in line with prevailing European legislation (Annex II to REACH (Regulation 1907/2006/EEC)).

✉ Chemical producer or supplier shall submit the completed Appendix 11.

O26 Preservatives in chemical products

The limit values for the level of preservatives in a chemical product, as stated in Table 8, must be fulfilled:

Table 7 **Limit values for stated preservatives**

Preservative	Limit value
Bronopol	≤ 0.05 wt%
IPBC (iodopropynyl butylcarbamate)	≤ 0.45 wt%
Blend (3:1) of CMIT/MIT (5 chloro-2-methyl-4-isothiazolinone-3-one / 2-methyl-4-isothiazolinone-3-one)	≤ 0.0015 wt%
MIT (2-methyl-2H-isothiazol-3-one)	≤ 0.01 wt%
Total amounts of isothiazolines	≤ 0.15 wt%

Wood preservatives are exempted from the requirement concerning preservatives. In this context, wood preservative means an impregnation agent or primer that makes the wood resistant to fungal attack/rot.

✉ Safety data sheet in line with prevailing European legislation (Annex II to REACH (Regulation 1907/2006/EF)).

✉ The manufacturer or supplier of the chemical products shall submit the completed Appendix 11

O27 Free formaldehyde in chemical products

The level of free formaldehyde must meet the following:

- For adhesive products containing hardener ≤ 0.2000 wt% (2000 ppm) in the finished mix.
- For other chemical products ≤ 0.0200 wt% (200 ppm).

Resins/adhesives used in the production of HPL panels and laminate production are exempted from the requirement. They are covered instead by requirement O8.

✉ The raw material producer or supplier shall submit the completed Appendix 11.

✉ Safety data sheet in line with prevailing European legislation (Annex II to REACH (Regulation 1907/2006/EEC)).

O28 Nanomaterials in chemical products

Chemical products must not contain nanoparticles (from nanomaterials*).

The following are exempted:

- Pigments**
- Synthetic amorphous silica***
- Naturally occurring inorganic fillers****
- Polymer emulsions
- Aluminium oxide

* *See Definitions, section 3.2.*

** *Nano-titanium dioxide is not considered to be a pigment and is hence covered by the requirement.*

*** *This applies to traditional synthetic amorphous silica. Any surface coating must meet the chemical requirements in the criteria.*

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

✉ The raw material producer or supplier shall submit the completed Appendix 11.

8.2 Surface treatment of wood and wood-based panels

Chemical products used for surface treatment must also meet the general chemical requirements, section 11.1.

O29 Amount applied and application method

For each surface treatment system, the following information must be described by the manufacturer of the product: Name of surface treatment product, manufacturer of surface treatment product, amount applied (g/m^2), number of layers and application method(s) used.

When calculating applied quantities of environmentally hazardous substances and VOC in later requirements, the following efficiency rates* are to be applied:

- Automated spray with no recycling, 50%
- Automated spray with recycling, 70%
- Spray application, electrostatic, 65%
- Spray application, bell/disk, 80%
- Roller coating, Curtain coating, Vacuum coating, Dipping and Rinsing 95%

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

☒ Description from the manufacturer concerning each surface treatment system used.

O30 Added amount of volatile organic compounds (VOC)

Within each surface treatment system, the total content of volatile organic compounds in surface treatment products must fulfil one of the following alternatives:

a) Total level of VOC ≤ 5 wt% VOC

b) Total amount of added VOC ≤ 35 g/m².

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

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

$$\frac{\text{Applied amount of the surface treatment chemical } \left(\frac{g}{m^2}\right) x \text{ share of VOC in the surface treatment chemical (\%)}}{\text{Efficiency of the surface treatment (\%)}}$$

☒ Safety data sheet in accordance with Annex II of REACH (Regulation 1907/2006/EC) for each chemical product in the surface treatment system.

☒ Declaration from the manufacturer of the chemical products in the surface treatment system, detailing how much VOC is in each product, Appendix 13.

☒ Calculation from the manufacturer showing that alternative b) in the requirement is met, if the surface treatment system does not fulfil alternative a), Appendix 13.

O31 Amount of environmentally hazardous (EH) substances

The requirement covers the whole surface treatment system, and as such all the chemical products included in the system must meet one of the following alternatives:

a) None of the chemical products may be classified as H410, H411 or H412 as per the CLP Regulation 1272/2008.

b) The amount of added environmentally hazardous substances must make up, in total, no more than 90 g/m² of the treated surface.

For the calculation, the content of environmentally hazardous substances must be weighted according to the formula below, before the calculation of the total amount of added EH substances is performed.

100*H410 + 10*H411 + H412

Where:

H410 is the total concentration of constituent substances classified as H410 in the uncured surface treatment product, in percent

H411 is the total concentration of constituent substances classified as H411 in the uncured surface treatment product, in percent

H412 is the total concentration of constituent substances classified as H412 in the uncured surface treatment product, in percent

The total amount of added EH substances is calculated using the following formula:

$$\frac{\text{Applied amount of the surface treatment chemical } \left(\frac{g}{m^2}\right) \text{ x weighted share of environmentally hazardous substances (\%)}}{\text{Efficiency of the surface treatment (\%)}}$$

Preservatives are exempted from the calculation of environmentally hazardous substances. See requirement O27 regarding the amount of preservatives.

☒ Safety data sheet in accordance with Annex II of REACH (Regulation 1907/2006/EC) for each chemical product in the surface treatment system.

☒ Declaration from the manufacturer of the chemical products in the surface treatment system, detailing the amount of constituent environmentally hazardous substances in each product, Appendix 13.

☒ Calculation from the manufacturer showing that alternative b) in the requirement is met, if the surface treatment system does not fulfil alternative a), Appendix 13.

☒ The manufacturer of the outdoor furniture, playground or park equipment shall submit the completed Appendix 13.

8.3 Surface treatment of metal

All surface treatment of metal, such as powder coating, must meet requirement O33 and the general chemical requirements, section 11.1. Metal plating, e.g. hot-dip galvanising, is however exempted from section 11.1 and requirement O33, and must instead fulfil requirement O32.

O32 Metal plating

Metal plating must not contain cadmium, lead, chromium, nickel or compounds of these. The plant must be drain free, i.e. there must be no emissions to a recipient watercourse/municipal treatment works.

Residual products must be sent for recycling or handled as hazardous waste.

☒ Declaration from the supplier/performer of the metal plating that the plant is drain free.

☒ The supplier/performer of the metal plating must state the recipient waste facility and give a description of how residual products from the plating are managed.

☒ The performer of the metal plating shall submit the completed Appendix 12.

O33 Added amount of volatile organic compounds (VOC)

Within each surface treatment system, the total content of volatile organic compounds in surface treatment products must fulfil one of the following alternatives:

a) Total level of VOC ≤ 5 wt% VOC

b) Total amount of added VOC ≤ 35 g/m².

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

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

$$\frac{\text{Applied amount of the surface treatment chemical } \left(\frac{g}{m^2}\right) x \text{ share of VOC in the surface treatment chemical (\%)}}{\text{Efficiency of the surface treatment (\%)}}$$

☒ Safety data sheet in accordance with Annex II of REACH (Regulation 1907/2006/EC) for each chemical product in the surface treatment system.

☒ Declaration from the manufacturer of the chemical products in the surface treatment system, detailing how much VOC is in each product, Appendix 13.

☒ Calculation from the manufacturer showing that alternative b) in the requirement is met, if the surface treatment system does not fulfil alternative a), Appendix 13.

8.4 Surface treatment of plastic and rubber

Any surface treatment of plastic and rubber must meet the general chemical requirements, Chapter 11.

O34 Surface treatment of plastic and rubber

Surface treatment of plastic and rubber must not make it impossible to recycle that plastic/rubber.

☒ The chemical producer or supplier shall submit the completed Appendix 11.

☒ The performer of the surface treatment shall submit the completed Appendix 13.

O35 Added amount of volatile organic compounds (VOC)

Within each surface treatment system, the total content of volatile organic compounds in surface treatment products must fulfil one of the following alternatives:

a) Total level of VOC ≤ 5 wt% VOC

b) Total amount of added VOC ≤ 35 g/m².

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

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

$$\frac{\text{Applied amount of the surface treatment chemical } \left(\frac{g}{m^2}\right) x \text{ share of VOC in the surface treatment chemical (\%)}}{\text{Efficiency of the surface treatment (\%)}}$$

☒ Safety data sheet in accordance with Annex II of REACH (Regulation 1907/2006/EC) for each chemical product in the surface treatment system.

☒ Declaration from the manufacturer of the chemical products in the surface treatment system, detailing how much VOC is in each product, Appendix 13.

☒ Calculation from the manufacturer showing that alternative b) in the requirement is met, if the surface treatment system does not fulfil alternative a), Appendix 13.

9 Service life/use phase

O36 Guarantee

- The supplier must provide a 20-year product guarantee
- The guarantee period will commence from the date of purchase
- The guarantee must be communicated to the customer

Under a product guarantee, if a project proves to be faulty or does not work in normal use, the manufacturer will, within a reasonable timeframe, provide a replacement product, or repair or replace faulty or broken parts/materials by delivering repaired products/parts or replacement products/replacement parts to the location.

✉ Description of the relevant guarantee for the product from the manufacturer/supplier of the outdoor furniture, playground or park equipment.

✉ Documentation showing that the guarantee period and terms are communicated to the customer (purchase agreement, website, etc.).

O37 Separability

The product must be designed so that the main constituent materials in a single product can be separated from each other.

An exemption is made, for example, for steel reinforced rope, where the steel reinforcement does not need to be separable from the rope, fixing and glued metal parts.

✉ Description demonstrating that the main constituent materials in the product can be separated from each other.

O38 Replacement parts

Replacement parts that are critical for the product's function must be available from the manufacturer, on request, during the guarantee period.

The option of purchasing replacement parts must be communicated to the customer.

✉ Documentation showing that replacement parts and terms are communicated to the customer (purchase agreement, website, etc.).

O39 Maintenance

The manufacturer/supplier must provide instructions on maintenance of the product during its service life. If specialist products are recommended, these must meet the chemical requirements, see Chapter 11.

For the product types listed below that are intended/sold for public use, the manufacturer/supplier must offer inspection and maintenance agreements that give purchasers the option of expanding their equipment purchase to include associated agreements.

Inspection and maintenance agreements must be available for:

- Playground equipment for public playgrounds in line with standard EN 1176-7
- Permanently installed outdoor fitness equipment in line with standard EN 16630
- Parkour equipment in line with standard EN 16899

✉ Copy of the maintenance instructions. If special maintenance products are recommended, the safety data sheet and Appendix 11 must be enclosed.

✉ For playground, outdoor fitness and parkour equipment for public use, submit the inspection and maintenance agreements that are offered.

O40 Safety

The product must meet the safety, durability and stability requirements below that are relevant to the product's area of use.

Outdoor furniture

Outdoor furniture intended/sold for private use must, as a minimum, meet the requirement level for private (domestic) use, as set out in EN 581-1, EN 581-2 and EN 581-3.

If the product is intended/sold for public use, the product must be tested according to the requirement levels that are relevant for public (contract) use, as set out in EN 581-1, EN 581-2 and EN 581-3.

Playground equipment for public playgrounds

Playground equipment for public playgrounds, e.g. in parks and schools, must meet the relevant safety levels as set out in the following standards: EN 1176-1 and EN 1176-7 for all products, plus EN 1176 for the specific item of playground equipment.

Standard	Area
EN 1176-1	General safety requirements
EN 1176-2	Swings
EN 1176-3	Slides
EN 1176-4	Cableways
EN 1176-5	Carousels
EN 1176-6	Rocking equipment
EN 1176-7	Guidance on installation, inspection, maintenance and operation
EN 1176-11	Spatial network

Playground equipment for private use

Playground equipment for private use must meet the key requirements in the Toy Safety Directive 2009/48/EC, as amended. This can be documented in accordance with the harmonised standard EN 71-1 (Mechanical and physical properties).

If the product meets the requirements in a standard other than the above EN standards, an independent test institute must verify that the standard corresponds to the requirement levels above.

Permanently installed outdoor fitness equipment

Outdoor gyms must be permanently installed and meet the standard EN 16630.

Parkour equipment

Must meet the standard EN 16899.

✉ Information on the product's area of use, and whether it is for private or public use.

✉ Documentation of compliance with relevant standards (e.g. test reports and information on the test institute).

10 Quality and regulatory requirements

Quality and regulatory requirements are general requirements that are always included in Nordic Ecolabelling's product criteria. The purpose of these is to ensure that fundamental quality assurance and applicable environmental requirements from the authorities are dealt with appropriately. They also ensure compliance with Nordic Ecolabelling's requirements for the product throughout the period of validity of the licence.

To ensure compliance with Nordic Ecolabelling requirements, the following procedures must be implemented.

O41 Responsible person and organisation

The company shall appoint a individual who is responsible for ensuring the fulfilment of the Nordic Ecolabelling requirements, one who is responsible for marketing and one who is responsible for finance, as well as a contact person for communications with Nordic Ecolabelling.

✉ Organisational chart showing who is responsible for the above.

O42 Documentation

The licensee must archive the documentation that is sent in with the application, or in a similar way maintain information in the Nordic Ecolabelling data system.

🔑 Checked on site as necessary.

O43 Quality of the product

The licensee must guarantee that the quality of the Nordic Swan Ecolabelled product does not deteriorate during the validity period of the licence.

🔑 The claims archive is checked on site.

O44 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.

O45 Unplanned nonconformities

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

✉ Procedures detailing how unplanned nonconformities are handled.

O46 Traceability

The licensee must be able to trace the Nordic Swan Ecolabelled product in the production. A manufactured/sold product should be traceable back to the occasion (time and date) and location (specific factory) of its production and, in relevant cases, also the machine/production line on which it was produced. In

addition, it should be possible to connect the product with the actual raw material used.

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

O47 Legislation and regulations

The licensee shall ensure compliance with all applicable local laws and provisions at all production facilities for the Nordic Swan Ecolabelled product, e.g. with regard to safety, working environment, environmental legislation and site-specific terms/permits.

✉ Signed application form.

11 Areas without requirements

Below is a short explanation of why Nordic Ecolabelling has chosen not to include the following materials/products/areas in this generation of the criteria.

- Concrete: Nordic Ecolabelling considers the greatest potential for environmental and climate improvements to lie in setting requirements concerning the materials used to manufacture the product. The use of energy and climate impact associated with the production of outdoor furniture, playground or park equipment is very small in comparison with the figures for concrete as a material. Unfortunately, it is currently difficult, using steerable and specific requirements, to differentiate concrete with a lower climate footprint from concrete with a higher climate footprint.
- Safety surfacing and surfacing for playgrounds and sports facilities: The reason for not including outdoor surfacing in the criteria is that Nordic Ecolabelling has found it difficult to separate out an environmentally friendly surfacing product.
- Renewable energy in production plants: Energy used during production of the product is generally low in comparison to the energy consumed in the manufacture of the constituent materials. Energy requirements therefore primarily relate to the constituent materials, in terms of which materials are permitted and requirements concerning recycled material.
- Use of biocides in felling: In this case, the supply chain can be long, which makes it difficult to trace any use of biocides. Traceability is vital in being able to set relevant requirements and obtain reliable verification.

12 Changes compared to previous version

Below is a short list of the key changes compared with the previous generation of the criteria.

Comparison of the requirements for Outdoor furniture, playground and park equipment in generations 3 and 4 of the criteria.

Draft req. v 4	Req. v 3	Same req.	Change	New req.	Requirement heading
O1	R1		Clarified.		Product description.
O2–O3	K2 + K4		Updated in line with Nordic Ecolabelling's new Forestry Requirements, version 3.		Prohibited tree species Wood from certified forestry
	R3		Removed		Use of biocides in felling
	R6		Included in General chemical requirements, Chapter 11		Chemical products and additives in wood-based panels
O4	R7		Requirement updated to include a number of alternative test methods. Requirement levels the same as in previous generation.		Formaldehyde emissions from wood-based panels
O5	R10		The requirement has been harmonised with the criteria for Construction and facade panels. New requirement limits for energy consumption during production of wood-based panels.		Energy requirement for wood-based panels
	R11		Removed		Emissions of COD, wet process
O6	R25		Requirement updated and text clarified.		Durability of wood
O7	R16	X			Energy requirement for HPL panel production
O8	R17		Requirement levels unchanged. Test methods updated.		Emissions in the work environment during HPL production
O9					Wood raw material in paper and/or pulp
O10	R14		Decor paper is exempt from requirement.		COD emissions from paper and pulp production
O11	R15		Stricter reference values, changes to calculation of energy points and so total energy points. Decor paper is exempt from requirement.		Energy requirement for paper and pulp production
O12	R32	X			Information and labelling, Plastic and rubber
O13	K32 + K39	X			Chlorinated plastic, PVC and polyvinyl chloride, PVDC
O14	R34	X			Nitrosamines in rubber
O15			Limit values introduced for selected PAHs. Only applies to playground equipment for children and only to parts a child will come into contact with during normal use of the product, e.g. the seat of a swing.	X	PAH in plastic, silicone and rubber
O16	K36?	X			Recycled/recovered plastic
O17	R36				Chemicals in recycled plastic
O18				X	WPC – Wood fibre and plastic

Draft req. v 4	Req. v 3	Same req.	Change	New req.	Requirement heading
O19				X	WPC – Recycled plastic
O20				X	WPC – Additives
O21				X	WPC – Other requirements
O22	R29		Stricter requirement level for constituent proportion of recycled aluminium, steel and other metals.		Proportion of recycled metal
O23	R19		Requirement updated in line with CLP, expanded to include more chemical products, and text clarified.		Classification of chemical products
O24	R21		Own requirement in this generation. Expanded ban on a number of hazard classes and categories.		CMR substances
O25	R21		Stricter requirement, now includes SVHC substances, PBT substances, vPvB substances and others.		Other prohibited substances in chemical products
O26	R21		Own requirement in this generation. Harmonised with the criteria for Nordic Swan Ecolabelled Chemical building products and Indoor paints and varnishes.		Preservatives in chemical products
O27	R20		Stricter requirement limit for levels of free formaldehyde.		Free formaldehyde in chemical products
	R25		Covered by requirements in Chapter 11. Constituent substances must not be CRM classified.		Wood preservatives
O28	R22	X			Nanomaterials in chemical products
O29	R26	X			Amount applied and application method
O30	R26	X			Added amount of volatile organic compounds (VOC)
O31	R26		Introduces new weighted formula for environmentally hazardous substances, and thus a new limit value.		Environmentally hazardous substances in surface coating
	R27		Covered by requirements in Chapter 11.		Maintenance products for wood
O32	K30–K31		New ban on Cd, Pb, Cr and Ni and compounds of these. Surface treatment with zinc is now included in this requirement		Metal plating
O33				X	Added amount of volatile organic compounds (VOC)
	R31		Included in requirement O32		Surface treatment with zinc
O34	R35	X			Surface treatment of plastic and rubber
O35				X	Added amount of volatile organic compounds (VOC)
O36				X	Guarantee
O37				X	Separability
O38				X	Replacement parts
O39				X	Maintenance
O40	R41	X			Safety
O41	R42	X			Responsible person and organisation

Draft req. v 4	Req. v 3	Same req.	Change	New req.	Requirement heading
O42	K43	X			Documentation
O43	K44	X			Product quality
O44	K45	X			Planned non-conformities
O45	K46	X			Unforeseen non-conformities
O46	K47	X			Traceability
O47	K48	X			Legislation and regulations

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-ecolabel.org/regulations/

Follow-up inspections

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

The licence may be revoked if it is evident that the outdoor furniture, playground or park equipment does not meet the requirements.

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

Definitions

Word/term	Definition
Triviality limit	Small product parts used to a limited extent or that have a limited impact on health and environment, such as: nails, screws, nuts, bolts, washers and similar fasteners. Small plastic products such as plastic wedges, spacers and similar.
COD	Chemical Oxygen Demand
Self-generated energy	Means energy (electrical and thermal) that is not purchased from an external supplier.
Renewable energy	Renewable energy comes from sources that are constantly renewed at a fast rate. Examples include hydro and wind power, wave energy, geothermal energy, solar energy and bioenergy, plus biofuels.
HCVF	High Conservation Value Forestry
IFL	Intact Forest Landscape
Constituent substances and impurities	Constituent substances and impurities are defined as below unless stated otherwise in the requirement in question. Constituent substances: all substances in the chemical product, including additives (e.g. preservatives and stabilisers) from the ingredients. Substances known to be degradation products of the constituent substances (e.g. formaldehyde, acrylamine, in situ-generated preservatives) are also considered to be constituent substances. Impurities: residues from production, including raw materials production, that are found in a raw material or the finished chemical product equivalent to concentrations ≤ 100.0 ppm (≤ 0.01000% by weight, ≤ 100.0 mg/kg) in the chemical product. Examples of impurities include residues of the following: reagents including monomers, catalysts, by-products, “scavengers” (i.e. chemicals used to eliminate/minimise undesired substances) cleaning agents for production equipment, “carry-over” from other or previous production lines.
Nanomaterials	The definition of nanomaterial follows the European Commission’s definition of nanomaterial of 18 October 2011: “Nanomaterials: 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 are in the size range of 1–100 nm.”
Wood-based panels	This is board made by using a binder and/or adhesive to join together one or more of the following materials: wood fibre, debarked or cut sheets, wood waste from forests and plantations, sawn timber, residues from the paper or pulp industry and recycled wood. Wood-based materials may include hardboard, fibreboard, MDF (Medium Density Fibreboard), particleboard, OSB (Oriented Strand Board), plywood and panels of solid wood. The term “wood-based material” also includes composite materials made from wood-based panels coated with plastic, laminated plastic, metals or other coatings, and finished or semi-finished wood-based panels.
Wood preservative	In this context, wood preservative means an impregnation agent or primer that makes the wood resistant to fungal attack/rot.
Maintenance products	Products that the manufacturer/supplier recommends for wood products. The purpose of maintaining a wood product may be to retain its functionality, nourish it or retain a product’s durability. Actions taken for aesthetic reasons such as retaining the original colour are also considered to be maintenance.
VAH	Volatile aromatic hydrocarbons (VAH) are aromatic compounds whose boiling point is max 250°C, measured at a standard pressure of 101.3 kPa. Volatility for paints and varnishes is instead defined as when the vapour pressure of the aromatic compound is at least 0.01 kPa at 293.15°K
VOC	Volatile organic compounds are defined as solvents with a boiling point < 250˚C at 101.3 kPa (1 atm).
Recycled metal raw material	Recycled metal raw material is defined here as both pre-consumer and post-consumer, see definition in ISO 14021

Appendix 1 Material composition and overview of suppliers

Manufacturer	Contact person
Product	Total weight in kg

Table 1 **Overview of weight and proportion of constituent materials**

Material	Level	Req.	Appendix	Weight (kg)	Prop. (%)	Relevant	
						Yes	No
Solid wood, wood-based panels/fibre raw material, veneers and bamboo	General	O2–O5	Appendix 1, 3			☐	☐
Durability	Solid wood	O6				☐	☐
Wood-based panel	At content ≥ 10 wt% in end product	O2–O6				☐	☐
High Pressure Laminate (HPL) panel	At content ≥ 10 wt% in end product	O7–O8				☐	☐
	At content ≥ 30 wt% in end product	O16–O17	Appendix 5			☐	☐
Plastic and rubber	General	O13–O14	Appendix 7, 8			☐	☐
	Only playground equipment	O15	Appendix 7			☐	☐
	At content ≥ 20 wt% in end product	O16–O17	Appendix 7			☐	☐
Wood-plastic composite (WPC) material	General	O18–O21	Appendix 9, 10			☐	☐
Metal	At content ≥ 30 wt% in end product	O22				☐	☐
Chemical requirements	General	O23–O28	Appendix 11	N/A	N/A	☐	☐
	Surface treatment of wood and wood-based panels	O29–O31	Appendix 13	N/A	N/A	☐	☐

	Surface treatment of metal	O32–O33	Appendix 13	N/A	N/A	☐	☐
	Surface treatment of plastic and rubber	O34–O35	Appendix 13	N/A	N/A	☐	☐
Service life/use phase	Guarantee	O36		N/A	N/A	☐	☐
	Separability	O37		N/A	N/A	☐	☐
	Replacement parts	O38		N/A	N/A	☐	☐
	Maintenance	O39		N/A	N/A	☐	☐
	Safety	O40		N/A	N/A	☐	☐
Quality and regulatory requirements		O41–O47		N/A	N/A	☐	☐
Total:				____ kg	100%		

Overview of suppliers

- All suppliers of constituent products/parts.
- Constituent products/parts in outdoor furniture, playground or park equipment (e.g. legs, seats, poles, etc.).
- Constituent materials and their composition (e.g. wood, metal, plastic, varnish, adhesive, etc.).
- Amounts in kg and wt%. Total weight of finished product.

Nordic Ecolabelling also accepts other similar documentation from the manufacturer, if all the required information is included.

Table 2 **Overview of suppliers, constituent products/parts and amounts**

Supplier	Constituent products/parts	Constituent materials	Weight in kg	wt%
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Appendix 2 Declaration concerning tree species prohibited in Nordic Swan Ecolabelled products

Licensee/applicant
Product group/product type
Specify version number and date of the prohibited tree species list used.

We hereby declare that the woods included on Nordic Ecolabelling's list of prohibited tree species have not been used in the Nordic Swan Ecolabelled outdoor furniture, playground and park equipment.

The list of prohibited tree species can be found on the website: www.nordic-ecolabel.org/wood/

Nordic Ecolabelling may request further information if there is any doubt concerning specific wood varieties.

Applicant's signature

Place and date	Company name/stamp
Person responsible	Signature of responsible individual
Tel. no.	E-mail

Appendix 3 Declaration concerning formaldehyde emissions from wood-based panels

Manufacturer/supplier of wood-based panels
Product name

State the type of wood-based panel:

☐ MDF

☐ HDF

☐ Particleboard

☐ OSB

☐ Other panels

Does the wood-based panel contain formaldehyde-based additives or have a surface coating containing formaldehyde? ☐ Yes ☐ No

If yes, complete point 1, 2 or 3 below:

1. Free formaldehyde

Has the content of free formaldehyde been determined using EN 120 or an equivalent method? ☐ Yes ☐ No

Result: _____ mg formaldehyde/100 g dry material

Enclose test/analysis report. If a different method is used, send documentation showing that the method equates to EN 120.

2. Formaldehyde emissions

Put a cross against the test method used	
EN 717-1	☐
ISO 16000-9	☐
ASTM E1333	☐
JIS A 1460	☐

Enclose test/analysis report.

3. Is the product certified with any of the following certifications?

But a cross against the applicable certification	
E1	☐
M1	☐
CARB PHASE II	☐
Indoor Air Comfort	☐
Indoor Air Comfort Gold	☐

Enclose a valid certificate.

Panel manufacturer's signature

Place and date	Company name/stamp
Person responsible	Signature of responsible individual
Tel. no.	E-mail

Appendix 4 System limits for calculation of energy consumption in the manufacture of wood-based panels

The consumption of energy, both electrical and thermal, is calculated as an annual average for either the Nordic Swan Ecolabelled production or the entire operation.

What is included in the calculation

- Manufacture/production of the panel.
- Manufacture of the primary raw materials used in the panel. The primary raw materials are the raw materials that make up more than 2% by weight of the finished sheet (e.g. wood fibre and adhesive).
- For the production, the energy calculation is to be based on data from raw material handling all the way up to the finished sheet.
- Wood drying and conveyors, both at the sawmill and on the production line.
- Lamination of the sheet.
- For the manufacture of chemical products such as adhesives, the energy calculation must be based on data from the manufacture of both the adhesive and the input raw materials. In the absence of specific energy data for the adhesive, it is possible, in exceptional circumstances, to use a model value for adhesive of 15 MJ/kg (solution used). When using several different suppliers for the same type of raw material, it is acceptable for the calculation to be based on the most frequent supplier.
- Purchased energy, internally produced energy and energy from residual products.

What is not included in the calculation

- Energy consumption during raw material extraction.
- Growing and felling of forest raw material.
- Transport in all phases.
- Energy consumed during surface treatment.
- The raw material's energy content for the manufacture of constituent chemical products.
- Self-generated energy and surplus energy that is sold on.

Appendix 5 Wood fibre in paper and pulp

Manufacturer/supplier of paper and pulp
Product group/product type
Wood variety/species name
Specify version number and date of the prohibited tree species list used.

Does the paper or pulp contain at least 70 wt% FSC or PEFC certified fibre raw material? ☐ Yes ☐ No

If the paper or pulp contains less than 70 wt%, state how much:

_____

Is the paper or pulp labelled FSC or PEFC Recycled? ☐ Yes ☐ No

Does the paper or pulp comprise 70 wt% recovered fibre? ☐ Yes ☐ No

If the paper or pulp comprises less than 70 wt% FSC/PEFC Recycled or recovered fibre, state how much: _____

We hereby declare that the woods included on Nordic Ecolabelling's list of prohibited tree species have not been used in the Nordic Swan Ecolabelled outdoor furniture, playground and/or park equipment.

The list of prohibited tree species can be found on the website: www.nordic-ecolabel.org/wood/

Nordic Ecolabelling may request further information if there is any doubt concerning specific wood varieties.

Manufacturer/supplier's signature

Place and date	Company name/stamp
Person responsible	Signature of responsible individual
Tel. no.	E-mail

Appendix 6 Energy requirement for paper and pulp production

Guidelines for energy calculation

Use of energy in the form of fuel and electricity is subject to requirements. These are based on information about actual energy consumption in production in relation to reference values. The ratio between them determines the energy points.

The energy calculations cover the entire paper product; both the paper production and the pulps used. The calculations for paper do not include fillers. The energy consumption for raw material transport and for conversion and packaging is not included in the energy calculation. The requirement does not include transport within the factory site.

A non-integrated pulp mill

Electricity

Both purchased and in-house-generated electricity are to be included in the calculations

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

Invoices and meter readings are to form the basis for determining consumed electricity. Self-generated electricity is documented via a meter reading from the electricity production. The requirement covers all processes from log debarking to pulp drying. Electricity for offices and lighting within the factory is not to be included. If the pulp mill only produces pulp of a similar quality using the same type of process, the average electricity consumption may be used for all pulps.

Fuel

Both purchased fuel and fuel produced on site are to be included in the calculation, split into renewable and fossil fuel. The pulp manufacturer must report the fuel used for internally generated electricity and should subtract the fuel for electricity before reporting to the paper manufacturer. The paper manufacturer deducts the fuel consumption from internal electricity generation using a factor of 1.25 in their own energy calculation.

Fuel pulp = fuel produced on-site + purchased fuel - sold fuel * (sold fuel and/or thermal energy)

For purchased fuel, the amount purchased must take into account the quantities at the beginning and end of the current year. For the consumption of fuel produced in-house, from residues such as bark, wood chips and so on, the calculation is based on the thermal values for the fuels used or measured.

* *Surplus energy*

Surplus energy sold in the form of electricity, steam or thermal energy is deducted from the total consumption. To calculate the amount of fuel used to produce electricity or thermal energy, divide the sold electricity or thermal energy by 0.8. This equates to an average efficiency level for the total production of electricity and thermal energy.

Alternatively, the plant's actual efficiency level for the conversion of fuel into thermal energy can be used.

Verification

An overview of the factory's energy supply system, showing the number of boilers, with information on boiler output and the fuel used.

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

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

If thermal energy has been converted into fuel, the conversion factors and efficiency must be stated.

Use the calculation sheet from Nordic Ecolabelling for the calculation.

A non-integrated paper mill

Electricity

Both purchased and in-house-generated electricity are to be included in the calculations

Electricity = in-house-generated electricity + purchased electricity - sold electricity.

Invoices and meter readings are to form the basis for determining consumed electricity. On-site produced electricity is documented via a meter reading from the electricity production. The requirement covers all processes from pulp to drying the base paper. Electricity for offices and lighting within the factory is not to be included. If the paper mill only produces paper of a similar quality using the same type of process, the average electricity consumption may be used for all papers.

Fuel

All purchased fuel is to be included in the calculations, split into renewable and fossil fuel.

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

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

* *Excess energy*

Surplus energy sold in the form of electricity, steam or thermal energy is deducted from the total consumption. To calculate the amount of fuel used to

produce electricity or thermal energy that is sold on, divide the sold electricity or thermal energy by 0.8. The coefficient 0.8 equates to the average energy efficiency of the total production of electricity and thermal energy. Alternatively, the plant's actual energy efficiency in converting fuel into thermal energy can be used.

Verification

An overview of the paper machine's energy supply system, showing the number of boilers with information on boiler output and the fuel used.

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

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

If thermal energy has been converted into fuel, the conversion factors and efficiency must be stated.

The calculation sheet from Nordic Ecolabelling can be used.

Steam

If the excess steam from some other production is used (e.g from another industry), the energy content of the steam is to be included in the calculation. In this case, Table 2, the steam table, should be used. If steam from electric boilers is used, the energy content must be converted to fuel in the same way, but the energy content must be multiplied by 1.25.

Both Nordic Swan Ecolabelled and non-Nordic Swan Ecolabelled production

If the paper manufacturer produces both products that are to be Nordic Swan Ecolabelled and products that are not to be Nordic Swan Ecolabelled, the specific energy consumption for the Nordic Swan Ecolabelled product is to be reported. In exceptional cases, the average for ecolabelled and non-ecolabelled products may be applied. The products must, however, be of an equivalent quality and be produced using similar processes within the same production unit.

Energy calculation, Paper production

Energy points, Paper production

Energy points for $P_{paper(electricity)}$ and $P_{paper(fuel)}$ for paper manufacture are calculated as:

$$P_{paper(electricity)} = \frac{Electricity_{consumed}}{Electricity_{reference}}$$

And

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

The following reference values for kraft paper are to be used:

$Electricity_{reference}$ = 1600 kWh/t

$Fuel_{reference}$ = 2100 kWh/t

Verification

Calculation of energy points. The calculation sheet developed by Nordic Ecolabelling can be used.

Energy points where a mix of different pulp types is used

To calculate energy points for a mix of different pulp types, use the following formula:

$$P_{pulp(electricity)} = \sum_{i=1}^{n} P_{pulp(electricity)i} \cdot pulp_i$$

And

$$P_{pulp(fuel)} = \sum_{i=1}^{n} P_{pulp(fuel)i} \cdot pulp_i$$

where $pulp_i$ is the proportion of the individual pulp relative to the total pulp mix. Due to waste and differences in water content, the sum of the pulp may be greater than 1. $P_{pulp(electricity)i}$ represents the energy points for electricity for pulp i. $P_{pulp(fuel)i}$ represents the energy points for fuel for pulp i.

Verification

Calculation of energy points. Use the calculation sheet developed by Nordic Ecolabelling.

Total energy points for paper and pulp production

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

$$P_{electriciy} = P_{electriciy(_{pulp})} + P_{electriciy(paper)}$$

And

$$P_{fuel} = P_{fuel(pulp)} + P_{fuel(paper)}$$

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

Worst case calculations must be included, to show that each pulp recipe fulfils the requirements, unless separate calculations are reported for each pulp mixture.

Verification

The documentation must contain calculations and sub-totals. The base values used for consumed fuel and electricity must be stated. Worst case calculations must be included, to show that each pulp recipe fulfils the requirements, unless separate calculations are reported for each pulp mixture. The calculation sheet developed by Nordic Ecolabelling can be used.

Energy points for pulp production

Energy points for $P_{pulp(electricity)}$ and $P_{pulp(fuel)}$ for paper manufacture are calculated as:

$$P_{pulp(electricity)i} = \frac{Electricity_{consumed}}{Electricity_{reference}}$$

And

$$P_{pulp(fuel)i} = \frac{Fuel_{consumed} - 1.25 \cdot in - house\ generated\ electricity}{Fuel_{reference}}$$

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

Table 1 **Reference values pulp**

Process	Fuel kWh/t, Ref. value	Electricity kWh/t, Ref. value
Bleached chemical pulp	3600	600
Dried, bleached chemical pulp	4600	600
Unbleached chemical pulp	3200	550
Dried, unbleached chemical pulp	4200	550
NSSC	3200	700
Dried NCCS	4100	700
CTMP	N/A	1500
Dried CTMP	900	1500
DIP	300	450
Dried DIP	1200	450
TMP	N/A	2200
Dried TMP	900	2200
Groundwood	N/A	2000
Dried groundwood	900	2000

Verification

Calculation of energy points. Use the calculation sheet developed by Nordic Ecolabelling.

Table 2 **Steam table**

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

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

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

Appendix 7 Plastic and rubber

To be completed by the manufacturer/supplier of the plastic and/or rubber.

Manufacturer/supplier
State the trade name/item number of the plastic or rubber
State the type of plastic/rubber

Reinforcement

Is the plastic reinforced? ☐ Yes ☐ No

If yes, state the type of reinforcement: _____

Additives and surface treatment

Are there any additives in the plastic/rubber? ☐ Yes ☐ No

If yes, state the additives: _____

Does the plastic/rubber have a surface treatment? ☐ Yes ☐ No

If yes, state the surface coating: _____

Labelling of constituent plastic types

Are plastic components with a weight ≥100 g labelled as per ISO 11469?
☐ Yes ☐ No

✉ State which standard and how it is used if a different standard than ISO 11469 is used for labelling.

PVC and PVDC

Does the product contain PVC or PVDC? ☐ Yes ☐ No

Nitrosamines in rubber

Is the content of nitrosamines ≤ 0.01 mg/kg rubber? ☐ Yes ☐ No

Is the content of nitrosamines ≤ 0.1 mg/kg rubber? ☐ Yes ☐ No

PAH in plastic and rubber – applies only to playground equipment for children

The content of the PAHs in the table below must meet the stated requirement limits.

Enclosed test report. Testing may be performed using gas chromatography (GC) and mass spectrometry (MS).

Table 5 Table of requirement limits for PAH:

Substance name	CAS no.	Requirement limit
Benzo[A]Pyrene	50-32-8	< 0.5 mg/kg
Benzo[E]Pyrene	192-97-2	< 0.5 mg/kg
Benzo[A]Anthracene	56-55-3	< 0.5 mg/kg
Dibenzo[A,H]Anthracene	53-70-3	< 0.5 mg/kg
Benzo[B]Fluoranthene	53-70-3	< 0.5 mg/kg
Benzo[J]Fluoranthene	205-82-3	< 0.5 mg/kg
Benzo[K]Fluoranthene	207-08-9	< 0.5 mg/kg
Chrysene	218-01-9	< 0.5 mg/kg

Are the requirement limits for PAH fulfilled? ☐ Yes ☐ No

Is the test report for PAH enclosed? ☐ Yes ☐ No

Recycled/recovered plastic

Is the plastic recycled/recovered*? ☐ Yes ☐ No

If yes, state the proportion of recycled content: _____%

* *Recycled material is defined in accordance with ISO 14021 in the following two categories:*

Pre-consumer material: Material diverted from the waste stream during the manufacturing process.

Excluded is reutilisation of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

Where such material as rework, regrind or scrap cannot be recovered directly in the same process, and requires processing (e.g. in the form of sorting, remelting and granulating) before it can be reused in consumer/commercial material, Nordic Ecolabelling defines this

as pre-consumer material, regardless of whether the processing is done internally or externally.

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.

Content of halogenated flame retardants in recycled plastic

Is the level of halogenated flame retardants a maximum of 100 ppm**?

☐ Yes ☐ No

** *As an alternative to the declaration, enclose a test report showing that the content of brominated and chlorinated flame retardants is a maximum of 100 ppm.*

Is a description/procedure enclosed, detailing how it is ensured that recycled plastic does not contain over 100 ppm halogenated flame retardants in future deliveries?

☐ Yes ☐ No

Manufacturer/supplier of plastic/rubber

Place and date	Company name/stamp
Person responsible	Signature of responsible individual
Tel. no.	E-mail

Appendix 8 Plastic packaging

To be completed by the supplier of the plastic packaging

Manufacturer/supplier
Product name

Does the product's packaging contain PVC or PVDC? ☐ Yes ☐ No

Manufacturer/supplier's signature

Place and date	Company name/stamp
Person responsible	Signature of responsible individual
Tel. no.	E-mail

Appendix 9 Wood-plastic composite (WPC)

To be completed by the manufacturer of the WPC.

WPC manufacturer
Product(s)

Does the plastic component of the WPC comprise 100% recycled plastic?
☐ Yes ☐ No

Does the recycled plastic contain PVC, PVDC or PET?

☐ Yes ☐ No

Does the plastic component of the WPC comprise at least 60% post-consumer plastic, where the source is collected consumer plastic packaging and similar?
☐ Yes ☐ No

Does the plastic component of the WPC comprise max 25% pre-consumer/pre-industrial/pre-commercial plastic? ☐ Yes ☐ No

Does the wood fibre in any way originate from wood impregnated with biocides or heavy metals? ☐ Yes ☐ No

Are the products for which the Nordic Swan Ecolabel is being sought covered by at least a 30-year guarantee against rot. ☐ Yes ☐ No

Is information about the guarantee available both in the product description or equivalent and on the website? ☐ Yes ☐ No

As the manufacturer, we guarantee to take back production waste, returns, incorrect orders and so on in order to fully reintroduce these into the production of new wood-plastic composite. ☐ Yes ☐ No

Manufacturer's signature

Place and date	Company name/stamp
Person responsible	Signature of responsible individual
Tel. no.	E-mail

Appendix 10 Wood-plastic composite (WPC)

To be completed by the supplier of the recycled plastic raw material.

Supplier of recycled plastic raw material
Product(s)

We hereby declare that the plastic raw material sold is post-consumer packaging and similar made of plastic (collected consumer plastic packaging).

☐ Yes ☐ No ☐ Not relevant

We hereby declare that the plastic raw material sold is pre-consumer/pre-industrial/pre-commercial plastic. ☐ Yes ☐ No ☐ Not relevant

Supplier's signature

Place and date	Company name/stamp
Person responsible	Signature of responsible individual
Tel. no.	E-mail

Appendix 11 General chemical requirements (chemical manufacturer or supplier)

To be completed by the chemical manufacturer/supplier.

Chemical manufacturer/supplier
Product's trade name
Type of chemical product (e.g. adhesive, varnish) and area of use

Definition of constituent substances and impurities

All the substances in the chemical product, including additives (e.g. preservatives and stabilisers) from the raw materials. Substances known to be degradation products of the constituent substances (e.g. formaldehyde, arylamine, in situ-generated preservatives) are also considered to be constituent substances.

Impurities: residues from production, including raw materials production, that are found in a raw material or the finished chemical product equivalent to concentrations ≤ 100.0 ppm (≤ 0.01000% by weight, ≤ 100.0 mg/kg) in the chemical product.

Examples of impurities include residues of the following: reagents including monomers, catalysts, by-products, "scavengers" (i.e. chemicals used to eliminate/minimise undesired substances) cleaning agents for production equipment, "carry-over" from other or previous production lines.

Classification of the chemical product

Is the chemical product classified as...?	**Yes**	**No**
H400 – Toxic to aquatic life, Acute 1	☐	☐
H410 – Toxic to aquatic life, Chronic 1	☐	☐
H411 – Toxic to aquatic life, Chronic 2	☐	☐
H420 – Ozone	☐	☐
H300, H301, H310, H311, H330, H331 – Acute Tox. 1-3	☐	☐
H370 – STOT SE 1	☐	☐
H372 – STOT RE 1	☐	☐
*H350 – Carc. 1A or 1B	☐	☐
*H351 – Carc. 2	☐	☐
*H340 – Muta 1A or 1B	☐	☐
*H341 – Muta. 2	☐	☐
*H360 – Repr. 1A or 1B	☐	☐
*H361 – Repr. 2	☐	☐
*H362 – Lact.	☐	☐

**The classification covers all combinations of stated exposure routes and stated specific effect. For example, H350 also covers classification H350i.*

CRM classification of constituent substances in the chemical product

Does the product contain constituent substances classified as below?	Yes	No
*H350 – Carc. 1A or 1B	☐	☐
*H351 – Carc. 2	☐	☐
*H340 – Muta 1A or 1B	☐	☐
*H341 – Muta. 2	☐	☐
*H360 – Repr. 1A or 1B	☐	☐
*H361 – Repr. 2	☐	☐
*H362 – Lact.	☐	☐

**The classification covers all combinations of stated exposure routes and stated specific effect. For example, H350 also covers classification H350i.*

If **yes**, state for each individual substance: the constituent substance, classification, CAS number (if possible), whether the substance is added or is an impurity, its function and its amount in ppm:

Environmental hazard classification of constituent substances in the chemical product

Does the product contain constituent substances classified as below?	**Yes**	**No**
H410	☐	☐
H411	☐	☐
H412	☐	☐

If **yes**, state for each individual substance: the constituent substance, classification, CAS number (if possible), whether the substance is added or is an impurity and its amount in ppm:

Other constituent substances in the chemical product

Does the product contain the following constituent substances?	**Yes**	**No**
Substances categorised as Substances of Very High Concern (SVHC) and included on the Candidate List: https://echa.europa.eu/candidate-list-table	☐	☐
Substances that have been judged in the EU to be PBT or vPvB in accordance with the criteria in Annex XIII of REACH, plus substances that have not yet been investigated but that meet these criteria	☐	☐
Substances considered to be potential endocrine disruptors in categories 1 or 2 according to official EU lists. The EU's report on endocrine disruptors can be read in its entirety at http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf (Annex L, page 238 onwards)	☐	☐
Halogenated organic compounds	☐	☐
APEO – alkylphenol ethoxylates and other alkylphenol derivatives (substances that release alkylphenols on degradation).	☐	☐
Perfluorinated and polyfluorinated compounds (PFC)	☐	☐
Bisphenol A, bisphenol S and bisphenol F	☐	☐
Butyl hydroxytoluene (BHT) and butyl hydroxyanisole (BHA)	☐	☐
Phthalates	☐	☐
The heavy metals lead, cadmium, chromium (VI), mercury and their compounds	☐	☐
Organotin compounds	☐	☐
Volatile aromatic hydrocarbons (VAH) at more than 1% by weight** *** Volatile aromatic hydrocarbons (VAH) are aromatic compounds whose boiling point is max 250°C, measured at a standard pressure of 101.3 kPa. Volatility for paints and varnishes is instead defined as when the vapour pressure of the aromatic compound is at least 0.01 kPA at 293.15°K*	☐	☐

Volatile organic compounds (VOC)

Does the product contain the following substances?	**Yes**	**No**
Content of volatile organic hydrocarbons (VOC)* more than 5% by weight	☐	☐

** Volatile organic compounds are defined as solvents with a boiling point < 250˚C at 101.3 kPa (1 atm).*

If **yes**, state the amount of VOC in g/l:

Preservatives in chemical products

Does the chemical product contain any of the following preservatives?	**Yes**	**No**	**If yes, state wt%**
Bronopol	☐	☐	
IPBC	☐	☐	
CMIT/MIT (3:1)	☐	☐	
MIT	☐	☐	
Other isothiazolinones	☐	☐	

Free formaldehyde in chemical products

Does the chemical product contain free formaldehyde?	**Yes**	**No**	**If yes, state wt%**
Free formaldehyde	☐	☐	

Nanoparticles in chemical products

Does the product contain nanoparticles from nanomaterials*?	**Yes**	**No**
Does the chemical product contain nanoparticles from nanomaterials*	☐	☐
Exception: - Pigments** - Synthetic amorphous silica*** - Naturally occurring inorganic fillers**** - Polymer emulsions		
* The definition of nanomaterial follows the European Commission's definition of nanomaterial of 18 October 2011: "Nanomaterials: 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 are in the size range of 1–100 nm." ** Nano-titanium dioxide is not considered to be a pigment and is hence covered by the requirement. *** This applies to traditional synthetic amorphous silica. Any surface treatment must meet the chemical requirements in the criteria. **** This applies to fillers covered by Annex V, item 7 of REACH.		

Manufacturer/supplier of chemical product

Place and date	Company name
Person responsible	Signature of responsible individual
Tel. no.	E-mail

Appendix 12 Metal plating (Performer of metal plating/manufacturer)

To be completed by the performer of the metal plating.

Performer/manufacturer
State the metal plating method

Does the surface treatment contain cadmium, lead, chromium, nickel or compounds of these? ☐ Yes ☐ No

Is the plant drain free? ☐ Yes ☐ No

State the recipient waste facility:

_____

_____

Has a description been submitted, explaining how residual products from the surface treatment are dealt with? ☐ Yes ☐ No

Performer's signature

Place and date	Company name
Person responsible	Signature of responsible individual
Tel. no.	E-mail

Appendix 13 Surface treatment of wood and wood-based panels, plus metal, plastic and rubber (Performer of surface treatment/manufacturer)

The appendix is to be completed and signed by the performer of the surface treatment.

Performer/manufacturer
Surface treatment system

Surface treatment of wood and wood-based panels

Is the product surface treated? ☐ Yes ☐ No

If **yes**, answer the following:

A. Amount applied and application method, requirement O29.

Give a brief description of how the surface is treated:

_____

_____

_____

_____

No. of layers: _____

Amount applied: _____ *g/m²*

Application method(s): _____

B. Added amount of volatile organic compounds (VOC), requirement O30.

Is the total level of VOC ≤ 5 wt%, alternative a? ☐ Yes ☐ No

Is the total amount of added VOC max 35 g/m², alternative b? ☐ Yes ☐ No

State total amount of added VOC in the surface treatment system and enclose calculation*, alternative b:

_____ g/m^2

* *For example calculation, see Appendix 13 Cont.*

C. Environmentally hazardous substances, requirement O31

Is the total amount of added environmentally hazardous substances in the surface treatment system max 90 g/m2 in wet state? ☐ Yes ☐ No

State total amount of added environmentally hazardous substances and enclose calculation*, alternative b:

_____ g/m^2

* *For example calculation, see Appendix 13 Cont.*

Surface treatment of metal

Is the product surface treated? ☐ Yes ☐ No

A. Added amount of volatile organic compounds (VOC), requirement O33.

Is the total level of VOC ≤ 5 wt%, alternative a? ☐ Yes ☐ No

Is the total amount of added VOC max 35 g/m2, alternative b? ☐ Yes ☐ No

State total amount of added VOC in the surface treatment system and enclose calculation*, alternative b:

_____ g/m^2

* *For example calculation, see Appendix 13 Cont.*

Surface treatment of plastic and rubber

Is the product surface treated? ☐ Yes ☐ No

If **yes**, answer the following:

Does the surface treatment make future recycling of plastic/rubber impossible? ☐ Yes ☐ No

Added amount of volatile organic compounds (VOC)*, requirement O35.

Is the total level of VOC ≤ 5 wt%, alternative a? ☐ Yes ☐ No

Is the total amount of added VOC max 35 g/m², alternative b? ☐ Yes ☐ No

State total amount of added VOC in the surface treatment system and enclose calculation*, alternative b:

_____ *g/m²*

* *For example calculation, see Appendix 13 Cont.*

Name of surface treatment

Date	Company name
Signature, contact person	
Name (BLOCK CAPITALS)	Tel. no.

Example calculation for Appendix 13

Example calculation for added amount of environmentally hazardous (EH) substances, with weighting:

The manufacturer uses three (3) products in their surface treatment system and employs roller coating (95% efficiency):

The surface treatment system comprises the following products, with the amount applied for each product:
Product A: amount applied 10 g/m^2
Product B: amount applied 20 g/m^2
Product C: amount applied 10 g/m^2

1. First the environmental hazard in each surface treatment product is weighted using the relevant weighting factor:

   100*H410 + 10*H411 + H412

   Where:

   H410 is the total concentration of constituent substances classified as H410 in the uncured surface treatment product, in percent

   H411 is the total concentration of constituent substances classified as H411 in the uncured surface treatment product, in percent

   H412 is the total concentration of constituent substances classified as H412 in the uncured surface treatment product, in percent

Product	Content of substances classed as environmental hazards (%)			
	H410	H411	H412	= weighted EH content (%)
A	0	1	0	10
B	0	18	0.5	180.5
C	1	5	1	151

2. Then comes the calculation for the amount of environmentally hazardous substances added to the surface treatment system, where the weighted percentages are used (taking efficiency into account). The following equation is used:

$$\frac{\text{Applied amount of the surface treatment chemical } \left(\frac{g}{m^2}\right) \text{ x weighted share of environmentally hazardous substances (\%)}}{\text{Efficiency of the surface treatment (\%)}}$$

This gives:

Product	Amount applied (g/m²)	Weighted EH content (%), see above	Amount of EH substances applied (g/m²)
A	10	10	1
B	20	180.5	36.1
C	10	151	15.1
Total added EH substances:			52.2 g/m²
Total added EH substances, taking efficiency into account:			54.9 g/m²

The weighted total amount of environmentally hazardous substances added to the surface treatment system is thus 54.9 g/m², which falls well below the limit value of 90 g/m².

Example calculation for added amount of VOC in the surface treatment system:

The manufacturer uses three (3) products in their surface treatment system and employs roller coating (95% efficiency):

The surface treatment system comprises the following products, with the amount applied and their VOC content:
Product A: amount applied 10 g/m², VOC 10.9 wt%
Product B: amount applied 20 g/m², VOC 41.8 wt%
Product C: amount applied 10 g/m², VOC 15.5 wt%

The total amount of added VOC is calculated using the formula:

$$\frac{\text{Applied amount of the surface treatment chemical } \left(\frac{g}{m^2}\right) x \text{ share of VOC in the surface treatment chemical (\%)}}{\text{Efficiency of the surface treatment (\%)}}$$

This gives:

Product	Amount applied (g/m²)	VOC content (%)	Amount of added VOC (g/m²)
A	10	10.9	1.09
B	20	41.8	8.36
C	10	15.5	1.55
Total amount of added VOC:			11.00 g/m²
Total amount of added VOC taking account of efficiency (95%)			10.45 g/m²

The total amount of added VOC in the surface treatment system is thus 10.45 g/m², which falls well below the limit value of 35 g/m².