Nordic Ecolabelling for

Furniture and fitments

Version 5.0 • date – date

Consultation proposal

Nordic Ecolabelling

Content

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

Addresses

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

Denmark
Ecolabelling Denmark
Danish Standards Foundation
Göteborg Plads 1, DK-2150 Nordhavn
Fischersgade 56, DK-9670 Løgstør
Tel: +45 72 300 450
info@ecolabel.dk
www.ecolabel.dk

Iceland
Ecolabelling Iceland
Norræn Umhverfismerking
á Íslandi
Suðurlandsbraut 24
IS-108 Reykjavik
Tel: +354 591 20 00
ust@ust.is
www.svanurinn.is

Finland
Ecolabelling Finland
Urho Kekkosen katu 4-6 E
FI-00100 Helsinki
Tel: +358 9 61 22 50 00
joutsen@ecolabel.fi
www.ecolabel.fi

Norway
Ecolabelling Norway
Henrik Ibsens gate 20
NO-0255 Oslo
Tel: +47 24 14 46 00
info@svanemerket.no
www.svanemerket.no

Sweden
Ecolabelling Sweden
Box 38114
SE-100 64 Stockholm
Tel: +46 8 55 55 24 00
info@svanen.se
www.svanen.se

What is Nordic Swan Ecolabelled furniture and fitments?

Furniture or fitments that are Nordic Swan Ecolabelled have a high content of materials that are either renewable, recycled or reused. This – and stringent production requirements for the constituent materials – help reduce both the general impacts on the environment and more specifically the energy consumption and carbon emissions related to the product. There are detailed requirements for the chemicals that are used in production processes, added to materials or used for surface treatment, such as adhesives, paints and varnishes. Wastewater from metal coating processes must not be discharged into drainage systems. Treatment of furniture or constituent materials with antibacterial substances is prohibited. There are requirements governing emissions of formaldehyde and volatile organic compounds (VOC) for relevant materials and chemicals. The furniture or fitment must be of good quality and be designed for recycling or reuse, e.g. it must be easy to replace the textiles on a chair. This helps to extend useful product life and support a circular economy.

A Nordic Swan Ecolabelled item of furniture or fitment:

- Has a high content of materials that are either renewable, recycled or reused, which reduces greenhouse gas emissions.
- Requirements governing energy consumption in the production of wood-based boards deliver a reduction in carbon emissions.
- The timber is legally harvested and is certified under a traceability system.
- At least 70% of timber is sourced from certified sustainable forests.
- Stringent requirements governing chemicals that are used during the manufacture of the furniture and the materials used to make it. For example, halogenated flame retardants, organofluorine compounds and antibacterial agents must not be added to Nordic Swan Ecolabelled furniture.
- Meet stringent requirements to emissions from harmful substances. This is positive for the indoor environment.
- Quality, strength and safety, which promote a long useful life, have been proven through international tests.
- The furniture is designed for repair and recycling, being easy to take apart and sort.

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 the company 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 not only covers environmental issues but also quality requirements, since the environment and quality often go hand in hand. This means that a Nordic Swan Ecolabel licence can also be seen as a mark of quality.

What can carry the Nordic Swan Ecolabel?

Furniture, fitments and doors for indoor use can be awarded the Nordic Swan Ecolabel.

The term furniture refers to seating (chairs, sofas, etc.), furniture for sleeping (beds, sofa beds, mattresses, etc.) and storage furniture (cupboards, bookshelves, etc.) and desks/tables. Fitments include

- kitchen and bathroom fittings (including shower walls)
- countertops
- wardrobes, including coat racks/hat shelves and similar
- boards and partitions, e.g. in an office space (freestanding or fixed), including soundproof fabric-wrapped walls/panels (acoustic panels for walls/ceilings must be labelled in accordance with the criteria for the Nordic Swan Ecolabelling of construction panels)

Applications may also be made for product systems, e.g. kitchen and wardrobe solutions of which there are numerous variations.

The products must consist of materials that are included in the criteria. Materials encompassed by the criteria are solid wood (including bamboo, willow and cork), wood-based and paper-based panels, laminate, metal, plastic/rubber, padding materials (like latex foam, polyurethane foam, down and feathers), paper, linoleum, glass, agglomerated stone, textiles, hide and leather, and materials for soundproofing.

The product must not contain more than 5% by weight of materials for which the criteria do not specify requirements.

Relevant products in addition to those specified above may be included in the product group upon request if they can be considered to be furniture/fitment products. This applies only to products made of materials for which requirements are imposed in the criteria. Nordic Ecolabelling will determine which new products may be included in the product group.

What may not be Nordic Swan Ecolabelled

Products not primarily intended for use as furniture/fitments may not be Nordic Swan Ecolabelled. The following are examples of products that may not be Nordic Swan Ecolabelled under the criteria for furniture:

- Building products (e.g. walls, stairs, mouldings, windows, floors, construction panels)
- Sanitary ware, such as toilets, shower cabins, baths and washbasins
- Lamps
- Bathroom accessories, such as soap dispensers, paper towel holders, towel racks, toilet paper holders and similar
- Office supplies, including rubbish bins
- Furniture intended for outdoor use
- Carpets, cushions* and textiles
- Toys (products that fall within the scope of the Directive 2009/48/EC on the safety of toys)
- Mirror glass that is not part of another piece of furniture/fitment
- Aids, such as raised toilet seats, armrests, backrests and similar
- Interior items, such as picture frames, candlesticks and hooks

** Cushions and pillows must be labelled in accordance with the criteria for textiles. However, pillows can be ecolabelled under the criteria for furniture and fitments if they are a part of an overall furniture licence, for example together with beds or sofas, and if the padding material is of the same type and is a type for which requirements are imposed in the criteria.*

Separate criteria exist for outdoor furniture, floors, construction panels, windows, textiles and toys and can be obtained by contacting one of the secretariats or downloaded from one of our websites.

Nordic Ecolabelling determines whether a product can be labelled. If there is any doubt about which criteria a product may be ecolabelled under, Nordic Ecolabelling determines the licence application criteria for the product.

The entire product must be approved for it to be marketed as Nordic Swan Ecolabelled. For example, a bed can only be marketed as Nordic Swan Ecolabelled if both the mattress and headboard are covered by the licence, and for a kitchen to be marketed as a kitchen, the licence must include at least a countertop. Otherwise, the parts must be marketed as kitchen fixtures.

How to apply

Application and costs

For information about the application process and fees for this product group, please refer to the respective national web site. 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.

Licence 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 Definitions

ADt	Air dry tonne (ADt) is dry solid content of pulp and paper. ADt for pulp is 90%, while ADt for paper means a solid content of 94%.
COD	Chemical oxygen demand. A measurement of the quantity of oxygen that is consumed during the chemical breakdown of organic material.
Ingoing substances in chemical products	All substances in the chemical product, including additives (e.g. preservatives and stabilisers) in the raw materials. Substances known to be released from ingoing substances (e.g. formaldehyde, arylamine, in-situ generated preservatives) are also considered as ingoing substances.
Impurities in chemical products	Residuals, pollutants, contaminants etc. from production, incl. production of raw materials that remain in the raw material or in chemical product in concentrations less than 100 ppm (0,0100 w-%, 100 mg/kg) in the chemical product. Impurities in the raw materials exceeding concentrations of 1,0 % / 0,10 % are always regarded as ingoing substances, regardless of the concentration in the chemical product. Examples of impurities are residues of the following: residues or reagents incl. residues of monomers, catalysts, by-products, scavengers, and detergents for production equipment and carry-over from other or previous production lines.
Recycled material	Recycled material is defined according to ISO 14021 in the categories of pre-consumer and post-consumer and includes both mechanical and chemical recycling.
Pre-consumer recycled material	“Pre-consumer" is defined as material that is reclaimed from the waste stream during a manufacturing process. Production waste (scrap, rework, regrind) that can be returned directly to the same process in which it was generated is not counted as recycled pre-consumer material. Nordic Ecolabelling defines rework, regrind or scrap, that cannot be reused directly in the same process, but requires a reprocessing (e.g. sorting, reclamation and granulation) before it can be reused, to be pre-consumer material. This is

	regardless of whether it is produced in-house or externally.
Post-consumer recycled material	“Post-consumer" is defined as material generated by households or commercial, industrial or institutional facilities in their role as end-users of a product that can no longer be used for its intended purpose. This includes materials from the distribution chain.
Recovered/recycled fibre	Defined according to ISO 14021. Includes both mechanical and chemical recycling.
Nanomaterial	A nanomaterial is a natural, incidental or purposely manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for 50% or more of the particles in number or size distribution, one or more external dimensions is in the size range 1–100 nm.
Organic	Fibre (such as cotton and wool) that is certified as organic or is in transition to organic in compliance with a standard endorsed by IFOAM Family of Standards, such as Regulation (EU) 2018/848, USDA National Organic Program (NOP), APEDA’s National Programme for Organic Production (NPOP), China Organic Standard GB/T19630. The Global Organic Textile Standard (GOTS) and the Demeter Biodynamic Farm Standard are also accepted and are certified as “in transition to organic production”. The certification body must have a valid and recognised accreditation for the standard it certifies against, for example, ISO 17065, NOP or IFOAM.

2 Product and material composition

When manufacturing many kinds of products with different compositions, the materials used in the products can be approved according to a specific list of materials. Material compositions must meet the requirements specified in the criteria and compliance with all requirements must be ensured for each product.

If materials that are licensed in accordance with other criteria set by Nordic Ecolabelling are used, for example, textiles or construction panels, it is not necessary to document the individual requirements that cover this. The name of the product, manufacturer and licence number must be stated.

In the case of kitchen fitments/bathroom fitments, requirements are not set for parts that are not a fixed feature. This applies to optional products, such as knobs, handles, drawer fittings, hangers, rods and so on.

Table 1: Overview of the requirements

Material	Level	Requirement	Relevant	Who should document?
Product description and production process	General	O1	Yes ☐ No☐	Furniture manufacturer
Percentage of renewable / recycled / recycled material in the product	General	O2	Yes ☐ No☐	Furniture manufacturer and subcontractors
PVC	General	O3	Yes ☐ No☐	Furniture manufacturer
Quality requirements and surface resistance	General	O4-O5	Yes ☐ No☐	Furniture manufacturer
Product Requirements - Circular Economy	General	O6-O8	Yes ☐ No☐	Furniture manufacturer
Biocides in transport	General	O9	Yes ☐ No☐	Furniture manufacturer
Standby energy consumption - electronic furniture	General	O10	Yes ☐ No☐	Furniture manufacturer
Lamps as part of a piece of furniture	General	O11	Yes ☐ No☐	Furniture manufacturer
Chemicals	General A number of these requirements also apply to the production of constituent materials. The requirements are then stated again under the respective chapter for the material in question.	O12-O18	Yes ☐ No☐	Furniture manufacturer/subcontractor/chemical manufacturer. The requirements apply to chemicals added to the product or used in the production / composition of the finished furniture at the production site of the furniture or at the subcontractor if this is not done by the furniture manufacturer himself.
Solid wood, willow, bamboo and cork	General	O19-O20	Yes ☐ No☐	Furniture manufacturer or supplier
	More than 10% by weight	O21	Yes ☐ No☐	Furniture manufacturer and supplier
Wood-based panels	General (more than 5 % by weight)	O22-O29	Yes ☐ No☐	Supplier - manufacturer of wood-based panels and chemical manufacturer / supplier
	More than 10% by weight	O30-O31	Yes ☐ No☐	Supplier - manufacturer of wood-based panels
Paper	General (more than 5 % by weight)	O32-O40	Yes ☐ No☐	Supplier – Pulp and paper manufacturer and Chemical manufacturer / supplier
Laminate	General	O41-O47	Yes ☐ No☐	Supplier - laminate manufacturer and chemical manufacturer / supplier
	More than 10% by weight	O48	Yes ☐ No☐	Supplier - laminate manufacturer
	More than 30% by weight	O49-O51	Yes ☐ No☐	Supplier - manufacturer of kraft paper
Surface treatment of wood, wood-based panels and laminate	General	O52-O57	Yes ☐ No☐	Supplier of surface treatment and manufacturer / supplier of chemicals for surface treatment
	More than 5% by weight	O58-O60	Yes ☐ No☐	Furniture manufacturer, supplier of surface treatment and supplier of chemicals for surface treatment
Metal	General	O61	Yes ☐ No☐	Furniture manufacturer and supplier of surface treatment
	Surface treatment - metallization	O62	Yes ☐ No☐	Furniture manufacturer and supplier of surface treatment
	Other surface treatment	O63-O69	Yes ☐ No☐	Furniture manufacturer, supplier of surface treatment, supplier of chemicals for surface treatment
	More than 30% by weight - Recycled metal	O70	Yes ☐ No☐	Furniture manufacturer and suppliers of metal

Plastic and rubber	General	O71-O73	Yes ☐ No☐	Furniture manufacturer or supplier of plastic / rubber
	Chemicals	O74-080	Yes ☐ No☐	Furniture manufacturer and supplier / manufacturer of plastic / rubber. Chemical manufacturer / supplier.
	More than 10% by weight – Recycled plastic	O81	Yes ☐ No☐	Furniture manufacturer and supplier of recycled plastics
Textile	General	O82-O85	Yes ☐ No☐	Textile manufacturer and suppliers for this
	Exterior covers on e.g. mattresses, chairs, sofas - chemical requirements and fiber requirements	O86-O97	Yes ☐ No☐	Textile manufacturer and chemical manufacturer / supplier
	Quality requirements seating furniture	O98-O104	Yes ☐ No☐	Textile Manufacturer / Supplier
	Other textile parts	O105-O110	Yes ☐ No☐	Furniture manufacturer or textile manufacturer
Padding materials	Materials	O111-115	Yes ☐ No☐	Supplier or manufacturer of the relevant padding material
	Chemicals	O116-117	Yes ☐ No☐	Manufacturer of padding material
	Emissions	O118-O119	Yes ☐ No☐	Manufacturer of padding material
Leather and hide	General	O120-O122	Yes ☐ No☐	Manufacturer of leather / hide
	Exterior cover of furniture	O123-O126	Yes ☐ No☐	Manufacturer of leather / hide and chemical manufacturer / supplier
	Quality requirements	O127-O130	Yes ☐ No☐	Manufacturer of leather / hide
Sound absorption materials	Fiber products such as e.g. polyester must meet the relevant requirements in the chapter for padding materials or textiles		Yes ☐ No☐	
	Mineral raw materials, more than 5% by weight	O131	Yes ☐ No☐	Furniture manufacturer
Glass	Glass	O132-O133	Yes ☐ No☐	Furniture manufacturer and manufacturer / supplier of glass
Linoleum	More than 5% by weight	O134	Yes ☐ No☐	Furniture manufacturer
Natural stone and agglomerated stone	General	O135 + EUs requirement in hard coverings	Yes ☐ No☐	Furniture manufacturer and manufacturer of natural stone / agglomerated stone
Other requirements	Regulatory requirements	O136-O142	Yes ☐ No☐	Furniture manufacturer

O1 Description of product and production process

Applicants must provide the following information about the product and the production process:

- The type of furniture it is, including information about which market the product is intended for (like home, public, office or several markets)
- Description of the composition of the furniture/fitment into different materials and small parts. Small parts include screws, bolts, plugs, brackets, buttons, zips, etc.
- Drawing/picture of the product
- Suppliers of the various materials
- Weight (kg) of the separate materials with the following exception:

    - Small parts do not need to be weighed.
    - The weight calculation does not need to include the electric motor in height adjustable desks and adjustable beds
- Description e.g. a flowchart, of the production process, including which subcontractors perform which stages of the process, e.g. the surface treatment of wood or metal.
- The furniture/fitments must be made of materials for which requirements are imposed in the criteria.
- Materials for which requirements are not imposed may not account for more than 5% by weight.

✉ Detailed description of the points above. Product data sheets can be sent in as part of the documentation. Use a flowchart to describe the production process.

O2 Renewable and/or recycled and/or reused materials in the product

- Office chairs must contain a minimum of 50% renewable, recycled* and/or reused** materials by weight.
- Other products must contain a minimum of 70% renewable, recycled and/or reused materials by weight.

Mattresses are exempt from the requirement.

Calculation of the content of renewable/recycled/reused material:

a) Small parts such as screws, bolts, plugs, brackets, buttons, zips etc. are exempt from the requirement to be weighed and must not be included in the calculation of weight.

b) For wood-based panels and paper-based panels, the entire panel is classed as renewable even if it contains glue.

c) Textiles are classed as renewable/recycled if at least 75% of the textile fibres are renewable (e.g. cotton, wool, flax)/recycled.

d) For metals, the smelter must declare the percentage of recycled materials used in production. An annual average for the smelter is accepted. The supply chain must be stated and there must be traceability all through the supply chain, from the smelter to the finished product, so that the percentage of recycled materials is guaranteed along the entire supply chain. Information about recycled materials must be shown on the invoice or be documented with a declaration from the supplier about the percentage of recycled materials.

   The supplier can confirm the percentage of recycled materials in its products by providing an overview of the quantity of recycled materials purchased and the quantity sold. There must be an agreement between the supplier and the manufacturer of the Nordic Ecolabelled production that the recycled material is sold to the Nordic Ecolabelled production.

e) For plastics, manufacturers of recycled raw materials must be stated. Description and documentation from manufacturers of recycled raw materials showing that the plastic is recycled in compliance with the requirement's definition or has Global Recycled Standard certification showing that the raw materials are recycled or EuCertPlast certification, or other equivalent certification approved by Nordic Ecolabelling.

f) The requirement for other recycled materials, e.g. textiles or padding materials, is a description of the materials and documentation showing that the materials are recycled in compliance with the definition given in ISO14021, e.g. traceability and specification of source or Global Recycled Standard certification.

g) For synthetic textile fibres the recycled plastic must not originate from facilities that are EFSA*** or FDA**** approved, or are marketed as compliant with these.

**recycled material is defined according to ISO 14021 in the categories of pre-consumer and post-consumer, see definitions for details.*

***Reused material is defined as material that is used again in a new product without further processing, e.g. direct reutilisation of a part made of solid wood or plastic. It does not refer to second-hand furniture.*

****EFSA: in compliance with the European Commission Regulation (EC) No. 282/2008 of 27 March 2008 on recycled plastic materials and articles intended to come into contact with foods.*

*****FDA: in compliance with Code of Federal Regulations Title 21: Food and Drugs, PART 177—INDIRECT FOOD ADDITIVES: POLYMERS*

☒ Description of which materials are renewable and/or recycled and/or reused and their quantities.

☒ Metals:

1. The percentage of recycled metal in the metal part must be stated.
2. A declaration from the smelter of the percentage of recycled metal used in its production (on an annual basis).
3. Supply chain traceability must be documented, e.g. as a flowchart. The percentage of recycled metal in the supply chain must be documented, e.g. with information on the invoice or a declaration from the supplier. The percentage of recycled content for Al can be documented with the certification Hydro Circal.

☒ Plastics:

1. Manufacturers of recycled raw materials must be stated.
2. Documentation from manufacturers of recycled raw materials showing that the plastic has been recycled in compliance with the definition of the requirement.

or

1. certification in compliance with Global Recycled Standard, EuCertPlast or other equivalent certification approved by Nordic Ecolabelling showing that the raw material has been recycled.

☒ Other recycled materials:

1. Documentation showing that the material has been recycled in compliance with ISO14021.
2. Recycled synthetic textile fibres: A declaration from manufacturers of recycled raw materials stating that the raw material is not EFSA or FDA approved.

O3 PVC

The product must not contain* chlorinated polymers/plastics, such as PVC.

** PVC used in power cables for height-adjustable tables and adjustable beds is exempt from the requirement.*

☒ A declaration from the manufacturer that the product does not contain PVC.

2.1.1 Quality

O4 Performance properties

The requirement applies to seating, tables, beds, storage furniture, screen walls, acoustic panels and whiteboards and blackboards.

The product must meet the requirements of the relevant standard stated in the table below. Other relevant standards might be accepted if the testing institute is able to provide documentation to show that the chosen test is equivalent and will give approximately the same results.

Testing must be performed by an independent testing institute. More information on requirements for analysis laboratories/testing institute can be found in Appendix 1.

End-use environment	Type of furniture	Standards
Home environment	Seating	EN 12520:2015 Furniture - Strength, durability and safety - Requirements for domestic seating EN 1728:2012 Furniture - Seating - Test methods for the determination of strength and durability EN 1022:2018 Furniture - Seating - Determination of stability
	Tables	EN 12521:2015 Furniture - Strength, durability and safety - Requirements for domestic tables EN 1730:2012 Furniture - Tables - Test methods for the determination of stability, strength and durability
	Storage furniture, kitchens and bathrooms	EN 14749:2016 Furniture - Domestic and kitchen storage units and kitchen worktops - Safety requirements and test methods ISO 7170:2005 Furniture - Storage units - Determination of strength and durability EN 14072:2003 Glass in furniture (section 1.7) - Test methods
	Furniture for sleeping and mattresses	EN 1725:1998 Domestic furniture - Beds and mattresses - Safety requirements and test methods EN 1957:2012 Domestic furniture - Beds and mattresses - Test methods for the determination of functional characteristics and assessment criteria EN 1022:2018 Furniture - Seating - Determination of stability
	Bunk beds/high beds	EN 747-1:2012+A1:2015 Furniture - Bunk beds for domestic use - Part 1: Safety, strength and durability requirements EN 747-2:2012+A1:2015 Furniture - Bunk beds for domestic use - Part 2: Test methods
	Children's high chairs* (ages 6-36 months)	EN 14988:2017 Children's high chairs - Requirements and test methods. Part 1: safety requirements
Public setting	Seating	EN 16139:2013 Furniture - Strength, durability and safety - Requirements for non-domestic seating EN 1728:2012 Furniture - Seating - Test methods for the determination of strength and durability EN 1022:2018 Furniture - Seating - Determination of stability EN 1335-1:2000 Office furniture - Office work chair - Part 1: Dimensions - Determination of dimensions EN 1335-2:2018 Office furniture - Office work chair - Part 2: Safety requirements
	Tables	EN 15372:2016 Furniture - Strength, durability and safety - Requirements for non-domestic tables EN 1730:2012 Furniture - Tables - Test methods for the determination of stability, strength and durability
	Storage furniture	EN 16121:2013+A1:2017 Non-domestic storage furniture - Requirements for safety, strength, durability and stability
	Kitchen and bathroom	EN 14749:2016 Furniture - Domestic and kitchen storage units and kitchen worktops - Safety requirements and test methods

	Furniture for sleeping and mattresses	EN 1725:1998 Domestic furniture - Beds and mattresses - Safety requirements and test methods EN 1957:2012 Domestic furniture - Beds and mattresses - Test methods for the determination of functional characteristics and assessment criteria EN 1022:2018 Furniture - Seating - Determination of stability
	Bunk beds/high beds	EN 747-1:2012+A1:2015 Furniture - Bunk beds for domestic use - Part 1: Safety, strength and durability requirements EN 747-2:2012+A1:2015 Furniture - Bunk beds for domestic use - Part 2: Test methods
Schools/institutions	Chairs and tables for educational institutions	EN 1729-1:2015 Furniture - Chairs and tables for educational institutions - Part 1: Functional dimensions EN 1729-2:2012+A1:2015 Furniture - Chairs and tables for educational institutions - Part 2: Safety requirements and test methods
	Storage furniture	Must meet standards for non-domestic use: EN 16121:2013+A1:2017 Non-domestic storage furniture - Requirements for safety, strength, durability and stability
	Whiteboards, blackboards	EN 14434:2010: Writing boards for educational institutions - Ergonomic, technical and safety requirements and their test methods
Offices	Work chairs	EN 1335-2:2018 Office furniture - Office work chair - Part 2: Safety requirements EN 12529:1998 Castors and wheels - Castors for furniture - Castors for swivel chairs - Requirements
	Work tables (sitting)	EN 527-2:2016: Office furniture - Work tables - Part 2: Safety, strength and durability requirements
	Work tables (standing)	EN 527-2:2016: Office furniture - Work tables - Part 2: Safety, strength and durability requirements
	Storage furniture	EN 14073-2:2004 Office furniture - Cabinets and shelves - Part 2: Safety requirements EN 14073-3:2004 Office furniture - Cabinets and shelves - Part 3: Test methods for the determination of stability and strength of the structure EN 14074:2004 Office furniture - Tables and desks and storage furniture - Test methods for the determination of strength and durability of moving parts ISO 7170:2005 Furniture — Storage units — Determination of strength and durability
	Screens	EN 1023-2:2000 Screens - Part 2: Mechanical safety requirements
	Sound absorption	EN ISO 354:2003 Acoustics - Measurement of sound absorption in a reverberation room ISO 20189:2018: Acoustics — Screens, furniture and single objects intended for interior use — Rating of sound absorption and sound reduction of elements based on laboratory measurements EN ISO 11654:1997 Acoustics - Sound absorbers for use in buildings - Rating of sound absorption
	Table screens	Work table partitions EN 1023-2:2000 Screens - Part 2: Mechanical safety requirements
	Boards	EN 14334:2010 Writing boards for educational institutions - Ergonomic, technical and safety requirements and their test methods

**the requirements apply irrespective of whether the children's chairs are for domestic or non-domestic use.*

✉ Information stating what purpose/end use the furniture has been tested for and what standard and testing institute were used. A test report showing compliance with the requirement. A statement, where relevant, of how national standards relate to EN or ISO requirement levels.

O5 Wear resistance of surfaces

Surfaces that are varnished, painted or have a foil, melamine or laminate finish must meet the following requirements for wear resistance. The requirements do

not apply to interior doors nor to surfaces that are untreated, are treated with soap, wax or oil, or are covered with linoleum.

Seating	Frame	Requirement level 1
	Seat, back and armrests	Requirement level 2
Storage units	Frame and internal surfaces, including drawer bottoms	Requirement level 1
	Exterior horizontal surfaces	Requirement level 2
Tables	Frame	Requirement level 1
	Tables	Requirement level 4
	Tabletops intended for use in high-traffic public settings (restaurants, cafés, schools, etc.)	Requirement level 5
Kitchen and bathroom fitments	Internal surfaces, including drawer bottoms, excluding shelves and bases	Requirement level 1
	External surfaces, shelves and bases	Requirement level 3
	Worktops	Requirement level 6

The following levels are referred to in the requirement:

Requirement category			**Requirement levels**					
Test		**Test method**	**1**	**2**	**3**	**4**	**5**	**6**
Water	1)	EN 12720:2009+A1:2013	6 h	16 h	16 h	24 h	24 h	24 h
Grease	1)	EN 12720:2009+A1:2013	24 h	24 h	24 h	24 h	24 h	24 h
Grease + scratches	1)	SS 83 91 22	-	-	-	24 h + 3 N	24 h + 5 N	24 h + 5 N
Scratches	2)	SS 83 91 17	-	3 N	3 N	3 N	5 N	5 N
	3)	or EN 15186, method A	-	1.5 N	1.5 N	1.5 N	3 N	3 N
Alcohol	1)	EN 12720:2009+A1:2013	-	-	-	1 h	1 h	1 h
Coffee	1)	EN 12720:2009+A1:2013	-	1 h*	1 h	1 h	1 h	1 h
Heat, dryness	1)	EN 12720:2009+A1:2013	-	-	-	70°C	70°C	180°C
Heat, moisture	1)	EN 12720:2009+A1:2013	-	-	-	-	-	85°C
Heat on edge	1)	NS 8061	-	-	-	-	-	85°C
Water on edge	1)	SS 83 91 20	-	-	1 h**	-	-	1 h
Sweat, acid and alkaline	1)	EN 12720:2009+A1:2013	-	1 h***	-	-	-	-

1) = A result of at least 4 is a pass score in the assessment.

2) = Maximum scratch width 0.5 mm. Penetration of the varnish layer is not acceptable.
3) = Maximum scratch width 0.3 mm

For laminates, requirements and tests in accordance with SS-EN 438-2, -3 are also accepted. It must then include clauses 10, 16, 20, 25 and 26 with the same liquids according to the table above and humid heat according to SS-EN 12721: 2009. For requirements category 1–5, level VGS is accepted. For requirement category 6 level HGS is required as well as testing of edge on finished panel.

For melamine coated panels, requirements and testing according to SS-EN 14322: 2017 with liquids as specified in the table above are also accepted.

** = Applies to storage units – external horizontal surfaces*
*** = Applies to doors and drawer fronts on kitchen and bathroom fitments*
**** = Applies to armrests on seating.*

✉ A test report showing that relevant requirement levels have been met. It must be clearly stated which method/standard was used, the laboratory that conducted the analysis, and that the analysis laboratory is an independent third party. Other analysis methods than those stated in the requirement may be used, provided that the correlation between test methods can be verified by an independent third party.

2.1.2 Other product requirements

O6 Dismantling and separation

The furniture must be designed so that different components and constituent materials can be easily separated from each other with ordinary hand tools to simplify repair, renovation and recycling. For example, fabrics on seat furniture or exterior covers on mattresses should be easy to remove for changing or washing and a wooden tabletop should be easily detached from a metal base.

The requirement does not cover the constituent components inside a material, e.g. wood fibre and adhesives in construction panels, laminate and linoleum that are glued to a substrate.

✉ A declaration from the furniture manufacturer that the piece of furniture can be dismantled and a description of how constituent materials can be separated from one another.

O7 Warranty

The product must have at least a 5-year warranty*. The warranty is valid from the date of product purchase and shall be communicated to the customer.

In addition, the following specific warranty requirements apply:

- Functional parts/moving parts such as drawer rails, hinges and wheels for kitchen, bathroom and wardrobe fittings shall have a warranty period of at least 25 years.

Please note that there is a separate requirement for fixed wardrobes for public spaces.

- Stools and fronts (cabinet doors and drawer fronts) for kitchens and bathrooms must have a warranty period of at least 10 years.
- Fixed furniture such as wardrobe solutions, cupboards and shelves for schools/kindergartens and other public spaces must have a warranty period of at least 10 years.
- Office furniture such as desks and office chairs must have a warranty period of at least 10 years. The warranty period for office chairs should apply for normal use (minimum 8 hours/day).
- Beds and mattresses must have a warranty period of at least 10 years for frame or spring breakage.
- Electric motor for height adjustable tables and beds must have a warranty period of at least 10 years.

** Warranty period means that if the product proves to be defective or not functioning under normal use, the manufacturer shall within a reasonable time provide a replacement product, repair or replace parts/materials that are missing or not functioning properly. Spare parts that are important for the function of the product must be offered within the warranty period of the product and/or the individual part.*

✉ Description of warranty times and how this is communicated to the customer.

O8 Product information

The following product information must be included with the furniture or be available to download from the website of the manufacturer or retailer:

- Cleaning, care and maintenance instructions for the furniture with specific instructions for the different materials.
- Illustrated assembly instructions if the furniture or fitment is designed for assembly.
- Information about the materials used in the furniture and how these can best be taken care of / recycled when the furniture reaches the end of its service life.
- Specify which standards the product has been tested for.

✉ Product information written for the customers.

O9 Biocides during transport

Biocides in the form of pure active substances or as biocide products may not be used during transport of the finished furniture. See also O83 for textiles.

✉ A declaration from the furniture manufacturer that biocides have not been used during transport.

O10 Standby energy consumption - electronic furniture

Electronic furniture e.g. height adjustable tables and beds shall have a standby energy consumption of max. 0.5W measured according to EN 50564: 2011 or equivalent.

✉ Test report according to EN 50564: 2011 showing that the requirement is fulfilled.

2.1.3 Lamps as a furniture feature

The requirement applies to lamps that are built-in or recessed into furniture, e.g. in a cabinet or drawers. Free-standing lamps cannot be labelled.

O11 Lamps

Lamps can form part of a piece of furniture, e.g. in a cabinet or drawers. If furniture contains a lamp/lamps, the following applies:

- LED bulbs must be used.
- It must be possible to change the bulb.

✉ Description of the location of the lamp in the product. A declaration from the manufacturer that LED bulbs are used and that the bulbs can be changed.

3 Chemicals

Nordic Ecolabelling sets requirements for chemicals that are used during the manufacture of the constituent materials, for the manufacture/assembly of the furniture and for surface treatment. The requirements for chemicals are not all found in one chapter, but will be specified in the chapter for each individual material, e.g. chemicals that are relevant in the manufacture of wood-based panels will be specified in the chapter for wood-based panels and chemicals used in the production of laminates will be specified in the chapter on laminates. An

exception to this is the requirements for the surface treatment of wood, wood-based panels and laminate, which are placed together in one chapter.

Much of the production process takes place at the subcontractors these days, but the furniture manufacturers often do some stages of the process, such as assembling the finished piece of furniture, themselves. There are some furniture manufacturers that do more of the production themselves. The criteria for chemicals must be met regardless of whether the chemicals are used at the subcontractors' or the furniture manufacturers' facilities. The chapters that apply to subcontractors of different materials and to the furniture manufacturer or the subcontractor that assembles/produces the finished piece of furniture are given below.

The requirements for chemicals can be found in the following chapters:

- Chemicals used by the furniture manufacturer in its production/assembly of the furniture/fitment, Chapter 3.1.1
- Chemicals used by subcontractors that produce/assemble the finished piece of furniture, Chapter 3.1.1
- Chemicals for wood-based panels, Chapter 3.3
- Chemicals for paper, Chapter 3.4
- Chemicals for laminate, Chapter 3.5
- Chemicals for surface treatment of wood, wood-based panels and laminate, Chapter 3.6
- Chemicals for surface treatment of metal, Chapter 3.7
- Chemicals for plastics and rubber, Chapter 3.8
- Chemicals for textiles, Chapter 3.9
- Chemicals for padding materials, Chapter 3.10
- Chemicals for hide and leather, Chapter 3.11

The following definitions apply to all the criteria for chemicals unless otherwise stated: The requirements in the criteria document apply to all ingoing substances in the chemical product, but not to impurities unless otherwise stated in the specific requirement. Ingoing substances and impurities are defined below.

Ingoing substances: All substances in the chemical product, including additives (e.g. preservatives and stabilisers) in the raw materials. Substances known to be released from ingoing substances (e.g. formaldehyde, arylamine, in-situ generated preservatives) are also considered as ingoing substances.

Impurities: Residuals, pollutants, contaminants etc. from production, incl. production of raw materials that remain in the raw material or in chemical product in concentrations less than 100 ppm (0,0100 w-%, 100 mg/kg) in the chemical product. Impurities in the raw materials exceeding concentrations of 1,0 % / 0,10 % are always regarded as ingoing substances, regardless of the concentration in the chemical product. Examples of impurities are residues of the following: residues or reagents incl. residues of monomers, catalysts, by-products, scavengers, and detergents for production equipment and carry-over from other or previous production lines.

3.1.1 Chemicals used by furniture manufacturers and subcontractors

The requirements in this chapter apply to chemicals that are added to the furniture/fitment or are used in the production/assembly of the furniture/fitment at the production site of the furniture/fitment or at the subcontractor's facility. A subcontractor can assemble parts of or the entire piece of furniture. Any chemicals used here, e.g. adhesives, must meet the requirements stated in this chapter.

If the furniture/fitment manufacturer itself performs much of the production process, and/or adds chemicals or carries out some of the chemical treatment, e.g. coating, the criteria for chemicals in the respective chapter for the relevant material must be met.

O12 Antibacterial substances

Chemical products and nanomaterials* with antibacterial or disinfectant properties must not be added to the finished item of furniture or fitment.

The term antibacterial means chemical products that prevent or inhibit growth of microorganisms, such as bacteria or fungi. Silver ions, silver nanoparticles, gold nanoparticles and copper nanoparticles are classed as antibacterial agents.

** In accordance with the definition of a nanomaterial adopted by the European Commission on 18 October 2011 (2011/696/EU), see definitions.*

✉ A declaration from the manufacturer of the furniture/fitment or the subcontractor showing that no chemical products and nanomaterial with antibacterial or disinfectant properties have been used on the surface of the finished furniture/fitment.

O13 Classification of chemical products

Chemical products must not have any of the classifications in the table below.

CLP Regulation 1272/2008		
Hazard class	**Hazard category**	**Hazard code**
Hazardous to the aquatic environment	Aquatic Acute 1 Aquatic Chronic 1 Aquatic Chronic 2 Ozone	H400 H410 H411 H420
Carcinogenicity*[1]	Carc 1A or 1B Carc 2	H350 H351
Germ cell mutagenicity[1]	Muta. 1A or 1B Muta. 2	H340 H341
Toxic for reproduction[1]	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
Acute toxicity	Acute Tox 1 or 2 Acute Tox 3	H300, H310, H330 H301, 311, 331
Specific target organ toxicity with single or repeated exposure	STOT SE 1 STOT RE 1	H370 H372

[1] *Including all combinations of stated exposure route and stated specific effect. For example, H350 also covers the classification H350i.*

**An exemption applies to adhesives containing isocyanates classified with H351 and adhesives containing formaldehyde classified with H350. Formaldehyde is regulated in a separate requirement.*

Note that responsibility for correct classification lies with the manufacturer.

☒ A declaration from the chemical manufacturer or supplier.
☒ A safety data sheet for the product in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

O14 Classification of ingoing substances

Ingoing substances* in the chemical product must not have any of the classifications in the table below:

CLP Regulation 1272/2008		
Hazard class	**Hazard class and category**	**Hazard code**
Carcinogenic**[1]	Carc. 1A or 1B Carc 2	H350 H351
Germ cell mutagenic[1]	Mut. 1A or 1B Mut. 2	H340 H341
Toxic for reproduction[1]	Repr. 1A or 1B Repr 2 Lact	H360 H361 H362

[1]*Including all combinations of stated exposure route and stated specific effect. For example, H350 also covers the classification H350i.*

** For definition of ingoing substances, see Definitions.*

***An exemption applies to adhesives containing isocyanates classified with H351 and adhesives containing formaldehyde classified with H350. Formaldehyde is regulated in a separate requirement.*

☒ A declaration from the chemical manufacturer or supplier.
☒ A safety data sheet for the product in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

O15 Prohibited substances

The following substances shall not be an ingoing substance* in chemical products:

** For definition of ingoing substances and impurities, see Definitions.*

- Substances on the Candidate List**
- Substances that have been evaluated in the EU to be PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative)***
- Substances considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances for further evaluation of their role in endocrine disruption****
- Halogenated organic compounds with the following exceptions:
    - Bronopol (Cas. No. 52-51-7) may be present in the chemical product at a level of not more than 0.05% by weight
    - Mixture (3:1) of CMIT/MIT (5 chloro-2-methyl-4-isothiazolin-3-one Cas. No. 247-500-7; 2-methyl-4-isothiazolin-3-one Cas. No. 220-239-6) may be present in the chemical product at a level of not more than 0.0015% by weight
    - IPBC (Iodopropynyl butylcarbamate) may be present in the chemical product at a level of not more than 0.20% by weight
- Isothiazolinones may be present in the chemical product at a level of not more than 0.05% by weight
- Butylhydroxytoluene (BHT, CAS nr. 128-37-0)

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.

- Aziridine and polyazidirines
- Bisphenol A, S and F
- Alkylphenols, alkylphenol ethoxylates and other alkylphenol derivates*****
- Phthalates
- Pigments and additives based on lead, tin, cadmium, chromium VI and mercury, and their compounds
- Volatile aromatic hydrocarbons (VAH). They are permitted in the chemical product as an impurity at a level of not more than 1% by weight

**See definition of ingoing substances under Definitions.*

***The Candidate List is available on the ECHA website: http://echa.europa.eu/candidate-list-table*

****PBT and vPvB in accordance with the criteria in Annex XIII of REACH*

*****Substances with endocrine disrupting effects categories 1 or 2, see the following link: http://ec.europa.eu/environment/chemicals/endocrine/strategy/being_en.htm (Annex L, page 238 onwards)*

******Alkylphenol derivatives are defined as substances that release alkylphenols when they break down.*

✉ A declaration from the manufacturer/supplier of the chemical product.
✉ A safety data sheet for the product in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

O16 Nanomaterials

The chemical product must not have nanomaterials* as ingoing substances**. Exemptions are made for:

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

**In accordance with the definition of a nanomaterial adopted by the European Commission on 18 October 2011 (2011/696/EU), see definitions.*
***See definition of ingoing substances under Definitions.*

**** Nano-titanium dioxide is not classed as a pigment and is thus not covered by the requirement.*
***** This applies to fillers covered by Annex V item 7 of REACH ******This applies to traditional synthetic amorphous silica.*

✉ A declaration from the chemical manufacturer that the chemical product does not contain any nanomaterial.

O17 VOCs in adhesives

VOCs (volatile organic compounds) may not account for more than 3% by weight of the adhesive.

✉ A declaration from the adhesive producer that the requirement has been met.

O18 Free formaldehyde

The content of free formaldehyde in the chemical product must not exceed 0.02% by weight (200 ppm) measured in the finished product.

The content of free formaldehyde in adhesive products mixed with a hardener must not exceed 0.2% by weight (2,000 ppm) in the ready-to-use mixture before curing.

✉ A declaration from the manufacturer/supplier of the chemical product.

3.2 Wood, willow, cork and bamboo

The requirements apply to:

- wood (solid wood)
- willow
- cork
- bamboo

An exemption applies to furniture parts made of reused solid wood, willow, cork or bamboo from requirements O20 and O21.

3.2.1 Requirements that apply irrespective of quantity in the product

O19 Chemicals in reused parts

Please specify previous application area for reused parts.

Reused parts made of solid wood, willow, cork or bamboo must be untreated.

✉ A specification of what the reused part has been used for and a declaration that it is untreated. Nordic Ecolabelling may request additional documentation if there is any doubt about compliance with the requirement.

O20 Tree species that may not be used

Tree species listed on Nordic Ecolabelling's list of prohibited tree species* are not permitted to be used in Nordic Ecolabelled furniture and fitments.

**The list of prohibited tree species is located on the website: www.nordic-ecolabel.org/wood/*

✉ A declaration from the applicant/manufacturer/supplier stating that no tree species in the list of prohibited tree species are used.

3.2.2 Requirement for furniture/fitments containing ≥ 10% wood, willow, bamboo, cork by weight

O21 Traceability and certification

The requirement applies to furniture/fitments whose content of wood/willow/bamboo/cork exceeds 10% by weight.

Species name

Applicant/manufacturer/supplier must state the name (species name) of the wood raw materials/willow/bamboo/cork that are used in the Nordic Swan Ecolabelled furniture/fitment.

Chain of custody certification

The applicant/manufacturer of the furniture/fitment or the applicant's/manufacturer's subcontractors of wood raw

materials/willow/bamboo/cork must have FSC/PEFC chain of custody certification.

As an exception from the above, a subcontractor (e.g. a carpentry workshop) of the applicant that does not have CoC certification may also be approved. This is subject to a guarantee from the subcontractor that the wood raw materials are purchased from a CoC certified supplier of wood that can prove that the wood raw materials comply with Nordic Swan Ecolabelled requirements.

Certified wood raw materials, willow, bamboo and cork

At least 70% of the wood raw materials, willow, bamboo and cork used in the Nordic Swan Ecolabelled product must be certified as sourced from sustainably managed forests in compliance with the principles and criteria of the FSC and/or PEFC.

The remaining proportion of wood raw material must be covered by the FSC/PEFC control schemes.

If the furniture manufacturer has FSC/PEFC chain of custody certification, certified wood raw materials (FSC and PEFC credits) must be allocated from the manufacturer's chain of custody account to the Nordic Swan Ecolabelled product.

✉ The names (species names) of the wood raw materials, willow, bamboo and cork that are used.

✉ The applicant/furniture manufacturer or supplier must provide valid FSC/PEFC CoC certification that includes all wood raw materials, willow, bamboo and cork used in the Nordic Swan Ecolabelled furniture/fitment.

✉ If a furniture manufacturer has chain of custody certification: A manufacturer that has FSC/PEFC chain of custody certification must present documentation showing that the certified percentage requirement has been met through the applicant's/manufacturer's chain of custody account.

✉ If a supplier has chain of custody certification, the furniture manufacturer must provide proof of purchase of certified wood raw materials. This must be specified on the invoice with a certified percentage claim.

✉ If an applicant does not have a subcontractor with chain of custody certification, the subcontractor must present invoices for the wood raw materials in question from a supplier of wood with chain of custody certification and that supplier's CoC certificate which must correspond exactly with the invoices. Volumes of purchased certified wood raw materials must be stated on the invoices. An applicant must have a contract with the subcontractor that sets out how it guarantees that the certified wood specified on the invoice is delivered to the applicant. It must also be stated in the contract that the subcontractor is required to inform the applicant if their supplier of wood is changed. Nordic Ecolabelling may request further information.

3.3 Panels made of wood, willow and bamboo

The requirements apply to wood-based panels such as chipboard, fibreboard (including MDF and HDF panels), OSB (Oriented Strand Board), veneer (plywood and parallel-laminated veneer panels) and solid wood panels (corresponding to non-load bearing laminated wood panels or DIY panels). The requirements also cover equivalent products made of willow and bamboo.

O22 Eco-labelled construction panels

Is the panel Nordic Swan Ecolabelled? If the answer is Yes, you can skip the requirements in Chapter 2.7.

✉ Name, manufacturer and licence number of the panel.

3.3.1 Requirement applies if the panel accounts for more than 5% of the product by weight

O23 Chemicals in wood-based panels with recycled materials

Recycled materials in wood-based panels must meet the requirements of the European Panel Federation's (EPF) Standard for delivery conditions of recycled wood, 2002.

This means that the materials must not come from

- Treated wood: wood that contains halogenated organic compounds or heavy metals as a result of treatment with wood preservatives.
- Wood that exceeds the threshold limit values in the table below:

Substance/compound	Limit value (mg/kg recycled wood)
Arsenic (As)	25
Cadmium (Cd)	50
Chromium (Cr)	25
Copper (Cu)	40
Lead (Pb)	90
Mercury (Hg)	25
Fluorine (F)	100
Chlorine (Cl)	1000
Pentachlorophenol (PCP)	5
Creosote (Benzo(a)pyrene)	0.5

The requirement does not apply to sawdust, wood chips and similar materials that come straight from the wood-processing industry where the wood is virgin/untreated.

✉ For wood-based panels: Certification of compliance with the EFP's Standard for delivery conditions of recycled wood, 2002, or subsequent versions, and any equivalent documentation/test report showing compliance with the requirements of the standard.

O24 Tree species that may not be used

The requirement only applies to virgin wood fibre and therefore does not apply to fibre defined as recycled material.

The requirement applies to all panels containing wood, willow, bamboo or fiber products thereof.

Tree species listed on Nordic Ecolabelling's list of prohibited tree species* are not permitted to be used in Nordic Ecolabelled furniture and fitments.

*The list of prohibited tree species is located on the website: www.nordic-ecolabel.org/wood/

✉ A declaration from the applicant/manufacturer/supplier stating that no tree species in the list of prohibited tree species are used.

O25 Classification of chemical products

Chemical products used in the production of wood-based panels must not have any of the classifications in the table below.

CLP Regulation 1272/2008		
Hazard class	**Hazard category**	**Hazard code**
Hazardous to the aquatic environment	Aquatic Acute 1 Aquatic Chronic 1 Aquatic Chronic 2 Ozone	H400 H410 H411 H420
Carcinogenicity*[1]	Carc 1A or 1B Carc 2	H350 H351
Germ cell mutagenicity[1]	Muta. 1A or 1B Muta. 2	H340 H341
Toxic for reproduction[1]	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
Acute toxicity	Acute Tox 1 or 2 Acute Tox 3	H300, H310, H330 H301, 311, 331
Specific target organ toxicity with single or repeated exposure	STOT SE 1 STOT RE 1	H370 H372

[1] Including all combinations of stated exposure route and stated specific effect. For example, H350 also covers the classification H350i.

**An exemption applies to adhesives containing isocyanates classified with H351 and adhesives containing formaldehyde classified with H350. Formaldehyde is regulated in a separate requirement.*

✉ A declaration from the chemical manufacturer or supplier.
✉ A safety data sheet for the product in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

O26 Classification of ingoing substances

Ingoing substances* in the chemical products used in the production of wood-based panels must not have any of the classifications in the table below:

CLP Regulation 1272/2008		
Hazard class	**Hazard class and category**	**Hazard code**
Carcinogenic**[1]	Carc. 1A or 1B Carc 2	H350 H351
Germ cell mutagenic[1]	Mut. 1A or 1B Mut. 2	H340 H341
Toxic for reproduction[1]	Repr. 1A or 1B Repr 2 Lact	H360 H361 H362

[1]Including all combinations of stated exposure route and stated specific effect. For example, H350 also covers the classification H350i.

** For definition of ingoing substances, see definitions.*

***An exemption applies to adhesives containing isocyanates classified with H351 and adhesives containing formaldehyde classified with H350. Formaldehyde is regulated in a separate requirement.*

✉ A declaration from the chemical manufacturer or supplier.
✉ A safety data sheet for the product in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

O27 Prohibited substances

The following substances shall not be an ingoing substance* in chemical products used in the production of wood-based panels:

** For definition of ingoing substances and impurities, see Definitions.*

- Substances on the Candidate List**
- Substances that have been evaluated in the EU to be PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative)***
- Substances considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances for further evaluation of their role in endocrine disruption****
- Halogenated organic compounds with the following exceptions:
    - Bronopol (Cas. No. 52-51-7) may be present in the chemical product at a level of not more than 0.05% by weight
    - Mixture (3:1) of CMIT/MIT (5 chloro-2-methyl-4-isothiazolin-3-one Cas. No. 247-500-7; 2-methyl-4-isothiazolin-3-one Cas. No. 220-239-6) may be present in the chemical product at a level of not more than 0.0015% by weight
    - IPBC (Iodopropynyl butylcarbamate) may be present in the chemical product at a level of not more than 0.20% by weight
- Isothiazolinones may be present in the chemical product at a level of not more than 0.05% by weight
- Butylhydroxytoluene (BHT, CAS nr. 128-37-0)
- Aziridine and polyazidirines
- Bisphenol A, S and F
- Alkylphenols, alkylphenol ethoxylates and other alkylphenol derivates*****
- Phthalates
- Pigments and additives based on lead, tin, cadmium, chromium VI and mercury, and their compounds
- Volatile aromatic hydrocarbons (VAH). They are permitted in the chemical product as an impurity at a level of not more than 1% by weight

**See definition of ingoing substances under Definitions.*

***The Candidate List is available on the ECHA website: http://echa.europa.eu/candidate-list-table*

****PBT and vPvB in accordance with the criteria in Annex XIII of REACH*

*****Substances with endocrine disrupting effects categories 1 or 2, see the following link: http://ec.europa.eu/environment/chemicals/endocrine/strategy/being_en.htm (Annex L, page 238 onwards)*

******Alkylphenol derivatives are defined as substances that release alkylphenols when they break down.*

✉ A declaration from the manufacturer/supplier of the chemical product.
✉ A safety data sheet for the product in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006.

O28 VOCs in adhesives

VOCs (volatile organic compounds) may not account for more than 3% by weight of the adhesive.

✉ A declaration from the adhesive producer that the requirement has been met.

O29 Formaldehyde

Wood-based panels that contain formaldehyde-based adhesive must meet one of the following requirements (a or b):

a) According to the test method of the ISO 12460-5 standard, the content of free formaldehyde must not exceed an average of 5 mg formaldehyde/100 g dry product for MDF and HDF panels and 4 mg/100 g dry product for all other types of panels.

The requirement applies to wood-based panels with a moisture content of H = 6.5%. If the moisture content of the panels is between 3% and 10%, the test results must be multiplied by F factor, calculated using the following formulas:
For chipboard: F = -0.133 H + 1.86

For MDF and HDF: F = -0.121 H + 1.78

b) According to the test method of the ISO 717-1 standard, emissions of formaldehyde must not exceed an average of 0.09 mg/m^3 air for MDF and HDF panels and 0.07 mg/m^3 air for other types of panels.

Option b) in the requirement can also be documented using the ASTM E 1333 and JIS A 1460 test methods. The correlation between the threshold limit values that must be met in accordance with the test method of the EN 717-1 standard and the other test methods is:

Type of panel	EN 717-1 (23°C/45% RH)	ASTM E 1333 (25°C/50% RH)	ASTM E 1333 (25°C/50% RH)	JIS A 1460
MDF and HDF	0.09 mg/m^3	0.06 ppm	0.07 mg/m^3	0.66 mg/L
Other panels	0.07 mg/m^3	0.08 ppm	0.10 mg/m^3	0.53 mg/L

✉ Analysis report, including measurement methods, measurement results and measurement frequency. It must be clearly stated which method/standard was used, the laboratory that conducted the analysis, and that the analysis laboratory is an independent third party. Other analysis methods than those stated in the requirement may be used, provided that the correlation between test methods can be verified by an independent third party.

3.3.2 Requirement where the panel makes up more than 10% by weight of the product

O30 Traceability and certification of wood raw materials in panels

The requirement applies only to virgin tree species, not tree species defined as recycled materials.

Species name

Applicant/manufacturer/supplier must state the name (species name) of the wood raw materials/willow/bamboo that is used in the panel.

Chain of custody certification

The manufacturer/supplier of the panel must have Chain of Custody certification under the FSC/PEFC schemes.

Certified wood raw materials, willow and bamboo

A minimum of 70% by weight of the wood raw materials, willow and bamboo (virgin/recycled material) used in the panel must origin from forestry certified under the FSC and/or PEFC schemes, or be recycled materials.*

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

The requirement must be documented as purchased amount of wood on an annual basis.

** Recycled material is defined according to ISO 14021 in the categories of pre-consumer and post-consumer, see definitions.*

Nordic Ecolabelling includes by-products from primary wood processing industries (sawdust, wood chips, shavings, bark etc.) or residues from forestry operations (bark, branches, roots, etc.) in its definition of recycled material.

✉ The manufacturer/supplier of the panel must state the name (species name) of the wood raw materials used in the construction panel.

✉ Valid FSC/PEFC Chain of Custody certification from the manufacturer/supplier of panels. Manufacturers that only use recycled materials are exempt from this requirement.

✉ Documentation from the furniture manufacturer, e.g. invoices, showing that the certified percentage requirement or the recycled material requirement has been met.

O31 Energy requirements for wood-based panels

The following applies to energy consumption in the manufacture of:

- **Chipboard:** No more than 7 MJ/kg per panel may be used in the production of the panel (excluding any surface treatment).
- **Wood fibre/veneer and laminated panels:** No more than 11 MJ/kg per panel may be used in the production of the panel (excluding any surface treatment).

The following applies for the calculation of energy:

a) Energy consumption is calculated as an annual average for the operations as a whole or for the production line that is relevant for Nordic Swan Ecolabelled furniture/fitments.

b) Energy consumption calculated as MJ/kg per panel must include the primary panel production and production of the main raw materials contained in the panel. Main raw materials are raw materials that account for more than 2% by weight of the finished panel (e.g. wood fibre and adhesive).

c) System boundary for calculation: The calculation should not include the energy consumption for extraction of raw materials. For the panel production, the energy calculation must be based on data from raw material handling up to and including the finished panel product, prior to any surface treatment. This means the calculation does not include timber cultivation and felling, but includes drying the wood, conveyor belt operation at the sawmill and production line, and the actual panel production. Transport at all stages and the energy consumed in the surface treatment process should not be included. The calculation must include lamination of the panel.

d) For production of chemicals, such as adhesives, the energy calculation must be based on data from production of both the adhesive and the constituent raw materials. The energy content of the raw material must not be included. In the absence of specific energy data for the adhesive, a value of 15 MJ/kg for adhesive (ready-to-use solution) can be used.

e) If multiple subcontractors are used for the same type of raw material, basing the calculation on the most frequently used supplier is allowed.

f) Where fuel energy is concerned, energy from purchased fuel, internally-produced fuel and energy from waste products must be included. Internally-produced energy and excess energy that is sold off should be stated, but do not count as consumed energy in the calculation. Internally-produced energy refers to energy (electricity and heat) not

purchased from an external supplier. Internally-produced fuel sources and residual products are not counted as internally-produced energy.

✉ A calculation showing compliance with the requirement. The calculation must contain information about the quantity of panels produced, electricity and fuel consumed, and which fuel sources have been used.

3.4 Paper

The requirements in this chapter comprise paper, e.g. paper braids/cords. There are other specific requirements for paper included in laminates such as HPL, see chapter 3.5 Laminate.

The requirements apply if paper accounts for more than 5% of the product by weight.

3.4.1 Wood raw material in the paper

O32 Tree species that may not be used

Tree species listed on Nordic Ecolabelling's list of prohibited tree species* are not permitted to be used in Nordic Ecolabelled furniture and fitments.

**The list of prohibited tree species is located on the website: www.nordic-ecolabel.org/wood/*

✉ A declaration from the applicant/manufacturer/supplier stating that no tree species in the list of prohibited tree species are used.

O33 Traceability and certification of wood raw materials in panels

Species name

The supplier/producer of the paper must state the name (species name) of the wood raw materials that is used in the paper

Chain of custody certification

The manufacturer/supplier of the paper must have Chain of Custody certification under the FSC/PEFC schemes.

Certified wood raw materials

A minimum of 70% by weight of the wood raw materials (virgin/recycled material) used in the paper must origin from forestry certified under the FSC and/or PEFC schemes or be recycled materials.*

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

The requirement must be documented as purchased amount of wood on an annual basis.

** Recycled material is defined according to ISO 14021 in the categories of pre-consumer and post-consumer, see definitions.*

Nordic Ecolabelling includes by-products from primary wood processing industries (sawdust, wood chips, shavings, bark etc.) or residues from forestry operations (bark, branches, roots, etc.) in its definition of recycled material.

✉ The manufacturer/supplier of the paper must state the name (species name) of the wood raw materials used in the construction panel.

✉ Valid FSC/PEFC Chain of Custody certification from the manufacturer/supplier of the paper. Manufacturers that only use recycled materials are exempt from this requirement.

✉ Documentation showing that the quantity of certified wood raw material or recycled material is met. This should be specified in e.g. invoices or delivery note.

3.4.2 Chemicals in the manufacture of pulp and paper

O34 Chemicals in the manufacture of pulp and paper

Chemicals used in the manufacture of pulp and paper must meet the requirements contained in the Chemical Module for Nordic Ecolabelling of paper, Version 3 or subsequent versions.

✉ Documentation in compliance with the requirements contained in the Chemicals Module, Version 3.

3.4.3 Surface treatment and additives in paper

O35 Antibacterial substances

Chemical products and nanomaterials* with antibacterial or disinfectant properties must not be added to the paper or used in surface treatment of the paper.

The term antibacterial means chemical products that prevent or inhibit growth of microorganisms, such as bacteria or fungi. Silver ions, silver nanoparticles, gold nanoparticles and copper nanoparticles are classed as antibacterial agents.

** In accordance with the definition of a nanomaterial adopted by the European Commission on 18 October 2011 (2011/696/EU), see definitions.*

✉ A declaration from the manufacturer of the paper showing that no chemical products and nanomaterial with antibacterial or disinfectant properties have been added to the paper or used as a surface treatment.

O36 Classification of chemical products

Chemical products used as surface treatment or added to the finished paper must not have any of the classifications in the table below.

CLP Regulation 1272/2008		
Hazard class	**Hazard category**	**Hazard code**
Hazardous to the aquatic environment	Aquatic Acute 1 Aquatic Chronic 1 Aquatic Chronic 2 Ozone	H400 H410 H411 H420
Carcinogenicity[1]	Carc 1A or 1B Carc 2	H350 H351
Germ cell mutagenicity[1]	Muta. 1A or 1B Muta. 2	H340 H341
Toxic for reproduction[1]	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
Acute toxicity	Acute Tox 1 or 2 Acute Tox 3	H300, H310, H330 H301, 311, 331
Specific target organ toxicity with single or repeated exposure	STOT SE 1 STOT RE 1	H370 H372

[1] *Including all combinations of stated exposure route and stated specific effect. For example, H350 also covers the classification H350i.*

Note that responsibility for correct classification lies with the manufacturer.

✉ A declaration from the chemical manufacturer or supplier.

✉ A safety data sheet for the product in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

O37 Classification of ingoing substances

Ingoing substances* in the chemical products used as surface treatment or added to the finished paper must not have any of the classifications in the table below:

CLP Regulation 1272/2008		
Hazard class	**Hazard class and category**	**Hazard code**
Carcinogenic[1]	Carc. 1A or 1B Carc 2	H350 H351
Germ cell mutagenic[1]	Mut. 1A or 1B Mut. 2	H340 H341
Toxic for reproduction[1]	Repr. 1A or 1B Repr 2 Lact	H360 H361 H362

[1]*Including all combinations of stated exposure route and stated specific effect. For example, H350 also covers the classification H350i.*

** For definition of ingoing substances and impurities, see Definitions.*

✉ A declaration from the chemical manufacturer or supplier.
✉ A safety data sheet for the product in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

O38 Prohibited substances

The following substances shall not be an ingoing substance* in chemical products used as surface treatment or added to the finished paper:

** For definition of ingoing substances and impurities, see Definitions.*

- Substances on the Candidate List**
- Substances that have been evaluated in the EU to be PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative)***
- Substances considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances for further evaluation of their role in endocrine disruption****
- Halogenated organic compounds with the following exceptions:
    - Bronopol (Cas. No. 52-51-7) may be present in the chemical product at a level of not more than 0.05% by weight
    - Mixture (3:1) of CMIT/MIT (5 chloro-2-methyl-4-isothiazolin-3-one Cas. No. 247-500-7; 2-methyl-4-isothiazolin-3-one Cas. No. 220-239-6) may be present in the chemical product at a level of not more than 0.0015% by weight
    - IPBC (Iodopropynyl butylcarbamate) may be present in the chemical product at a level of not more than 0.20% by weight
- Isothiazolinones may be present in the chemical product at a level of not more than 0.05% by weight
- Butylhydroxytoluene (BHT, CAS nr. 128-37-0)
- Aziridine and polyazidirines
- Bisphenol A, S and F
- Alkylphenols, alkylphenol ethoxylates and other alkylphenol derivates*****
- Phthalates

- Pigments and additives based on lead, tin, cadmium, chromium VI and mercury, and their compounds
- Volatile aromatic hydrocarbons (VAH). They are permitted in the chemical product as an impurity at a level of not more than 1% by weight

**See definition of ingoing substances under Definitions.*

***The Candidate List is available on the ECHA website: http://echa.europa.eu/candidate-list-table*

****PBT and vPvB in accordance with the criteria in Annex XIII of REACH*

*****Substances with endocrine disrupting effects categories 1 or 2, see the following link: http://ec.europa.eu/environment/chemicals/endocrine/strategy/being_en.htm (Annex L, page 238 onwards)*

******Alkylphenol derivatives are defined as substances that release alkylphenols when they break down.*

✉ A declaration from the manufacturer/supplier of the chemical product.
✉ A safety data sheet for the product in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006.

O39 Nanomaterials

The chemical product used as surface treatment or added to the finished paper must not have nanomaterials* as ingoing substances**.

Exceptions are made for:

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

**In accordance with the definition of a nanomaterial adopted by the European Commission on 18 October 2011 (2011/696/EU), see definitions.*
***See definition of ingoing substances under Definitions.*

**** Nano-titanium dioxide is not classed as a pigment and is thus not covered by the requirement.*
***** This applies to fillers covered by Annex V item 7 of REACH *****This applies to traditional synthetic amorphous silica.*

✉ A declaration from the chemical manufacturer that the chemical product does not contain any nanomaterial.

O40 Organofluorine compounds

Chemicals used in the surface treatment of paper or as additives in the production of pulp and/or paper must not contain organofluoride compounds.

✉ A declaration from the chemical supplier that chemicals for surface treatment do not contain organofluoride compounds.
✉ A declaration from the manufacturer of pulp and paper that no chemicals containing organofluoride compounds have been added during production of the pulp or paper.
✉ A safety data sheet for the product in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

3.5 Laminate

The requirements in this chapter cover different types of laminate, for example, direct pressure laminate (melamine), High Pressure Laminate (HPL), Continuous Pressure Laminate (CPL) and compact laminate. The requirements apply only to the laminate itself, i.e. if a wood-based panel is used as a substrate, the panel must meet the requirements in Chapter 3.3. Adhesives used to secure the laminate to the substrate must meet the requirements in Chapter 3.1.1. Any surface treatment must meet the requirements in Chapter 3.6 and edging must meet the requirements in Chapter 3.8

The criteria for chemicals apply to all chemical products used for the manufacture of laminate, for example, resins. However, the criteria do not apply to chemical products used for the manufacture of paper and for printing patterns on decor paper.

O41 Nordic Swan Ecolabelled laminate

Laminate that is Nordic Swan Ecolabelled or is included in a licence for the Nordic Swan Ecolabelling of Construction and facade panels automatically meets the requirements in Chapter 2.9.

✉ Name, manufacturer and licence number for the laminate.

O42 Antibacterial substances

Chemical products and nanomaterials* with antibacterial or disinfectant properties must not be added to the laminate.

The term antibacterial means chemical products that prevent or inhibit growth of microorganisms, such as bacteria or fungi. Silver ions, silver nanoparticles, gold nanoparticles and copper nanoparticles are classed as antibacterial agents.

** In accordance with the definition of a nanomaterial adopted by the European Commission on 18 October 2011 (2011/696/EU), see definitions.*

✉ A declaration from the manufacturer of the laminate showing that no chemical products and nanomaterials with antibacterial or disinfectant properties have been added to the laminate.

O43 Classification of chemical products

The chemical products used for the manufacture of laminate must not have any of the classifications in the table below.

CLP Regulation 1272/2008		
Hazard class	**Hazard class and category**	**Hazard code**
Hazardous to the aquatic environment	Aquatic Acute 1 Aquatic Chronic 1 Aquatic Chronic 2 Ozone	H400 H410 H411 H420
Acute toxicity	Acute Tox 1 or 2 Acute Tox 3	H300, H310, H330 H301, H311, H331
Specific target organ toxicity - single exposure/repeated exposure	STOT SE 1 STOT RE 1	H370 H372
Carcinogenicity[1]	Carc. 1A or 1B Carc. 2	H350 H351
Germ cell mutagenicity[1]	Mut. 1A or 1B Mut. 2	H340 H341

Toxic for reproduction[1]	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362

[1] Including all combinations of stated exposure route and stated specific effect. For example, H350 also covers the classification H350i.

Exemptions apply to:

- Classifications H341, H301 and H331 for resins containing a maximum of 10% by weight of phenol (CAS number 108-95-2).
- Classifications H350, H341, H301, H311 and H331 for resins containing formaldehyde (CAS number 50-00-0). Emissions of formaldehyde from the laminate are regulated in a separate requirement.
- Classifications H301, H311, H331 and H370 for resins containing a maximum of 10% by weight of methanol (CAS number 67-56-1).

✉ A declaration from the manufacturer or supplier of the chemical products that are used for the manufacture of laminate.

✉ Safety data sheet for each chemical product used for the manufacture of laminate in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

O44 Classification of ingoing substances

Ingoing* substances in the chemical product used in the manufacturing of laminate must not have any of the classifications in the table below:

Hazard class	Hazard class and category	Hazard code
Carcinogenicity[1]	Carc. 1A or 1B Carc. 2	H350** H351
Germ cell mutagenicity [1]	Mut. 1A or 1B Mut. 2	H340 H341***
Toxic for reproduction [1]	Repr. 1A or 1B Repr. 2 Lact	H360 H361 H362

[1]Including all combinations of stated exposure route and stated specific effect. For example, H350 also covers the classification H350i.

**See definition of ingoing substances under Definitions.*

***An exemption applies to the classification H350 for resins containing formaldehyde (CAS number 50-00-0). Emissions of formaldehyde are regulated in a separate requirement, see O47.*

****An exemption applies to the classification H341 for resins containing a maximum of 10% by weight of phenol (CAS number 108-95-2).*

✉ A declaration from the manufacturer or supplier of the chemical products that are used for the manufacture of laminate.

✉ Safety data sheet for each chemical product used for the manufacture of laminate in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

O45 Prohibited substances

The following substances shall not be an ingoing substance* in chemical products used in the manufacturing of the laminate:

** For definition of ingoing substances and impurities, see Definitions.*

- Substances on the Candidate List**

- Substances that have been evaluated in the EU to be PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative)***
- Substances considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances for further evaluation of their role in endocrine disruption****
- Halogenated organic compounds with the following exceptions:
    - Bronopol (Cas. No. 52-51-7) may be present in the chemical product at a level of not more than 0.05% by weight
    - Mixture (3:1) of CMIT/MIT (5 chloro-2-methyl-4-isothiazolin-3-one Cas. No. 247-500-7; 2-methyl-4-isothiazolin-3-one Cas. No. 220-239-6) may be present in the chemical product at a level of not more than 0.0015% by weight
    - IPBC (Iodopropynyl butylcarbamate) may be present in the chemical product at a level of not more than 0.20% by weight
- Isothiazolinones may be present in the chemical product at a level of not more than 0.05% by weight
- Butylhydroxytoluene (BHT, CAS nr. 128-37-0)
- Aziridine and polyazidirines
- Bisphenol A, S and F
- Alkylphenols, alkylphenol ethoxylates and other alkylphenol derivates*****
- Phthalates
- Pigments and additives based on lead, tin, cadmium, chromium VI and mercury, and their compounds
- Volatile aromatic hydrocarbons (VAH). They are permitted in the chemical product as an impurity at a level of not more than 1% by weight

**See definition of ingoing substances under Definitions.*

***The Candidate List is available on the ECHA website: http://echa.europa.eu/candidate-list-table*

****PBT and vPvB in accordance with the criteria in Annex XIII of REACH*

*****Substances with endocrine disrupting effects categories 1 or 2, see the following link: http://ec.europa.eu/environment/chemicals/endocrine/strategy/being_en.htm (Annex L, page 238 onwards)*

******Alkylphenol derivatives are defined as substances that release alkylphenols when they break down.*

☒ A declaration from the manufacturer/supplier of the chemical product used in the manufacturing of the laminate.

☒ A safety data sheet for the product in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006.

O46 Nanomaterials

The chemical product must not have nanomaterials* as ingoing substances**. Exemptions apply to:

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

** In accordance with the definition of a nanomaterial adopted by the European Commission on 18 October 2011 (2011/696/EU), see definitions ** For a definition of ingoing substances, see definitions.*

**** Nano-titanium dioxide is not classed as a pigment and is thus not covered by the requirement.*
***** This applies to fillers covered by Annex V item 7 of REACH *****This applies to traditional synthetic amorphous silica.*

✉ A declaration from the chemical manufacturer that the chemical product does not have any nanomaterial as ingoing substances.

O47 Requirements for emissions

Laminate must comply with the requirements for emissions in the table below. The test must be performed in compliance with CEN/TS 16516, ISO 16000-3/-6/-9/-10 or an equivalent test method.

Substances or groups of substances	Threshold limit values after 28 days (µg/m³)
TVOC (C6-C16)	160
SVOC (C16-C23)	30
Formaldehyde	30

Alternatively, compliance with only the requirement for emissions of formaldehyde can be chosen for direct pressure laminate (melamine). Emissions of formaldehyde must then not exceed an average of 0.07 mg/m³ air as measured by EN 717-1. The emissions can also be documented using the ASTM E 1333 and JIS A 1460 test methods. The correlations between the threshold limit values that must be met measured by EN 717-1 and the other test methods are:

EN 717-1 (23°C/45% RH)	ASTM E 1333 (25°C/50% RH)	ASTM E 1333 (25°C/50% RH)	JIS A 1460
0.07 mg/m³	0.08 ppm	0.10 mg/m³	0.53 mg/L

✉ Analysis report, including measurement methods, results and measurement frequency. It must be clearly stated which method/standard was used, the laboratory that conducted the analysis, and that the analysis laboratory is an independent third party. Other analysis methods than those stated in the requirement may be used, provided that the correlation between test methods can be verified by an independent third party.

3.5.1 Requirement where laminate makes up more than 10% by weight of the furniture/fitment as a finished product

O48 Energy consumption in the manufacture of laminate

No more than 14 MJ/kg per panel may be used for the manufacture of the laminate.
The energy consumption must be stated as an annual average and can either be stated for the manufacture of the laminate that must be included in the Nordic Swan Ecolabelled furniture/fitment, or for the entire production.

Energy for the production of raw materials must not be included in the calculation. Paper has a separate energy requirement.

Internally produced energy and excess energy that are sold off must be stated but must not be included as consumed energy in the calculation.

✉ Calculation of energy consumption from the laminate manufacturer.

3.5.2 Requirement where laminate makes up more than 30% by weight of the furniture/fitment as a finished product

The requirements for paper in this section only apply to kraft paper. It is not necessary for decor paper and any balance paper to meet the requirements.

Nordic Ecolabelling has produced a calculation sheet for requirements O51(Energy). This can be used to calculate and document the requirement. Pulp that has been inspected in accordance with the Nordic Swan Ecolabel Base Module for paper automatically meets the requirements for pulp in this section. However, it must be shown that the cumulative pulp and paper production also meets the requirements.

O49 Wood fibre in paper

Where paper is used in the manufacture of laminate, the following requirements must be met:

- The names of the species of trees used to produce the paper must be stated. Species of trees on the Nordic Swan Ecolabel's list of prohibited tree species* (http://www.nordic-ecolabel.org/wood/) must not be used. The requirement applies to new fibres only and not to recycled fibres*.
- The paper producers must be Chain of Custody certified by the FSC scheme or the PEFC scheme.
- Compliance with one of the following three alternatives is required, on an annual basis, for certified wood fibre and/or recycled fibres:
  a) 70% of the fibre raw material in the paper must be certified by the FSC or the PEFC scheme
  b) The paper must be labelled FSC or PEFC Recycled. Alternatively, 70% of the fibre raw material must consist of recycled fibres.
  c) If less than 70% of the fibre raw material content in the paper is recycled fibre, the percentage of fibre raw material that must be sourced from certified forests is calculated using the following formula:

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

  Y = Percentage of fibre raw material from certified forests
  x = Percentage of recycled fibre or by-products (e.g. shavings, wood chips and sawdust)

**Recycled material defined as pre-consumer and post-consumer in accordance with ISO 14021. See detailed information in Definitions.*

✉ Information about names of the tree species used and a declaration of compliance with the requirement concerning prohibited tree species.
✉ Copy of the paper producer's FSC or PEFC Chain of Custody certificate.
✉ Certified wood fibre option a): An invoice between the paper manufacturer and laminate manufacturer showing the purchase of FSC/PEFC certified paper.
✉ Certified wood fibre option b): An invoice between the paper manufacturer and laminate manufacturer showing the purchase of FSC or PEFC Recycled labelled paper. Or a declaration of compliance with the requirement for recycled fibre content from the paper manufacturer. Recycled fibres not covered by FSC/PEFC chain of custody certificates must be covered by delivery notes of paper for recycling in accordance with EN 643.
✉ Certified wood fibre option c): Paper manufacturer's calculation of the percentage of fibre raw material that is FSC/PEFC certified and recycled, and documentation showing that paper with the certified amount is purchased. This should be specified in e.g. invoices or delivery note.

O50 Emissions of COD from paper and pulp production

The total discharge of COD (chemical oxygen demand) into waterways must be less than the COD value in the table below.
COD is calculated by adding COD emissions from the pulp and paper:

COD pulp (kg/ADt) + COD emissions from the paper machines (kg/ADt).

A weighted reference value of the different types of pulp is calculated for paper produced from mixes of chemical, recycled fibres and mechanical pulp.

Types of pulp	Total emission of COD for both pulp and paper (kg/ADt)
Unbleached chemical pulp	14.0
CTMP pulp	19.0
TMP/Groundwood pulp	7.0
Recycled fibre pulp	4.0

✉ Information about the types of pulp used for the manufacture of paper.
✉ If pulp that is inspected in accordance with the Nordic Swan Ecolabelled basic module for paper is used: Description of manufacturer, production facility and name of the pulp.
✉ Description of test procedures including measuring methods and measuring results for the last 12 months from the paper and pulp manufacturers.
✉ Calculation from the paper and pulp manufacturers showing that the total emission of COD is below the relevant threshold limit value in the requirement.

O51 Energy consumption in paper and pulp production

The following requirements must be met:

$P_{electricity(total)} < 2.5$

$P_{fuel(total)} < 2.5$

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

P is the energy score for the paper and pulp production. The energy score from both the production of paper and the pulps are included in $P_{electricity(total)}$ and $P_{fuel(total)}$. A more detailed explanation of the calculation is given in Annex 2.

✉ If pulp that is inspected in accordance with the Nordic Swan Ecolabelled basic module for paper is used: Description of manufacturer, production facility and name of the pulp
✉ A calculation from the paper and pulp manufacturers showing compliance with the limit values for the score. Please note that there has been developed a calculation sheet for the energy calculations that can be obtained by Nordic Ecolabelling.

3.6 Surface treatment of wood, wood-based panels and laminate

The requirements in this section relate to surface treatment of wood, bamboo and willow, wood-based panels and laminate.

O52 Antibacterial substances

Chemical products and nanomaterials* with antibacterial or disinfectant properties must not be used in surface treatment.

The term antibacterial means chemical products that prevent or inhibit growth of microorganisms, such as bacteria or fungi. Silver ions, silver nanoparticles, gold nanoparticles and copper nanoparticles are classed as antibacterial agents.

** In accordance with the definition of a nanomaterial adopted by the European Commission on 18 October 2011 (2011/696/EU), see definitions.*

✉ A declaration from the supplier of surface treatment that no chemical products and nanomaterial with antibacterial or disinfectant properties have been used in the surface treatment.

O53 Classification of chemical products

The chemical products used for the manufacture of laminate must not have any of the classifications in the table below.

CLP Regulation 1272/2008		
Hazard class	**Hazard class and category**	**Hazard code**
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/repeated exposure	STOT SE 1 STOT RE 1	H370 H372
Carcinogenicity[1]	Carc. 1A or 1B Carc. 2	H350 H351
Germ cell mutagenicity[1]	Mut. 1A or 1B Mut. 2	H340 H341
Toxic for reproduction[1]	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362

[1] Including all combinations of stated exposure route and stated specific effect. For example, H350 also covers the classification H350i.

✉ Safety data sheet for each chemical product used in the surface treatment/surface treatment system in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

✉ A declaration from the manufacturer of the chemical products that are used in the surface treatment/surface treatment system.

O54 Classification of ingoing substances

Ingoing substances* in the chemical product that is used for the surface treatment must not have the classifications in the table below:

Hazard class	**Hazard class and category**	**Hazard code**
Carcinogenic[1]	Carc. 1A or 1B Carc. 2	H350 H351
Germ cell mutagenic [1]	Mut. 1A or 1B Mut. 2	H340 H341
Toxic for reproduction [1]	Repr. 1A or 1B Repr. 2 Lact	H360 H361 H362

[1]Including all combinations of stated exposure route and stated specific effect. For example, H350 also covers the classification H350i.

**See definition of ingoing substances under Definitions.*

An exemption applies to the requirement for photo initiators for Category 2 classification.

✉ Safety data sheet for each chemical product used in the surface treatment/surface treatment system in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

✉ A declaration from the manufacturer of the chemical product(s) used in the surface treatment.

O55 Prohibited substances

The following substances shall not be an ingoing substance* in chemical products:

** For definition of ingoing substances and impurities, see Definitions.*

- Substances on the Candidate List**
- Substances that have been evaluated in the EU to be PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative)***
- Substances considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances for further evaluation of their role in endocrine disruption****
- Halogenated organic compounds with the following exceptions:
    - Bronopol (Cas. No. 52-51-7) may be present in the chemical product at a level of not more than 0.05% by weight
    - Mixture (3:1) of CMIT/MIT (5 chloro-2-methyl-4-isothiazolin-3-one Cas. No. 247-500-7; 2-methyl-4-isothiazolin-3-one Cas. No. 220-239-6) may be present in the chemical product at a level of not more than 0.0015% by weight
    - IPBC (Iodopropynyl butylcarbamate) may be present in the chemical product at a level of not more than 0.20% by weight
    - halogenated organic pigments that comply with the Council of Europe recommendation "Resolution AP (89) 1 on the use of colorants in plastic materials coming into contact with food", point 2.5
    - Epoxy acrylate used in UV curing coatings
- Isothiazolinones may be present in the chemical product at a level of not more than 0.05% by weight
- Butylhydroxytoluene (BHT, CAS nr. 128-37-0)

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.

- Aziridine and polyazidirines
- Bisphenol A, S and F
- Alkylphenols, alkylphenol ethoxylates and other alkylphenol derivates*****
- Phthalates
- Pigments and additives based on lead, tin, cadmium, chromium VI and mercury, and their compounds
- Volatile aromatic hydrocarbons (VAH). They are permitted in the chemical product as an impurity at a level of not more than 1% by weight

**See definition of ingoing substances under Definitions.*

***The Candidate List is available on the ECHA website: http://echa.europa.eu/candidate-list-table*

****PBT and vPvB in accordance with the criteria in Annex XIII of REACH*

*****Substances with endocrine disrupting effects categories 1 or 2, see the following link:*

http://ec.europa.eu/environment/chemicals/endocrine/strategy/being_en.htm (Annex L, page 238 onwards)

******Alkylphenol derivatives are defined as substances that release alkylphenols when they break down.*

✉ A declaration from the manufacturer/supplier of the chemical product used for surface treatment.

✉ A safety data sheet for the product used for surface treatment in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006.

O56 Nanomaterials

The chemical product used for surface treatment must not have nanomaterials* as ingoing substances**. Exemptions are made for:

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

**In accordance with the definition of a nanomaterial adopted by the European Commission on 18 October 2011 (2011/696/EU), see definitions.*
***See definition of ingoing substances under Definitions.*

**** Nano-titanium dioxide is not classed as a pigment and is thus not covered by the requirement.*
***** This applies to fillers covered by Annex V item 7 of REACH*

******This applies to traditional synthetic amorphous silica.*

✉ A declaration from the chemical manufacturer that the chemical product does not have nanomaterial as ingoing substance.

O57 Free formaldehyde

The content of free formaldehyde in each individual chemical product used for surface treatment must not exceed 0.2% by weight (2,000 ppm) measured in the finished product.

✉ A declaration from the manufactures of the chemical products in the surface treatment system.

3.6.1 Requirement if surface coated parts make up more than 5% by weight of the furniture/fitment

O58 Quantity applied and application method

For each surface treatment system used, the following information must be provided by the furniture manufacturer:

a) Name of the surface treatment product and manufacturer of the surface treatment product

b) Quantity applied (g/m^2), number of coats and application method(s) used.

The following levels of efficiency* must be used when calculating the quantities of applied environmentally hazardous substances and VOCs in subsequent requirements:

- Automated spray with no recycling, 50%
- Automated spray with recycling, 70%

- Spray application, electrostatic, 65%
- Spray application, bell/disk, 80%
- Roller varnishing 95%
- Blanket varnishing 95%
- Vacuum varnishing 95%
- Dipping 95%
- Rinsing 95%

**The levels of efficiency are standard values. Other efficiency levels may be applied if they can be documented.*

✉ A description from the furniture manufacturer of each surface treatment system that is used.

O59 Quantity of applied volatile organic compounds (VOC)

The chemical products that are used must meet one of the following alternatives in each surface treatment system:

a) The total content of VOCs* must not exceed 5% by weight

b) The total amount of VOCs applied must not exceed the relevant threshold limit value in the table below:

Type of furniture	**Threshold limit value for VOC applied (g/m^2 coated surface)**
Furniture coated with laminate	10
Furniture and interior doors intended for domestic use	30
Furniture and interior doors intended for non-domestic use	60
Kitchen and bathroom fitments	60

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

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

For both these alternatives, it is the content of VOCs that the chemical products have in their uncured form that must meet the requirement. If the products require dilution, the calculation must be based on the content in the diluted product.

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

✉ Safety data sheet in accordance with Appendix II of REACH (Regulation No. (EC) 1907/2006) for each chemical product in the surface treatment system.

✉ A declaration from the manufacturers of the chemical products in the surface treatment system stating the quantities of VOCs in each product.

✉ A calculation from the furniture manufacturer showing that alternative b) in the requirement is met if the surface treatment system does not meet alternative a).

O60 Applied environmentally hazardous substances

The chemical products that are used must meet one of the following alternatives in each surface treatment system:

a) None of the chemical products may be classified as H410, H411 or H412 under the CLP Regulation No. 1272/2008

b) The amount of applied environmentally hazardous substances must not exceed 90 g/m² of treated surface.

For the calculation, the content of environmentally hazardous substances must be weighted using the formula below before calculating the total amount of applied environmentally hazardous substances:

100*H410 + 10*H411 + H412

H410 is the total concentration of ingoing substances classified as H410 in the uncured surface treatment product as a percentage.

H411 is the total concentration of ingoing substances classified as H411 in the uncured surface treatment product as a percentage.

H412 is the total concentration of ingoing substances classified as H412 in the uncured surface treatment product as a percentage.

Preservatives do not need to be included in the calculation.

The total amount of applied environmentally hazardous substances is calculated using the following formula:

$$\frac{\text{Applied amount of the surface treatment chemical } \left(\frac{g}{m^2}\right) \text{ x weighted share of environmentally hazardous substances}^1 \text{ (\%)}}{\text{Efficiency of the surface treatment (\%)}}$$

[1]*Weighted share of environmentally hazardous substances in the surface treatment chemical*

☒ Safety data sheet in accordance with Appendix II of REACH (Regulation No. (EC) 1907/2006) for each chemical product in the surface treatment system.

☒ A declaration from the manufacturers of the chemical products in the surface treatment system stating the amounts of constituent environmentally hazardous substances in each product.

☒ A calculation from the furniture manufacturer showing that alternative b) in the requirement is met if the surface treatment system does not meet alternative a).

3.7 Metal

There are requirements for the surface treatment (metallisation) and requirements for the percentage of recycled metal.

Requirements for the percentage of recycled metal apply if the product contains more than 30% metal by weight. Small parts such as screws, bolts, plugs, brackets, buttons, zips etc. must not be included in the calculation of weight.

O61 Copper, tin, lead and cadmium

The metals copper, tin, lead and cadmium are prohibited. This also applies to any surface coating.

✉ A declaration from the supplier of the surface coating stating that these substances are not used.

3.7.1 Metallisation

There are requirements for metal coating, such as metallisation, powder coating and any other surface treatment. The following requirements apply:

- Coatings with metals (metallisation) must comply with O62
- Other surface treatment must comply with O63-O70

O62 Chrome, nickel and zinc plating

Surface treatment using chromium (Cr), nickel (Ni), zinc (Zn) and their compounds is permitted only for the following furniture parts and under the following conditions:

- Screws, bolts, mechanisms where it is necessary due to excessive physical wear/load
- Legs on folding tables, chair legs and legs on tables/desks that comply with the requirements of standards for educational institutions (EN 1729-1:2015, EN 1729-2:2012+A1:2015)
- Legs on folding tables and chair legs that meet standards for tables and chairs for public spaces (EN 16139:2013 Furniture - Strength, durability and safety - Requirements for non-domestic seating, EN 1728:2012 Furniture - Seating - Test methods for the determination of strength and durability, EN 1022:2018 Furniture - Seating - Determination of stability)
- Nickel: The exemption does not apply to parts that frequently come into contact with the skin

It should be noted that the above exemptions only apply to the types of furniture covered by the standards. The exemption cannot be used for office chairs and other typical office furniture that are covered by standards for office environments.

The following requirement applies when chromium (Cr), nickel (Ni), zinc (Zn) are used in the surface treatment:

- All stages of the process using chromium must be based on trivalent chromium. Hexavalent chromium must not be used.
- The facilities must have a closed-loop wastewater system*. Residual products from the surface treatment are to be recycled or destroyed at a facility that is licensed and authorised to handle hazardous waste.
- The following applies to zinc electroplating:
    - Cyanide baths must not be used
    - The passivation process must be cobalt-free

** A closed-loop wastewater system means that effluent is not discharged to recipient/municipal wastewater treatment plants.*

✉ A description from the furniture manufacturer of which parts are coated with chromium, nickel or zinc.

✉ A declaration from the supplier of the surface coating that hexavalent chromium has not been used.

✉ For zink: A declaration from the supplier of the surface coating that cyanide baths have not been used and that the passivation process is cobalt-free.
✉ Name of the waste management facility handling the waste products and a description of what happens to the waste products from the surface coating supplier.

3.7.2 Other surface treatment

O63 Classification of chemical products

The chemical products used to surface coat metals must not have any of the classifications in the table below.

CLP Regulation 1272/2008		
Hazard class	**Code for hazard class and category**	**Hazard statement code**
Carcinogenicity*	Carc. 1A or 1B Carc 2	H350 H351
Germ cell mutagenicity*	Mut. 1A or 1B Mut. 2	H340 H341
Toxic for reproduction*	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
Hazardous to the aquatic environment	Aquatic Acute 1 Aquatic Acute 1 Aquatic Chronic 2	H400 H410 H411
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

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

✉ Safety data sheet in accordance with Appendix II of REACH (Regulation No. (EC) 1907/2006) for each chemical product in the surface treatment system.
✉ A declaration from the manufacturers of surface treatment products.

O64 Classification of ingoing substances

The chemical products used to surface coat metals must not contain any substances with the classifications listed in the table below.

CLP Regulation 1272/2008		
Hazard class	**Code for hazard class and category**	**Hazard statement code**
Carcinogenicity[1]	Carc. 1A or 1B Carc 2	H350 H351
Germ cell mutagenicity[1]	Mut. 1A or 1B Mut. 2	H340 H341
Toxic for reproduction[1]	Repr. 1A or 1B Repr 2 Lact	H360 H361 H362

[1] *Including all combinations of stated exposure route and stated specific effect. For example, H350 also covers classification H350i.*

☒ Safety data sheet in accordance with Appendix II of REACH (Regulation No. (EC) 1907/2006) for each chemical product in the surface treatment system.
☒ A declaration from the manufacturers of surface treatment products.

O65 Prohibited substances

The following substances shall not be an ingoing substance* in chemical products used for surface treatment:

** For definition of ingoing substances and impurities, see Definitions.*

- Substances on the Candidate List**
- Substances that have been evaluated in the EU to be PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative)***
- Substances considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances for further evaluation of their role in endocrine disruption****
- Halogenated organic compounds with the following exceptions:
    - Bronopol (Cas. No. 52-51-7) may be present in the chemical product at a level of not more than 0.05% by weight
    - Mixture (3:1) of CMIT/MIT (5 chloro-2-methyl-4-isothiazolin-3-one Cas. No. 247-500-7; 2-methyl-4-isothiazolin-3-one Cas. No. 220-239-6) may be present in the chemical product at a level of not more than 0.0015% by weight
    - IPBC (Iodopropynyl butylcarbamate) may be present in the chemical product at a level of not more than 0.20% by weight
    - halogenated organic pigments that comply with the Council of Europe recommendation "Resolution AP (89) 1 on the use of colorants in plastic materials coming into contact with food", point 2.5
- Isothiazolinones may be present in the chemical product at a level of not more than 0.05% by weight
- Butylhydroxytoluene (BHT, CAS nr. 128-37-0)
- Aziridine and polyazidirines
- Bisphenol A, S and F
- Alkylphenols, alkylphenol ethoxylates and other alkylphenol derivates*****
- Phthalates
- Pigments and additives based on lead, tin, cadmium, chromium VI and mercury, and their compounds
- Volatile aromatic hydrocarbons (VAH). They are permitted in the chemical product as an impurity at a level of not more than 1% by weight

**See definition of ingoing substances under Definitions.*

***The Candidate List is available on the ECHA website: http://echa.europa.eu/candidate-list-table*

****PBT and vPvB in accordance with the criteria in Annex XIII of REACH*

*****Substances with endocrine disrupting effects categories 1 or 2, see the following link: http://ec.europa.eu/environment/chemicals/endocrine/strategy/being_en.htm (Annex L, page 238 onwards)*

******Alkylphenol derivatives are defined as substances that release alkylphenols when they break down.*

✉ A declaration from the manufacturer/supplier of the chemical product used for surface treatment.

✉ A safety data sheet for the product used for surface treatment in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006.

O66 Nanomaterial

The chemical product must not have nanomaterials* as ingoing substances**. Exemptions apply to:

- Pigments***
- Naturally occurring inorganic fillers****
- Synthetic amorphous silica*****
- Polymer dispersions
- Aluminium oxide in powder coatings

** In accordance with the definition of a nanomaterial adopted by the European Commission on 18 October 2011 (2011/696/EU), see definitions*

*** For a definition of ingoing substances, see definitions.*

**** Nano-titanium dioxide is not classed as a pigment and is thus not covered by the requirement.*
***** This applies to fillers covered by Annex V item 7 of REACH *****This applies to traditional synthetic amorphous silica.*

✉ A declaration from the manufacturer of the chemical product(s) used in the surface treatment that the chemical product does not contain any nanomaterial.

O67 Free formaldehyde

The content of free formaldehyde in each individual chemical product used for surface treatment must not exceed 0.2% by weight (2,000 ppm) measured in the finished product.

✉ A declaration from the manufactures of the chemical products in the surface treatment system.

O68 Quantity applied and application method

The requirement applies if the surface-treated metal part makes up more than 5% by weight of the furniture / interior.

For each surface treatment used, the following information must be provided by the furniture manufacturer:

c) Name of the surface treatment product and manufacturer of the surface treatment product

d) Quantity applied (g/m2), number of coats and application method(s) used.

The following levels of efficiency* must be used when calculating the quantities of applied VOCs in subsequent requirement:

- Automated spray with no recycling, 50%
- Automated spray with recycling, 70%
- Spray application, electrostatic, 65%
- Spray application, bell/disk, 80%
- Roller varnishing 95%
- Blanket varnishing 95%
- Vacuum varnishing 95%

- Dipping 95%
- Rinsing 95%

**The levels of efficiency are standard values. Other efficiency levels may be applied if they can be documented.*

✉ A description from the furniture manufacturer of each surface treatment system that is used.

O69 Quantity of applied volatile organic compounds (VOC)

The chemical products that are used must meet one of the following alternatives in each surface treatment system:

a) The total content of VOCs* must not exceed 5% by weight

b) The total amount of VOCs applied must not exceed 30g/m² treated surface

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

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

For both these alternatives, it is the content of VOCs that the chemical products have in their uncured form that must meet the requirement. If the products require dilution, the calculation must be based on the content in the diluted product.

**Volatile organic compounds (VOCs) are defined as compounds with a boiling point of <250°C at 101.3 kPa (1 atm)*

✉ Safety data sheet in accordance with Appendix II of REACH (Regulation No. (EC) 1907/2006) for each chemical product in the surface treatment system.

✉ A declaration from the manufacturers of the chemical products in the surface treatment system stating the quantities of VOCs in each product.

✉ A calculation from the furniture manufacturer showing that alternative b) in the requirement is met if the surface treatment system does not meet alternative a).

3.7.3 Recycled metal

The requirement applies if the product contains more than 30% metal by weight.

O70 Percentage of recycled metal

It is possible to document the percentage of recycled metal using either alternative 1 or 2.

Alternative 1:

70% by weight of aluminium and 70% by weight of steel must be recycled*.

Alternative 2:

Together, aluminium and steel must meet the following requirement for the percentage of recycled* metal:

recycledAl* kgAl + recycledSteel* kgSteel ≥ 0.70*kgAl + 0.70*kgSteel

Where:

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

recycledAl and recycledSteel are the percentage of recycled aluminium and steel respectively which must be stated as a number between 0 and 1 (corresponding to 0% to 100%).

The smelter must declare the percentage of recycled materials used in production. An annual average for the smelter is accepted.

The supply chain must be stated and there must be traceability all through the supply chain, from the smelter to the finished product, so that the percentage of recycled materials is guaranteed along the entire supply chain.

Information about recycled materials must be shown on the invoice or be documented with a declaration from the supplier about the percentage of recycled materials.

The supplier can confirm the percentage of recycled materials in its products by providing an overview of the quantity of recycled materials purchased and the quantity sold. There must be an agreement between the supplier and the manufacturer of the Nordic Ecolabelled production that the recycled material is sold to the Nordic Ecolabelled production.

**Recycled metal is defined as both pre-consumer and post-consumer, c.f. the definition given in ISO 14021.*

✉ The percentage of recycled metal in the product must be stated.
✉ A declaration from the smelter of the percentage of recycled metal used in its production (on an annual basis). Supply chain traceability must be documented, e.g. as a flowchart. The percentage of recycled metal in the supply chain must be documented, e.g. with information on the invoice or a declaration from the supplier. The percentage of recycled content for Al can be documented with the certification Hydro Circal.

3.8 Plastic and rubber

Polymer materials used as padding materials, e.g. polyurethane foam and textiles do not come under the requirements applicable to plastic.

Small plastic parts (e.g. screws, staples and fasteners) are not included in the weight fraction and do not come under the requirements this chapter. Similarly, wires e.g. in height-adjustable tables and adjustable beds do not come under the requirements in this chapter.

3.8.1 General requirements

O71 Types of plastic

Details must be provided of the types of plastic, fillers and reinforcements used in the plastic parts.

Plastics containing a mixture of different materials*, e.g. plastic that is a mixture of other materials such as wood fibre or bamboo (wood-plastic composite (WPC)) may not be used.

Reinforcement of plastic, e.g. adding glass is allowed.

✉ A description of plastic parts and types of plastic, fillers and reinforcements contained in the plastic part.

O72 Bio-based plastics

It must be possible to recycle* the bio-based plastic materials contained in the product at today's recycling facilities.

**Incineration for energy recovery is not classed as material recycling. Biodegradable/compostable plastics cannot be recycled at today's recycling facilities.*

✉ Documentation showing the materials contained in the product.

O73 Labelling

Parts that contain plastic and weigh more than 100 g must be clearly labelled in compliance with the ISO 11469 and ISO 1043 standards.

An exemption is made for plastic in rolls, e.g. edge trim.

An exemption may also be made if it is technically difficult to label, e.g. because of lack of space or the production method. In such cases, it must be explained why labelling is difficult and the exemption must be specifically approved by Nordic Ecolabelling.

✉ Information about plastic parts and how they are labelled. A description of any exemption that applies must be given in compliance with the requirement.

3.8.2 Chemicals

O74 Chemicals in recycled plastics

The requirement applies to chemicals in the recycled plastic raw material.

Recycled plastic must not contain:

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

Impurities up to 100 ppm are permitted.

✉ A test report (XRF, X-ray fluorescence or equivalent method) from the supplier of the recycled plastic showing compliance with the requirement. Alternatively, the requirement can be documented with traceability to the source to substantiate that these substances are not included.

O75 Chemicals in reused plastics

The requirement applies to plastic parts that are directly reused and not plastics that have been through mechanical or chemical recycling (see requirement O74).

Reused plastics:

- it must be stated what the plastic part was previously used for
- plastics may not be used from product areas where it is probable that halogenated flame retardants have been used. Alternatively, it can be documented with tests, see requirement O74.

✉ Information about previous types of use for the plastic part, and a declaration or similar from the supplier of the plastic part stating that the part does not contain halogenated flame retardants. Alternative test report, see O74.

O76 Additives - prohibited substances

Additives in the list below must not be added to plastic, rubber and silicon (both virgin and recycled plastic). The requirement applies to additives actively added

to the polymer raw material in the master batch or compound in production of plastic or rubber.

- Substances on the Candidate List**
- Substances that have been evaluated in the EU to be PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative)***
- Substances considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances for further evaluation of their role in endocrine disruption****
- Halogenated organic compounds with the following exceptions:
    - Bronopol (Cas. No. 52-51-7) may be present in the chemical product at a level of not more than 0.05% by weight
    - Mixture (3:1) of CMIT/MIT (5 chloro-2-methyl-4-isothiazolin-3-one Cas. No. 247-500-7; 2-methyl-4-isothiazolin-3-one Cas. No. 220-239-6) may be present in the chemical product at a level of not more than 0.0015% by weight
    - IPBC (Iodopropynyl butylcarbamate) may be present in the chemical product at a level of not more than 0.20% by weight
    - halogenated organic pigments that comply with the Council of Europe recommendation "Resolution AP (89) 1 on the use of colorants in plastic materials coming into contact with food", point 2.5
- Isothiazolinones may be present in the chemical product at a level of not more than 0.05% by weight
- Butylhydroxytoluene (BHT, CAS nr. 128-37-0)
- Aziridine and polyazidirines
- Bisphenol A, S and F
- Alkylphenols, alkylphenol ethoxylates and other alkylphenol derivates*****
- Phthalates
- Pigments and additives based on lead, tin, cadmium, chromium VI and mercury, and their compounds
- Volatile aromatic hydrocarbons (VAH). They are permitted in the chemical product as an impurity at a level of not more than 1% by weight

**See definition of ingoing substances under Definitions.*

***The Candidate List is available on the ECHA website: http://echa.europa.eu/candidate-list-table*

****PBT and vPvB in accordance with the criteria in Annex XIII of REACH*

*****Substances with endocrine disrupting effects categories 1 or 2, see the following link: http://ec.europa.eu/environment/chemicals/endocrine/strategy/being_en.htm (Annex L, page 238 onwards)*

******Alkylphenol derivatives are defined as substances that release alkylphenols when they break down.*

✉ A declaration from the manufacturer of plastic/rubber/silicon.
✉ A safety data sheet for the additives in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006.

O77 Additives - CMR

Additives to plastic, rubber and silicon (both virgin and recycled plastic) must not be classified according to the table below. The requirement applies to additives actively added to the polymer raw material in the master batch or compound in production of plastic or rubber.

Hazard class	Hazard class and category	Hazard code
Carcinogenic[1]	Carc. 1A or 1B Carc. 2	H350 H351
Germ cell mutagenic [1]	Mut. 1A or 1B Mut. 2	H340 H341
Toxic for reproduction [1]	Repr. 1A or 1B Repr. 2 Lact	H360 H361 H362

[1]*Including all combinations of stated exposure route and stated specific effect. For example, H350 also covers the classification H350i.*

☒ Safety data sheet for additives in compliance with current European legislation (Annex II of REACH, Regulation (EC) No. 1907/2006).

☒ A declaration from the plastics/rubber/silicon manufacturer.

O78 Surface treatment

Surface treatment of plastic materials may be permitted if documentation can be submitted showing that this does not affect the potential for recycling.

The coating must meet requirements O76 and O77. There is also a requirement that applies to VOCs, see O79.

☒ A declaration from the furniture manufacturer and documentation stating that the coating does not negatively affect the potential for recycling.

☒ For coating/surface treatment: documentation in compliance with O77 and O78.

O79 Quantity of applied volatile organic compounds (VOC)

The requirement applies if the surface-treated plastic part makes up more than 5% by weight of the furniture / interior.

For each surface treatment used, the following information must be provided by the furniture manufacturer:

a) Name of the surface treatment product and manufacturer of the surface treatment product

b) quantity applied (g/m2), number of coats and application method(s) used.

The chemical products that are used for surface treatment must meet one of the following alternatives:

- The total content of VOCs* must not exceed 5% by weight or
- The total amount of VOCs applied must not exceed 30 g/m^2 treated surface

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

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

For both these alternatives, it is the content of VOCs that the chemical products have in their uncured form that must meet the requirement. If the products

require dilution, the calculation must be based on the content in the diluted product.

For calculating the surface treatment efficiency, the following levels** of efficiency must be used:

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

**Volatile organic compounds (VOCs) are defined as compounds with a boiling point of <250°C at 101.3 kPa (1 atm)*

***The levels of efficiency are standard values. Other efficiency levels may be applied if they can be documented.*

✉ Safety data sheet in accordance with Appendix II of REACH (Regulation No. (EC) 1907/2006) for each chemical product in the surface treatment system.

✉ A declaration from the manufacturers of the chemical products in the surface treatment system stating the quantities of VOCs in each product.

✉ A calculation from the furniture manufacturer showing that alternative b) in the requirement is met if the surface treatment system does not meet alternative a).

O80 Nitrosamines in rubber

The content of nitrosamines or nitrosamine soluble substances must not exceed 0.01 mg/kg and 0.1 mg/kg of rubber, respectively.

✉ A declaration from the rubber manufacturer.

3.8.3 Recycled plastics

O81 Recycled plastics

The requirement applies if the content of plastic is 10% by weight or more.

The plastic must have a minimum of 50% pre-consumer or post-consumer recycled material content*.

**Recycled plastic is defined in accordance with ISO 14021, see definitions.*

✉ Manufacturers of recycled raw materials must be stated. Description and documentation from manufacturers of recycled raw materials showing that the plastic is recycled in compliance with the requirement's definition or has Global Recycled Standard certification or EuCertPlast certification, showing that the raw materials are recycled, or other equivalent certification approved by Nordic Ecolabelling.

3.9 Textiles

The requirements apply to textiles made of both synthetic and natural fibres. There are different sets of requirements for textiles depending on the amount in the product and the purpose. Some requirements apply regardless of the amount and purpose in the product. The most comprehensive requirements are set for

furniture coverings, such as sofa covers, cushions, chairs and mattresses that come into contact with skin. Less stringent requirements apply to textiles that do not come into contact with skin to the same extent, such as textiles on a bed frame, textiles under sofa cushions, partition walls and similar.

All textile parts, irrespective of ingoing quantity and purpose, must meet the following requirements:

- O83 Biocides and antibacterial substances
- O84 Flame retardants
- O85 Classification of chemicals

Coverings on furniture such as mattresses, sofas and chairs must also fulfil:

- O86 Ban on CMR substances
- O87 List of prohibited substances
- O88 Metal complex dyes
- O89 Formaldehyde
- The requirements for production of fibre: O90-097 depending on fibre type
- Quality standards for textiles (for seating): O98-O104

In addition to O83-O85, other textile parts, such as textiles on a bed frame or partition wall, must meet:

- O105-0111 Test of the finished textile

Textiles with the Nordic Swan Ecolabel meet all the requirements in this section. The name of the textile, manufacturer and licence number must be submitted.

Textiles labelled with the EU Ecolabel meet all the requirements in this section with the exception of requirements for flame retardants. In order for textiles with the EU Ecolabel to be approved, documentation is required declaring that any flame retardants that have been added meet the O84 requirement for flame retardants, and that the flame retardant is not classified according to the hazard classes specified in O85.

The following applies in respect of requirements for chemicals:

The requirements apply to all chemicals used during the manufacture of textiles unless otherwise specified in the requirement. Plasticisers, bleaching agents, pigments, colourants, stabilisers, dispersing agents, erasers, enzymes and other processing additives are examples of chemicals used in the various textile production processes. These include carding, spinning, weaving, knitting, washing, bleaching, dyeing, printing and finishing, such as coating, lamination or gluing. The requirements apply regardless of whether the chemicals are used by the textile manufacturer or its subcontractors.

The requirements do not apply to chemicals used in treatment plants or for maintenance of production equipment. This also applies to chemicals used in small quantities, such as levelling agents and de-sizing agents.

The following definition applies to ingoing substances in chemicals:

Ingoing substances: All substances in the chemical product, including additives (e.g. preservatives and stabilisers) in the raw materials. Substances known to be released from ingoing substances (e.g. formaldehyde, arylamine, in-situ generated preservatives) are also considered as ingoing substances.

Impurities: Residuals, pollutants, contaminants etc. from production, incl. production of raw materials that remain in the raw material or in chemical product in concentrations less than 100 ppm (0,0100 w-%, 100 mg/kg) in the chemical product. Impurities in the raw materials exceeding concentrations of 1,0 % / 0,10 % are always regarded as ingoing substances, regardless of the concentration in the chemical product. Examples of impurities are residues of the following: residues or reagents incl. residues of monomers, catalysts, by-products, scavengers, and detergents for production equipment and carry-over from other or previous production lines.

3.9.1 Requirements that apply to textiles regardless of quantity

O82 Ecolabelled textile

If the textile is ecolabelled with the Swan, all the requirements in this chapter are fulfilled.

If the textile is ecolabelled with EU Ecolabel and it contains flame retardants, O84 and O85 must also be fulfilled.

✉ Swanlabelled textile: Submit name of textile, manufacturer and license number.
✉ Textile labelled with EU Ecolabel: Submit name of textile, manufacturer and license number. Documentation according to O84 and O85.

O83 Biocides and antibacterial substances

Chemicals with the following properties may not be added to and/or used in fibres, rolls of fabrics or the textile end product:

- Antibacterial substances (including silver ions, silver nanoparticles and copper nanoparticles)

  and/or

- Biocides in the form of pure active substances or as biocidal products.

This requirement also applies to the transport of the textiles.

The ban does not apply to natural antibacterial effect in materials.

✉ A declaration of compliance with the requirement from the chemical manufacturer/supplier.

O84 Flame retardants

The following flame retardants are prohibited:

- Halogenated flame retardants
- Organophosphate flame retardants
- Flame retardants must also meet requirements O85.

✉ A declaration from the textile manufacturer stating that no halogenated and/or organophosphate flame retardants have been added to textiles or during the production process.
✉ Documentation in compliance with the requirements O85.

O85 Classification of chemical products

Chemical products shall not be classified in any of the hazard categories in the table below.

CLP Regulation 1272/2008		
Hazard class	**Hazard category**	**Hazard code**
Hazardous to the aquatic environment	Aquatic Acute 1 Aquatic Chronic 1 Aquatic Chronic 2	H400 H410 H411
Hazardous to the ozone layer	Ozone	H420
Carcinogenicity	Carc 1A or 1B Carc 2	H350 H351
Germ cell mutagenicity	Muta. 1A or 1B Muta. 2	H340 H341
Reproductive toxicity	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
Acute toxicity	Acute Tox 1 or 2 Acute Tox 3	H300, H310, H330 H301, 311, 331
Specific target organ toxicity with single or repeated exposure	STOT SE 1 STOT RE 1	H370 H372
Sensitising on inhalation or skin contact	Resp. Sens. 1, 1A or 1B Skin Sens. 1, 1A or 1B	H334* H317*

** Non-disperse dyes are exempt from the prohibition of H334 and H317, provided that non-dusting formulations are used or that automatic dosing is used.*

☒ Declaration from the chemical manufacturer that the requirement is fulfilled.
☒ For exempted non-disperse dyes: Declaration that non-dusting formulations of these are used or that automatic dosing is used.

3.9.2 Requirements for coverings on furniture

The following requirements apply to coverings on furniture, such as mattresses, sofas and chairs.

The requirements apply to each type of textile that makes up more than 10% by weight of the textile in the product.

O86 Prohibition of CMR substances

Chemical products shall not contain any ingoing substances* that have any of the classifications in the table below.

CLP Regulation 1272/2008		
Hazard class	**Hazard category**	**Hazard code**
Carcinogenicity	Carc. 1A or 1B Carc. 2	H350 H351
Germ cell mutagenicity	Muta. 1A or 1B Muta. 2	H340 H341
Reproductive toxicity	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362

* For definition of ingoing substances, see Definitions.

☒ Declaration from the chemical producer that the requirement is fulfilled.

O87 Prohibited substances

The following substances shall not be an ingoing substance* in chemical products:

- Candidate List substances**

For the siloxanes D4, D5 and D6 the following applies: D4 (cas no 556-67-2), D5 (cas nr 541-02-6) or D6 (cas nr 540-97-6) may only be included in the form of residues from raw material production and allowed for each up to 1000 ppm in the silicone raw material (chemical).

- Substances that are PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative) according to the criteria in Annex XIII of REACH
- Substances identified as potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances for further investigation of endocrine disrupting effects***, and endocrine disruptors identified in the Biocidal Products Regulation (EU 528/2012) and/or the Plant Protection Products Regulation (EC 1107/2009).
- Per- and polyfluorinated compounds, e.g. PTFE, PFOA and PFOS
- Chlorinated polymers, e.g. PVC and PVDC
- Nanoparticles from nanomaterials****
- Heavy metals*****
- Azo dyes that may release aromatic amines with carcinogenic properties (see appendix 3)
- Phthalates
- Chlorinated solvents and carriers, including chlorophenols and chlorinated benzenes
- Alkylphenols and alkylphenol ethoxylates (APEO)
- Organotin compounds

**For definition of ingoing substances, see Definitions.*

***The Candidate List is available on the ECHA website: http://echa.europa.eu/candidate-list-table*

****Substances with endocrine disrupting effects categories 1 or 2, see the following link: http://ec.europa.eu/environment/chemicals/endocrine/strategy/being_en.htm (Annex L, page 238 onwards)*

*****In accordance with the definition of a nanomaterial adopted by the European Commission on 18 October 2011 (2011/696/EU). The requirement does not apply to natural pigments.*

******Heavy metals are the metals listed under item 2 below. Exemptions from the requirement:*

1) copper in metal complex dyes, see requirement O34.

2) metallic impurities in dyes and pigments up to amounts set by ETAD, Annex 2 "Heavy metal limits for dyes": Antimony (50 ppm), Arsenic (50 ppm), Cadmium (20 ppm), Chromium (100 ppm), Lead (100 ppm), Mercury (4 ppm), Zinc (1500 ppm), Copper (250 ppm), Nickel (200 ppm), Tin (250 ppm), Barium (100 ppm), Cobalt (500 ppm), Iron (2500 ppm), Manganese (1000 ppm), Selenium (20 ppm) and Silver (100 ppm)

3) an exception is made here for iron used in depigmentation prior to printing.

✉ Declaration from the chemical manufacturer or chemical supplier that the requirement is fulfilled.

O88 Metal complex dyes and pigments

Only metal complex dyes and pigments based on copper that make up a maximum of 5% by weight may be used, and only for the following fibres and processes:

- when dyeing wool fibre
- when dyeing polyamide fibre
- when dyeing a blend of wool and/or polyamide with regenerated cellulose fibre

✉ Declaration from the chemical manufacturer or chemical supplier that the requirement is fulfilled.

O89 Formaldehyde

The amount of free and partly hydrolysable formaldehyde in the finished textile must not exceed 16 ppm. Content of formaldehyde must be tested for compliance with the EN ISO 14184-1 standard.

✉ A test report showing compliance with the requirement.
✉ Certificate from Oeko-Tex 100 class I Baby or GOTS can also be used as documentation.

Fibre production

The requirements for fibre apply to the textile fibre with a content in the textile part of 30% by weight. This means that e.g. for a blend of 75% cotton and 25% polyester, only the requirements for cotton must be met.

O90 Cotton

Cotton and other cellulose seed fibres (including kapok) must be:

- organically farmed* or
- recycled** or
- GOTS certified or
- grown under an Integrated Pest Management (IPM) programme in compliance with one of the following standards: BCI (Better Cotton Initiative), CmiA (Cotton made in Africa) or FairTrade for cotton.

**Organic means cotton that is certified organic or is grown during the transition period to organic cultivation in accordance with a standard approved in the IFOAM Family of Standards. See definitions for more details.*

*** Recycled fibres or materials: Pre-consumer or post-consumer recycled raw materials, c.f. the definition given in the ISO 14021 standard. Both mechanical and chemical recycling are included. See definitions for more details.*

✉ A valid certification showing that the cotton in the Nordic Swan Ecolabelled product has been organically grown in compliance with the standards in the requirement. If the GOTS certification is held by the subcontractor, a transaction certificate is required showing that the product being shipped is GOTS certified. Documentation for BCI cotton must show traceability back to the BCI farmers.
✉ Documentation for recycled fibres must be either a or b:

a) a Global Recycled Standard certificate showing that the raw material has been recycled or other equivalent certification approved by Nordic Ecolabelling.

b) documentation showing that the recycled fibres were purchased as recycled and the name of the supplier.

O91 Flax and other bast fibres

Flax and other bast fibres (e.g. ramie, hemp and jute) must only be farmed with pesticides allowed under the EU Regulation No. 1107/2009.

✉ A declaration that only pesticides approved under the EU Regulation No. 1107/2009 have been used.

O92 Wool and other keratin fibres

Any wool and other keratin fibres used must originate from sheep, camels, alpaca or goats, and must be one of the following:

1. certified organic wool*
2. recycled wool**

or

3. conventional wool with documentation that the requirement below concerning pesticide content in the raw wool is fulfilled.

Pesticide content in conventional wool:

- The total content of the following substances may not exceed 0.5 ppm:

  γ-hexachlorocyclohexane (lindane), α-hexachlorocyclohexane, β-hexachlorocyclohexane, δ-hexachlorocyclohexane, aldrin, dieldrin, endrin, p,p'-DDT and p,p'-DDD, cypermethrin, deltamethrin, fenvalerate, cyhalothrin and flumethrin.
- The total content of the following substances may not exceed 2 ppm: diazinon, propetamphos, chlorfenvinphos, dichlorfenthion, chlorpyriphos, fenchlorphos, dicyclanil, diflubenzuron and triflumuron.

The requirement to test for pesticide residues does not apply if documentation can show which farmers produced at least 75% by weight of the wool or keratin fibres, and those farmers can confirm that the substances named in the requirement have not been used in the areas or on the animals in question.

Test method: The tests must be performed in accordance with IWTO Draft Test Method 59: Method for the Determination of Chemical Residues on Greasy Wool or equivalent.

The analysis must be performed on raw wool before wet processing and the test report must be submitted with the application. Thereafter, the applicant must have a procedure in place for annual testing in line with the requirement and for ensuring compliance with the requirement. Nordic Ecolabelling must be informed if the requirement is not fulfilled.

**Definition of organic wool: wool fibre that is certified as organic or transitioning to organic according to a standard approved in the IFOAM Family of Standards, such as Regulation (EU) 2018/848, USDA National Organic Program (NOP), APEDA's National Programme for Organic Production (NPOP), China Organic Standard GB/T19630. Also approved are GOTS and DEMETER and certification as "transitioning to organic cultivation". The certification body must have the accreditation required for the standard, such as ISO 17065, NOP or IFOAM.*

*** Definition of recycled wool: Pre-consumer or post-consumer recycled raw materials, see the definition in the ISO 14021 standard. Both mechanically and chemically recycled fibres are included. See the definitions in section 5.2 for more details.*

✉ **Organic wool:** Valid certificate showing that the wool in the Nordic Swan Ecolabelled product was organically cultivated in line with the standards in the

requirement. If the supplier is the holder of GOTS certification, the requirement must be documented with a transaction certificate showing that the goods supplied are GOT certified.

✉ Fulfilment of the requirement is documented for **recycled fibre** with either a or b below:

c) Global Recycled Standard certificate showing that the raw material is recycled, or other equivalent certification approved by Nordic Ecolabelling.

d) Present documentation demonstrating that the recycled fibre was purchased as recycled and state the supplier.

✉ **Conventional wool:** Declaration from the wool supplier that no mulesing has been used.

✉ In addition, a test report showing that the pesticide requirement has been fulfilled, plus a written procedure showing how an annual test is performed in line with the pesticide requirement, along with annual in-house checks of compliance with the requirement. Test results are to be archived and kept available for inspection by Nordic Ecolabelling. An alternative to the pesticide test is a confirmation from the farmers that the stated substances are not used, plus an overview of the proportion of wool concerned.

O93 Ban on mulesing

Surgical mulesing and mulesing performed using liquid nitrogen are not permitted on merino sheep.

✉ Declaration from the merino wool producer, stating that no mulesing has taken place.

O94 Synthetic fibres

Synthetic fibres must either be recycled or meet the requirements below for acrylic, polyamide, polyester and polypropylene.

- Recycled: Recycled plastics must not be used if they are approved for food contact and originate from facilities that are EFSA** or FDA*** approved or are marketed as compliant with these.
- Acrylic:
  a) The residual acrylonitrile content in raw fibres from the fibre production plant must be less than 1.5 mg/kg. The amount of acrylonitrile must be measured using the following method of analysis: Extraction with boiling water and quantification with capillary gas-liquid chromatography.
  b) N,N-Dimethylacetamide (DMAc, CAS no. 127-19-5) must not be used in the production of acrylic
- Polyamide: Emissions of nitrogen dioxide (N2O) to the air from the production of monomers must not exceed 10 g/kg produced polyamide 6-fibre and 50 g/kg produced polyamide 6.6-fibre, expressed as an annual average.
- Polyester: The amount of antimony in polyester fibre measured as an annual average must not exceed 260 ppm.

  Antimony must be tested using the following method: Direct determination by atomic absorption spectrometry. The test must be conducted on raw fibre prior to wet treatment.
- Polypropylene: Lead-based pigments must not be used.

✉ For recycled fibre: A declaration from the manufacturers of recycled raw materials stating that the raw materials are not EFSA or FDA approved, c.f. the requirement. Certificate for third party certification of the supply chain (e.g.

Global Recycled Standard) or documentation from the manufacturer showing that the feedstock used in the raw material is 100% recycled material, c.f. the definition of the requirement

✉ Acrylic: An analysis report from the manufacturer of acrylic showing compliance with the requirement. A declaration from the manufacturer of acrylic that DMAc has not been used.

✉ Polyamide: A test report from the manufacturer of polyamide showing compliance with the requirement.

✉ Polyester: A declaration from the manufacturer of polyester showing that antimony has not been used or a test report showing compliance with the requirement.

✉ Polypropylene: A declaration from the manufacturer of polypropylene that lead-based pigments have not been used.

O95 Regenerated cellulose (for example, lyocell)

The following requirements apply to regenerated cellulose:

- Chlorine gas (Cl_2) must not be used to bleach cellulose pulp or cellulose fibre.
- Sulphur emissions (viscose and modal fibre) to the air must not exceed 120 g S/kg of filament fibre and 30 g/kg of staple fibre expressed as an annual average. Measurement of sulphur emissions must be in accordance with ISO 7934, ISO 7935 or equivalent standards.
- Zinc emissions (viscose) to water must not exceed 0.3 g Zn/kg of regenerated cellulose, expressed as an annual average. Information on sampling, analysis methods and analysis laboratories are given in Appendix 1.
- Tree species on the Nordic Swan Ecolabel's list of prohibited tree species* must not be used.

**The complete list of prohibited tree species is available for viewing at:*

www.nordic-ecolabel.org/wood/

✉ A declaration from the manufacturer of regenerated cellulose that chlorine gas has not been used for bleaching.

✉ An analysis report showing emissions of sulphur.

✉ An analysis report showing emissions of zinc.

✉ A declaration from the manufacturer of regenerated cellulose stating compliance with the requirement not to use protected tree species.

O96 Traceability and certified raw materials

The requirement applies if the regenerated cellulose fibre content in the textile is more than 50%.

The manufacturer of regenerated fibre or the manufacturer of the dissolving pulp must state the name (species name) of the wood raw materials used in its production.

The manufacturer of regenerated fibre or the manufacturer of the dissolving pulp must have Chain of Custody certification under the FSC or PEFC schemes.

On an annual basis:

a) At least 50% of the wood raw materials that are used as cellulose fibre/in the dissolving pulp must be certified as sustainably forested under the FSC or PEFC schemes. The remaining percentage of wood raw materials must be covered by the FSC/PEFC compliance schemes (FSC Controlled Wood/PEFC Controlled Sources)

or

b) At least 75% of the regenerated fibre in the dissolving pulp must be recycled material*

or

c) a combination of certified raw material and recycled material, calculated using the following formula:

Requirement for the percentage of fibre raw material from certified forestry in the pulp (Y):

$Y (\%) \geq 50 - 0.67 x$

where x = percentage of recycled material.

The requirement must be documented as purchased wood/fibre on an annual basis (volume or weight) by the producer of regenerated fibre or the manufacturer of the dissolving pulp.

If several pulps are mixed, the certification percentage must be met for the finished pulp that is used.

**Recycled material is defined according to ISO 14021, see Definitions.*

☒ Declaration from the producer of the fibre raw material in the case of regenerated fibre, or the producer of the dissolving pulp, that the requirement concerning wood species that must not be used has been fulfilled.

☒ Name (in Latin and one Nordic language) of the wood raw materials used.

☒ The producer of the fibre raw material in the case of regenerated fibre, or the producer of the dissolving pulp, must present a valid chain of custody certificate issued by FSC or PEFC that covers the wood raw materials and recycled material used in the pulp.

☒ Documentation from the producer of the pulp, showing the quantity of certified wood raw material purchased. The amounts purchased must be supported by an invoice or delivery note (paper or e-invoice). The proportion of certified fibre must be updated and reported annually throughout the validity period of the licence.

O97 Recycled fibres, test for environmentally harmful substances

This requirement applies to all recycled fibres – both synthetic and natural. Recycled fibres/raw materials for fibre production shall not contain the following substances above the limits stated in the table below.

PET bottles that are used in the production of polyester as well as chemically recycled polymers that perform chemical purification are exempt from the requirement. The requirement must be documented on application, with subsequent annual checks via self-assessment.

Substance/substance group	Max. limit
Metals	
Chromium total	1.0 mg/kg
Lead	0.1 mg/kg
Mercury	0.02 mg/kg
Cadmium	0.1 mg/kg
Antimony	30.0 mg/kg
Organic tin compounds	
TBT and TPhT	0.5 mg/kg
Total of DBT, DMT, DOT, DPhT, DPT, MOT, MMT, MPhT, TeBT, TeET, TCyHT, TMT, TOT, TPT	1.0 mg/kg

Chlorophenols	
Pentachlorophenol	0.05 mg/kg
Tetrachlorophenol	0.05 mg/kg
Trichlorophenol	0.2 mg/kg
Dichlorophenpol	0.5 mg/kg
Monochlorophenol	0.5 mg/kg
Per- and polyfluorinated compounds	
PFOS, PFOSA, PFOSF, N-Me-FOSA, N-Me-FOSE, N-Et-FOSE	Total < 1.0 µg/m2
PFOA	< 1.0 µg/m2
PFHpA, PFNA, PFDA, PFUdA, PFDoA, PFTrDA, PFTeDA	0.05 mg/kg for each
Other stated per- and polyfluorinated compounds as set out in Oeko-Tex 100 Annex 5.	0.05 or 0.5 mg/kg for each as stated in Oeko-Tex 100
Phthalates	
BBP, DBP, DEP, DMP, DEHP, DMEP, DIHP, DHNUP, DCHP, DHxP, DIBP, DIHxP, DIOP, DINP, DIDP, DPrP, DHP, DNOP, DNP, DPP	Total 0.1 wt%
Flame retardants	
Flame retardants, with the exception of flame retardants approved by Oeko-Tex	< 100 mg/kg for each
Formaldehyde	16 mg/kg
Arylamines with carcinogenic properties stated in Oeko-Tex 100 Annex 5	Total 20 mg/kg
Surfactant, wetting agent residues	
Nonylphenol, octylphenol, heptylphenol, pentylphenol	Total 10 mg/kg
Nonylphenol, octylphenol, heptylphenol, pentylphenol, nonylphenol ethoxylate and octylphenol ethoxylate	Total 100 mg/kg
Dyes	
Cleavable, classified as carcinogenic in Oeko-Tex Annex 5	Total 20 mg/kg
Cleavable aniline as listed in Oeko-Tex Annex 5	Total 100 mg/kg
Classified as carcinogenic in Oeko-Tex Annex 5	50 mg/kg
Dyes classified as allergenic in Oeko-Tex Annex 5	50 mg/kg
Other dyes listed in Oeko-Tex Annex 5	50 mg/kg

Pesticides (for recycled natural fibre)	
Pesticides listed in Oeko-Tex 100 Annex 5	Total 0.5 mg/kg

Test methods: as stated in Testing Methods Standard 100 by Oeko-Tex

✉ Test reports or Oeko-Tex 100 class I certificate showing fulfilment of the requirement.

✉ A written procedure showing how an annual test is performed in line with the requirement, along with annual in-house checks of compliance with the requirement. Test results are to be archived and kept available for inspection by Nordic Ecolabelling.

3.9.3 Quality standards - textiles for seating furniture

O98 Dimensional changes after washing and drying

Dimensional changes after washing and drying must not exceed ± 2% for textiles that can be removed and washed.

Test procedure to be followed:

- Wash once
- Washing at the temperature stated on the care label
- Drying as stated on the care label

Test method:

The tests must be performed in accordance with EN ISO 6330 Textiles – Domestic washing and drying procedures for textile testing, in combination with ISO 5077 Textiles – Determination of dimensional change in washing and drying, or an equivalent standard.

For workwear intended to be industrially laundered, the standards used are ISO 15797 Textiles – Industrial washing and finishing procedures for testing of workwear and EN ISO 5077.

✉ A test report showing compliance with the requirement.

O99 Colour fastness to light

Colour fastness to light must be at least level 5.

Level 4 may be permitted if the textile is lightly dyed (standard depth <1/12 in accordance with 105 A06) and consists of mixes containing more than 20% wool or other keratin fibres, or of mixes containing more than 20% flax or other bast fibres.

The requirement does not apply to white textiles, mattress bolsters and mattress covers.

Tests must be performed in accordance with EN ISO 105 B02 or an equivalent standard.

✉ A test report showing compliance with the requirement. Alternatively, a GOTS transaction certificate may be used as documentation for the selected types of upholstery.

O100 Colour fastness to washing

Colour fastness must be at least:

- Colour change: level 3-4
- Discolouration: level 3-4

The requirement does not apply to textile elements that are clearly labelled “dry clean only” or equivalent (if the product in question is normally labelled in this

way), nor white products, products that are neither dyed nor printed, nor textiles that are not intended for removal and washing.

Tests must be performed in accordance with ISO 105 C06 (a single wash at the temperature stated on the product) or an equivalent standard.

✉ A test report showing compliance with the requirement. Alternatively, a GOTS transaction certificate may be used as documentation.

O101 Colour fastness to rubbing (wet)

Colour fastness to wet rubbing must be at least level 2-3.

The requirement does not apply to white products or products that are neither dyed nor printed.

Tests must be performed in accordance with ISO 105 X12 or an equivalent standard.

✉ A test report showing compliance with the requirement.

O102 Colour fastness to rubbing (dry)

Colour fastness to dry rubbing must be at least level 4.

Tests must be performed in accordance with ISO 105 X12 or an equivalent standard.

The requirement does not apply to white textile products or textile products that are neither dyed nor printed.

✉ A test report showing compliance with the requirement. Alternatively, an Oeko-Tex 100 version 2019 certificate can be used as documentation for the requirement.

O103 Wear resistance

Fabric for furniture upholstery (seating) must have the following wear resistance:

- For use in public spaces: 80,000
- For use in domestic spaces: 20,000

Tests must be performed in accordance with EN ISO 12947-2 or an equivalent standard.

✉ A test report showing compliance with the requirement.

O104 Pilling - upholstery fabric

Upholstery fabric must have pilling resistance equivalent to level 4

in accordance with EN ISO 12945-2 or an equivalent standard.

✉ A test report showing compliance with the requirement.

3.9.4 Requirements for other parts of textiles

The requirements for other textile parts are based on tests of the finished textile and harmonize with the requirements that Nordic Ecolabelling sets for certain textile parts in the criteria for Nordic Ecolabelling of baby products with textiles.

O105 Extractable metals

Extractable metals must be tested in accordance with: Extraction: EN ISO 105-E04 (perspiration-proof (acidic)). Detection: ICP-MS or ICP-OES.

For the individual textile, hide/skin and leather element the extractable metals may at most be the following:

Metal	Extractable metal in mg/kg
Antimony (Sb)	30.0 mg/kg
Arsenic (As)	0.2 mg/kg
Cadmium (Cd)	0.1 mg/kg
Chromium (Cr)	1.0 mg/kg
Cobalt (Co)	1.0 mg/kg
Copper (Cu)	25.0 mg/kg
Lead (Pb)	0.2 mg/kg
Nickel (Ni)	1.0 mg/kg
Mercury (Hg)	0.02 mg/kg

✉ Test report showing that the requirement is fulfilled.

✉ Alternatively, a certificate for Oeko-Tex 100 class I Baby or GOTS version 4 or later can also be used as documentation.

O106 Total metal content

For the individual textile, hide/skin and leather element, the total content of the following metals may not exceed:

a) Lead (Pb) 90 mg/kg.

b) Cadmium (Cd): 45 mg/kg.

The metal content must be tested in accordance with EPA 3050 B (ICP/MS).

✉ Test report showing that the requirement is fulfilled.

✉ Alternatively, a certificate from Oeko.Tex 100 class I Baby or GOTS version 4 can also be used as documentation.

O107 Formaldehyde in textile

The amount of free and partly hydrolysable formaldehyde in the finished textile may not exceed 16 ppm for the individual textile element.

Testing must be in accordance with EN ISO 14184-1.

✉ Test report showing that the requirement is fulfilled, or certificate from Oeko-Tex 100 class I Baby or certificate from GOTS version 4, specifically approved for babywear, can also be used as documentation

O108 Polycyclic aromatic hydrocarbons (PAHs)

For the individual textile element which includes more than 10 weigh-t% synthetic fibre, the sum of the PAHs stated here must be below 5 mg/kg and each individual PAH must be below 0.5 mg/kg.

The requirement concerns the following PAHs:

Substance name	CAS no.	Substance name	CAS no.
Benzo[A]Pyrene	50-32-8	Benzo[A]Pyrene	50-32-8
Benzo[E]Pyrene	192-97-2	Benzo[E]Pyrene	192-97-2
Benzo[A]Anthracene	56-55-3	Acenaphthylene	208-96-8
Dibenzo[A,H]Anthracene	53-70-3	Acenaphthene	83-32-9
Benzo[B]Fluoranthene	53-70-3	Anthracene	120-12-7
Benzo[J]Fluoranthene	205-82-3	Fluorene	86-73-7
Benzo[K]Fluoranthene	207-08-9	Naphthaline	91-20-3
Chrysene	218-01-9	Phenanthrene	85-01-8
Benzo[ghi]perylene	191-24-2	Fluoranthene	206-44-0
Indeno[1,2,3-cd]pyrene	193-39-5	Pyrene	129-00-0

Must be tested in accordance with ISO 18287 or ZEK 01.2-08 (GC/MS).

✉ Test report showing that the requirement is fulfilled. A certificate from Oeko-Tex 100 class I Baby can also be used as documentation.

O109 Pesticides in cotton and other natural seed fibres of cellulose, as well as flax, bamboo or other bast fibres

The requirement concerns textile elements which include cotton or other natural seed fibres of cellulose, and flax, bamboo or other bast fibres.

The total sum of pesticides in the individual textile element may not exceed 0.5 mg/kg.

The pesticides to be tested for are:

Aldrin, captafol, chlordane, DDT, dieldrin, endrin, heptachlor, hexachlorobenzene, hexachlorocyclohexane (total isomers), 2,4,5-T, chlordimeform, chlorobenzilate, dinoseb with salts, monocrotophos, pentachlorophenol, toxaphene, methamidophos, methyl parathion, parathion, phosphamidon, gluphosinate and glyphosate.

Textile elements of 100% organic fibre are exempt from the requirement. See the definition or organic under requirement O3.

The content must be tested in accordance with Section 64 LFGB L 00.0034 (GC/MS); Section 64 LFGB L 00.00-114 (LC/MS/MS) or equivalent EN test standards (assessed by a test institute or Nordic Swan Ecolabelling).

A test report must be submitted at the time of application and the applicant must have a routine to test annually in accordance with the requirement and ensure that the requirement is complied with. Nordic Ecolabelling must be notified if the requirement is not complied with.

If the requirement is documented with either a license for the Nordic Swan Ecolabelled Textile, Hides and Leather, certificate for the Oeko-Tex 100 Class I Baby or GOTS Transaction Certificate, it must be ensured, that a valid license/ certificate exists throughout the lifetime of the license. A valid license/certificate must be available on request from Nordic Ecolabelling.

✉ Test report at the time of application, showing fulfilment of the requirement, or valid certificate showing that the fibres are organic. A certificate from Oeko-Tex 100 class I Baby or GOTS version 4 or later can also be used as documentation.

✉ Written routine describing that a test is performed annual according to the requirement and self-monitoring is done to ensure that the requirement is complied with.

O110 Ectoparasiticides in wool and other keratin fibres:

The requirement concerns textile elements that include wool or other keratin fibres, in any amount.

Textile elements of 100% organic wool fibres, or which have documented that the textile element fulfils requirement O93, are exempt from this requirement. See the definition of organic under requirement O3. At the same time wool fibers, that have already documented compliance with requirement O4 are exempted from this requirement.

The total sum of ectoparasiticides in the individual textile element may not exceed 0.5 mg/kg.

The ectoparasiticides to be tested for are:

γ-hexachlorocyclohexane (lindan), α-hexachlorocyclohexane, ß-hexachlorocyclohexane, δ-hexachlorocyclohexane, aldrin, dieldrin, endrin, p,p'-DDT and p,p'-DDD, cypermethrin, deltamethrin, fenvalerate, cyhalothrin, flumethrin, diazinon, propetamphos, chlorfenvinphos, dichlorphenthion, chlorpyriphos, phenchlorphos, diflubenzuron and triflumuron.

The content must be tested in accordance with Section 64 LFGB L 00.0034 (GC/MS); Section 64 LFGB L 00.00-114 (LC/MS/MS).

✉ Test report showing fulfilment of the requirement, or valid certificate showing that the fibres are organic. Certificate from Oeko-Tex 100 class I Baby or GOTS version 4 can also be used as documentation.

3.10 Padding materials

The requirements of this chapter apply to padding materials that make up more than 1% by weight of the finished item of furniture. Padding materials that may be included in Nordic Swan Ecolabelled furniture and come under the requirements are polyurethane foam (PUR), polyester fibre, synthetic latex, recycled textile waste and natural padding materials, such as natural latex, coir (coconut fibre), straw, down and feathers. The first requirements in the chapter apply to all padding materials. The additional requirements given later in the chapter apply to certain types of padding materials.

Padding materials evaluated for compliance with the Nordic Swan Ecolabel's criteria for Textiles, hides and leather, or the EU Ecolabel criteria for Bed mattresses, already meet the requirements in this section. Only the name, manufacturer and licence number of the licence that includes the padding material need to be submitted.

3.10.1 Material requirements

O111 Recycled padding materials

Recycled padding materials must not contain halogenated flame retardants.

Recycled material is defined according to ISO 14021, see definitions.

✉ Documentation showing that the material is recycled in compliance with ISO14021.

✉ A declaration from the supplier of the recycled padding material that it does not contain halogenated flame retardants.

O112 Renewable padding materials

The species name (Latin and English) and geographic origin (country) must be stated for the renewable raw material.

The renewable raw materials must either:

- Be residual products from other production processes, e.g. straw from grain production or
- Meet the relevant requirements for fibre given in Chapter 2.13

✉ Name and geographic origin of the renewable raw materials.

✉ A description of the raw material showing that it is a residual product or documentation in compliance with the relevant requirement in Chapter 2.13

O113 Ethical requirements for feathers and down

The use of feathers and down plucked from live birds is prohibited.

Force feeding the birds is prohibited.

Recycled* down and feathers are exempt from the requirement, but it must be documented through a traceability system that the down and feathers are recycled.

**Recycled down and feathers are defined here as post-consumer recycled material in accordance with the ISO 14021 standard*

✉ A Responsible Down Standard certificate or a certificate from another relevant standard that fulfils the requirement.

✉ Recycled down and feathers: Recycled Global Standard certificate. Or documentation from a supplier of recycled down or feathers showing that it is a post-consumer recycled material.

O114 Manufacture of polyurethane foam

CFC, HCFC, HFC, methylene chloride or other halogenated organic compounds must not be used as blowing agents.
Protective measures must be taken when handling isocyanates to reduce employee exposure as far as is possible. The Workplace Exposure Limits for air concentrations of isocyanates in areas where employees are working without PPE are:

- MDI (CAS number 101-68-8): Average over an 8-hour period must not exceed 0.005 ppm (0.05 mg/m^3)
- TDI (CAS numbers 584-84-9 and 91-08-7): Average over an 8-hour period must not exceed 0.005 ppm (0.04 mg/m^3)

✉ A declaration from the manufacturer of padding materials stating which blowing agent has been used.

✉ A description of the safety measures taken and the statutory Workplace Exposure Limits for isocyanates in the country of manufacture. If the statutory limits are the same or more stringent than the threshold limit values in the requirement, no further documentation is required. If the statutory limits are less stringent, a description of how air concentration levels of isocyanates are measured must be submitted, along with a test report showing compliance with the threshold limit values specified in the requirement.

O115 Content of butadiene in synthetic latex

The content of butadiene in synthetic latex must be less than 1 mg/kg (ppm). Gas chromatography with flame ionisation detection must be used to determine the concentration. Before the analysis is performed, the latex foam must be ground and weighed, and the sample placed in a headspace vial.

✉ A test report from the latex manufacturer.

3.10.2 Chemical requirements

O116 Chemicals used in the production/treatment of padding materials

The chemical products that are used in the production or treatment of padding materials must not contain the following substances*:

- Substances of Very High Concern (SVHC)**
- Halogenated organic compounds, for example halogenated flame retardants and organofluorine compounds
- Organophosphate flame retardants
- Substances classified as carcinogenic categories 1A/1B/2 (H350, H351), mutagenic categories 1A/1B/2 (H340, H341) or reprotoxic categories 1A/1B/2/Lact (H360, H361, H362) according to the CLP Regulation 1272/2008. An exemption applies to:
    - 1,3-butadiene (CAS number 106-99-0) that is used in the manufacture of synthetic latex from the classifications H340 and H350 if subsequent requirements regarding residual monomers are met

  - An exemption applies to formaldehyde (CAS number 50-00-0) from the classification H350 if subsequent requirements regarding emissions are met
  - MDI (CAS-nummer 101-68-8) and TDI (CAS-nummer 584-84-9 and 91-08-7).
- Phthalates
- Organotin compounds
- Biocides or biocide products that are added to the padding material for a disinfecting or antibacterial purpose

**See definitions and terms for the definition of substances*

***The Candidate list can be found here: https://echa.europa.eu/candidate-list-table*

✉ A declaration from the manufacturer of padding material.
✉ For natural padding materials without chemical additives or treatments: A declaration from the supplier that verifies this.

O117 Dyes

Dyes may only be added to padding materials to distinguish between different qualities (e.g. hard and soft foam) within the same type of filling.

Metal complex dyes that have a classification in the table below must not be used.

CLP Regulation 1272/2008		
Hazard class	**Code for hazard class and category**	**Hazard statement code**
Carcinogenicity*	Carc. 1A or 1B Carc 2	H350 H351
Germ cell mutagenicity*	Mut. 1A or 1B Mut. 2	H340 H341
Toxic for reproduction*	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
Hazardous to the aquatic environment	Aquatic Acute 1 Aquatic Acute 1 Aquatic Chronic 2	H400 H410 H411
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

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

✉ A declaration from the manufacturer of the padding material that no dyes have been added or have only been added for the purpose of distinguishing between different qualities.
✉ Safety data sheet in accordance with Appendix II of REACH (Regulation No. (EC) 1907/2006) for any added dyes.

3.10.3 Requirements for emissions

O118 Requirements for emissions for foam padding materials

Foam padding materials, such as polyurethane foam and latex foam, must meet the requirements for emissions in the table below. Emissions testing must be carried out in compliance with ISO 16000-3/-6/-9/-11.

Substance or substance group	Threshold limit value (mg/m^3)
Formaldehyde (CAS 50-00-0)	0.1
Toluene (CAS 108-88-3)	0.1
Styrene (CAS 100-42-5)	0.005
4-4-Vinylcyclohexene (CAS 100-40-3)	0.002
4-Phenylcyclohexene (CAS 4994-16-5)	0.03
Vinyl chloride (CAS 75-01-4)	0.002
Volatile aromatic hydrocarbons (VAH)	0.3
Volatile organic compounds (VOC)	0.5

✉ A test report showing that the threshold limit values in the requirement have been met.

✉ Alternatively, an Oeko-Tex Standard 100 certificate or CertiPUR certificate can be used as documentation for the requirement.

O119 N-nitrosamines in latex

If accelerators that form N-nitrosamines* have been used in the manufacture of latex, emissions must not exceed 0.0005 mg/m^3 in compliance with ISO 16000-9.

The requirement applies to both natural latex and synthetic latex.

**n-nitrosodimethylamine (NDMA), n-nitrosodiethylamine (NDEA), n-nitrosomethylethylamine (NMEA), nnitrosodi-i-propylamine (NDIPA), n-nitrosodi-n- propylamine (NDPA), n-nitrosodi-n-butylamine (NDBA), nnitrosopyrrolidinone (NPYR), n- nitrosopiperidine (NPIP), n-nitrosomorpholine (NMOR)*

✉ A declaration from the latex manufacturer that no accelerators that form N-nitrosamines have been used, or a test report showing that the threshold limit value has been met.

3.11 Hide and leather

There are different sets of requirements for hide and leather depending on the amount contained in the product and the purpose, based on the model for textiles. In the model, some requirements therefore apply regardless of the amount and purpose in the product. The requirements for furniture coverings, such as covers for sofas and chairs, are the most comprehensive.

3.11.1 Requirements for hide and leather regardless of the amount in the product

O120 Chromium in hide and leather

The content of total chromium in the processed (including finishing) hide or leather must not exceed 0.1% (mass of chromium/total dry weight of hide or leather).

Processed hide or leather (including finishing) must not contain chromium VI in compliance with EN ISO 17075 (detection limit 3 ppm) or equivalent.

✉ A test report showing compliance with the requirement for both total chromium and chromium VI.

O121 Cadmium and lead

Cadmium and lead shall not be found in processed hides/skins or leather.

The content of cadmium and lead shall be tested according to the methods AAS, ICP-OES or ICP-MS (detection limit 10 ppm).

✉ A test report from the tannery showing that the requirement is fulfilled.

O122 Biocides and antibacterial substances

The addition and/or integration of substances that may have a biocidal and/or antibacterial effect into hides/skins or leather is not permitted.

The requirement also applies during the storage and transport of hides/skins and leather.

Biocides/antibacterial substances include silver compounds, organotin compounds, chlorophenols, nano silver and nanogold.

✉ Declaration from the producer of the hide/skin or leather that the requirement is fulfilled.

3.11.2 Requirements for coverings of hide and leather

O123 Classification of chemicals

The chemicals used shall not be classified in any of the hazard categories set out in the table below. The requirement applies to all chemicals used in every step of manufacturing leather and hides/skins (including finishing).

CLP Regulation 1272/2008		
Hazard class	**Hazard category**	**Hazard code**
Toxic to aquatic life	Aquatic Acute 1 Aquatic Chronic 1 Aquatic Chronic 2	H400 H410 H411
Hazardous to the ozone layer	Ozone	H420
Carcinogenicity	Carc 1A or 1B Carc 2	H350 H351
Germ cell mutagenicity	Muta. 1A or 1B Muta. 2	H340 H341
Toxic for reproduction	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
Acute toxicity	Acute Tox 1 or 2 Acute Tox 3	H300, H310, H330 H301, 311, 331
Specific target organ toxicity with single or repeated exposure	STOT SE 1 STOT RE 1	H370 H372
Sensitising on inhalation or skin contact	Resp. Sens. 1, 1A or 1B Skin Sens. 1, 1A or 1B	H334* H317*

** Applies only to pigments, dyes and colourings*

✉ Declaration from the chemical manufacturer that the requirement is fulfilled.

O124 Classification of ingoing substances in chemical products

Chemical products shall not contain any ingoing substances* that have any of the classifications stated in the table below. The requirement applies to all chemicals used in every step of manufacturing leather and hides/skins (including finishing).

** See the definition of ingoing substances in Definitions.*

CLP Regulation 1272/2008		
Hazard class	**Hazard category**	**Hazard code**
Carcinogenicity	Carc. 1A or 1B Carc. 2	H350 H351
Germ cell mutagenicity	Muta. 1A or 1B Muta. 2	H340 H341
Toxic for reproduction	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362

✉ Declaration from the chemical manufacturer that the requirement is fulfilled.

O125 Prohibited substances

The following substances shall not be present as an ingoing substance* in chemical products used to produce hides/skins and leather. The requirement applies to all chemicals used in every step of manufacturing leather and hides/skins (including finishing).

** See definition of ingoing substances in section 4.2.*

- Substances on the Candidate List (https://echa.europa.eu/candidate-list-table)
- Substances that are PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative) as set out in the criteria of REACH Annex XIII
- Substances considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances that are to be investigated further for endocrine disruptive effects. The list can be found at http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf (Annex L, pages 238–249)
- Flame retardants (e.g. short chain chloroparaffins)
- Per- and polyfluorinated compounds, e.g. PFOA and PFOS
- Nanoparticles*
- Heavy metals in dyes and pigments **
- Azo dyes that may release carcinogenic aromatic amines (see Appendix Y)
- Phthalates
- Organotin compounds
- Chlorinated solvents, including chlorophenols and chlorobenzenes
- Alkylphenol ethoxylates (APEO)
- Linear alkylbenzene sulphonates (LAS)
- Aziridines and polyaziridines
- EDTA (ethylene diamine tetraacetic acid) and DTPA (diethylene triamine pentaacetate)

** An exception is made for pigments.*

*** Exemptions from the requirement are granted for metal impurities in dyes and pigments up to the amounts set out in ETAD, Annex 2 "Heavy metal limits for dyes": antimony (50 ppm), arsenic (50 ppm), cadmium (20 ppm), chromium (100 ppm), lead (100 ppm), mercury (4 ppm), zinc (1500 ppm), copper (250 ppm), nickel (200 ppm), tin (250 ppm), barium (100 ppm), cobalt (500 ppm), iron (2500 ppm), manganese (1000 ppm), selenium (20 ppm) and silver (100 ppm).*

✉ Declaration from the chemical manufacturer or chemical supplier that the requirement is fulfilled.

O126 Sources of hides, skins and leather

Skins and hides may only be used if they come from animals farmed for production of milk, wool and/or meat/fish.

Skins and hides may only be used from fish*, sheep, goats, cattle, horses, pigs, elk, deer and reindeer.

**skin from fish on the IUCN Redlist[1] is not allowed.*

✉ The applicant must provide a declaration from the leather manufacturer or leather supplier that the hides/skins used have come from animals farmed for production of milk, wool and/or meat/fish.

3.11.3 Quality requirements for hide and leather

O127 Tear strength for leather

Tear strength must be more than 20 N. Testing must be performed in accordance with ISO 3377 or equivalent.

✉ Test report showing that the requirement is fulfilled.

O128 Flexing test

When testing leather's flexing resistance, the leather must manage 20,000 test repetitions (20 kc) without sustaining visible damage. The requirement only applies to leather with a surface coating.

The test must be performed in accordance with ISO 5402 or equivalent.

✉ Test report showing that the requirement is fulfilled.

O129 Colour fastness to water

Colour fastness when exposed to water must be at least level 3 for leather that is dyed or has a surface finish.

The test must be performed in accordance with ISO 11642 or equivalent.

✉ Test report showing that the requirement is fulfilled.

O130 Colour fastness to wear

Colour fastness during wet and dry wear must be at least level 3 for leather that is dyed or has a surface finish.

The test must be performed in accordance with ISO 11640 or equivalent, with 20 repetitions for wet wear and 50 repetitions for dry wear. The results are to be assessed using ISO 105-A02 and ISO 105-A03 or equivalent.

✉ Test report showing that the requirement is fulfilled.

3.12 Acoustic insulation materials

Fibre products that are made, for example, from polyester and recycled textile waste and are used to make acoustic insulation must meet the relevant requirements for padding materials in Chapter 3.10. Textiles that are used to clad the acoustic insulation material must meet the relevant requirements in Chapter 3.9.

[1] The IUCN Redlist, https://www.iucnredlist.org/

Mineral raw materials that are used for acoustic insulation, for example in a partition wall, and make up more than 5% by weight of the finished furniture product, must meet the requirement in this chapter.

O131 Mineral raw materials for acoustic insulation

The mineral raw materials that are used must be inspected and included as a material in a licence for Nordic Swan Ecolabelled acoustic panels in compliance with the criteria for Construction and façade panels.

✉ Name, manufacturer and licence number for the Nordic Swan Ecolabelled acoustic panel where the mineral raw materials are included.

3.13 Glass

O132 Glass

Glass may be present as part of the Nordic Swan Ecolabelled product if the following requirements are met:

- Lead glazing, crystal glass and wire reinforced glass must not be used
- Glass must be readily replaceable should it become damaged or broken.
- It must be possible to recycle the glass.
- Mirror glass must not have a metal coating that contains copper.
- Lead-based paint used in a metal coating for mirror glass must not contain more than 0.2% by weight of lead.

✉ A declaration from the furniture manufacturer stating which type of glass is used in the furniture

✉ User instructions or other document informing the customer how to replace damaged glass

✉ A declaration from the glass supplier that the glass can be recycled

✉ Mirror glass: A declaration from the mirror glass manufacturer that the metal coating does not contain copper, that any paint used does not contain lead or that the lead content in the paint is below 0.2% by weight.

O133 Surface treatment of glass

The glass must not be surface treated with chemical products and nanomaterials* with antibacterial or disinfectant properties.

The term antibacterial means chemical products that prevent or inhibit growth of microorganisms, such as bacteria or fungi. Silver ions, silver nanoparticles, gold nanoparticles and copper nanoparticles are classed as antibacterial agents.

** In accordance with the definition of a nanomaterial adopted by the European Commission on 18 October 2011 (2011/696/EU), see definitions.*

✉ A declaration from the manufacturer of the glass.

3.14 Linoleum

The requirement in this section applies when linoleum makes up more than 5% by weight of the finished furniture.

O134 Linoleum

Linoleum that is used must be inspected and included as a material in a licence for Nordic Swan Ecolabelled linoleum flooring in compliance with the criteria for Floor Coverings.

✉ Name, manufacturer and licence number for the Nordic Swan Ecolabelled linoleum flooring where the linoleum has been inspected

3.15 Natural stone and agglomerated stone

Natural stone and agglomerated stone have been proposed as new materials in these criteria. Nordic Ecolabelling wishes to base the requirements for natural stone and agglomerated stone on the EU's revised criteria for hard coverings. As these criteria are now under review in the EU, it is therefore difficult to include the requirements at this time. Information on the audit and draft requirements can be found here:
https://susproc.jrc.ec.europa.eu/Hard_coverings/documents.html

Regardless of the requirements set by EU Ecolabel's criteria for hard coverings, Nordic Ecolabelling wishes to lay down requirements for general principles and rights.

O135 General principles and rights

The licensee shall ensure that quarries and further processing of natural and composite stones used in production comply with:

- Relevant national laws and regulations
- The following International Labour Organization (ILO) conventions:
    - Prohibition of forced labour (ILO Convention Nos. 29 and 105)
    - Freedom of organization and protection of the right to organize and conduct collective bargaining (ILO Convention Nos. 87, 98, 135 and 154)
    - Prohibition of child labour (ILO Convention Nos. 138, 182 and 79 and ILO Recommendation No. 146)
    - No discrimination (ILO Convention 100 and 111 UN Convention on the Elimination of Forms of Discrimination against Women)
    - No brutal treatment - Physical abuse or punishment, as well as threats of physical abuse are prohibited. The same applies to sexual or other offenses.
    - Workplace health and safety (ILO Convention No. 155 and ILO Recommendation No. 164)
    - Reasonable salary (ILO Convention No 131)
    - Working hours (ILO Convention Nos. 1 and 14)

The licensee shall have written procedures and procedures in place to ensure that this is followed on quarries and subsequent processing facilities.

✉ Written procedures and procedures of the licensee to ensure that the quarries and production sites used comply with the requirement.

✉ SA8000 certificate or third-party verification of compliance. If the manufacturer is in the process of becoming SA8000 certified, it can be accepted under the following conditions: Final certification body report, including action plan with specified deadlines submitted for review. Nordic Ecolabelling may revoke the license if the specified deadlines are not met.

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

O136 Responsible person and organisation

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

✉ Organisational chart showing who is responsible for the above.

O137 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.

O138 Quality of the furniture/fitment

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

✉ Procedures for archiving claims and, where necessary, dealing with claims and complaints regarding the quality of the Nordic Swan Ecolabelled product.

🔑 The claims archive is checked on site.

O139 Planned changes

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

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

O140 Unplanned nonconformities

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

✉ Procedures detailing how unplanned nonconformities are handled.

O141 Traceability

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

O142 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.

✉ Duly signed application form.

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.nordic-ecolabel.org/regulations/

Follow-up inspections

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

The licence may be revoked if it is evident that the furniture/fitment 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.

Criteria version history

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

Appendix 1 Laboratories and methods for testing and analysis

General requirements for test and analysis laboratories

Tests must be carried out in a correct and competent way. The analysis laboratory/test institute must be impartial and professional.

If accreditation is not separately required, the test and/or analysis laboratory must comply with the general requirements of the EN ISO 17025 standard for the quality control of test and calibration laboratories or have official GLP status.

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

- the authorities monitor the sampling and analysis process, or if
- the manufacturer has a quality management system encompassing sampling and analysis and has been certified to ISO 9001 or ISO 9002, or if
- the manufacturer can demonstrate conformity between a first-time test carried out as a parallel test between an independent testing institute and the manufacturer's own laboratory, and the manufacturer takes samples in accordance with a predetermined sampling schedule.

Formaldehyde in wood-based board

Chamber method

The EN 717-1 (Chamber method) standard is recommended as suitable for determining emissions of formaldehyde from wood-based panels. The results are presented as mg formaldehyde/m3 air.

The EN 717-2 standard may also be used as a test method for laminated panels. Note that the results are presented as mg formaldehyde/m2h. The conversion factor must be documented.

Other measurement methods

An alternative to the EN 717-1 standard can be a relevant standard in the EN ISO 16000 series, with measurement of formaldehyde after 28 days. The EN standard applicable at the time for determining reference emission values must then be applied.

Other test methods can be used, such as the perforator method in accordance with the applicable EN 120 standard, JIS A 1460, ASTM D6007-2 or equivalent. It must be clearly stated which test method has been used and, if conversion factors have been used, this must be documented.

Test method for COD / TOC emissions

COD content should be tested according to ISO6060 or equivalent. Measurement of PCOD, TOC or BOD can also be used if a correlation to COD is shown. Measurement method for TOC ISO 8245.

Sample frequency: Emissions to water are calculated as the annual average value and are based on at least one representative daily sample per week.

Sampling: Samples of process water shall be taken after external cleaning, and the analysis shall be carried out on unfiltered samples. Alternatively, the sampling frequency set by the authorities is accepted.

Formaldehyde in glue

For the determination of free formaldehyde in liquid adhesives, EN 1243: 1998 is used. Adhesives - Determination of free formaldehyde in amino and amino formaldehyde. CEN / TC 193 - Adhesives.

Zinc

Analysis of the zinc content of the wastewater: SS 02 81 52, DS 263, NS 4773, SFS 3047 or ISO 17294 (2007). Analysis can be done regularly using photometric or similar methods, provided that the analysis results are regularly checked and consistent with the above analytical methods.

Emissions of zinc to the water are calculated as the annual average value and are based on at least one representative daily collection sample per day. week, unless the authorities' discharge permit provides for another method of calculation.

Appendix 2 Energy requirements for paper and pulp production

Energy calculation guidelines

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 consumption and the reference values is the energy score.

The energy calculations include the entire paper product: both the paper production and the pulps used. The calculations for paper do not include fillers. The energy calculation does not include energy consumed during transport of raw materials and for conversion and packaging. The requirement does not include transport within the factory area.

Non-integrated pulp mill

Electricity

The calculations must include both purchased and on-site produced electricity.

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

The calculation of electricity consumption must be based on invoices and readings from electricity meters. On-site produced electricity is documented using readings from electricity meters. The requirement covers all processes from debarking to drying the pulp. An exemption applies to electricity for offices or lighting in the factory area. The average electricity consumption can be used for all pulps if the pulp mill only produces pulps of equivalent quality using the same type of process.

Fuel

The calculation must include both purchased fuel and fuel produced at the plant, divided into renewable and fossil fuels. The pulp producer must report the fuel used for on-site generated electricity and should deduct the fuel for electricity before reporting it to the paper manufacturer. The paper manufacturer deducts the fuel consumption from internally produced electricity using a factor of 1.25 in its own energy calculation.

Fuel pulp = fuel produced at the plant + purchased fuel - sold fuel * (sold fuel and/or heat)

The amount of fuel purchased must be adjusted to the quantities at the start and end of the current year. Consumption of internally produced fuel from bark, shavings and other wood residues is calculated using the thermal values for the fuels used or measured.

**Excess energy*

Excess energy sold in the form of electricity, steam or heat is subtracted from the total consumption. The amount of fuel used to produce electricity or heat is calculated by dividing the sold electricity or heat by 0.8. This is equivalent to an average efficiency for the total production of electricity and heat.

Alternatively, the actual efficiency of the plant in the conversion of fuel to heat energy can be used.

Verification

An overview of the factory's energy supply system showing the number of boilers, with information about the boiler effect and which fuel is used.

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

Report on the amount of purchased, on-site produced and sold fuel/heat

Conversion factors and efficiency must be stated if thermal energy has been re-calculated to fuel.

The calculation sheet produced by Nordic Ecolabelling can be used.

Non-integrated paper mill

Electricity

The calculations must include both purchased and on-site produced electricity.

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

The calculation of electricity consumption must be based on invoices and readings from electricity meters. On-site produced electricity is documented using readings from electricity meters. The requirement covers all processes from pulping to drying the base paper. An exemption applies to electricity for offices or lighting in the factory area. The average electricity consumption can be used for all paper if the paper mill only produces paper of equivalent quality using the same type of process.

Fuel

All purchased fuel must be included in the calculations, divided into fossil and renewable fuels.

Fuel paper = purchased fuel - sold heat 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*

Excess energy sold in the form of electricity, steam or heat is subtracted from the total consumption. The amount of fuel used to generate electricity or heat that is sold off is calculated by dividing the sold electricity or heat by 0.8. The coefficient of 0.8 is equivalent to the average energy efficiency for total heat and electricity production. Alternatively, the actual energy efficiency of the plant in the conversion of fuel to heat energy can be used.

Verification

An overview of the paper machinery's energy supply system showing the number of boilers, with information about the boiler effect and which fuel is used.

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

Report on the amount of purchased, on-site produced and sold fuel/heat

Conversion factors and efficiency must be stated if thermal energy has been re-calculated to fuel.

The calculation sheet produced by Nordic Ecolabelling can be used.

Steam

If excess steam from another production process is used (e.g. from another industry), the energy content of the steam must be included in the calculation. In this case, Table 1, 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.

Energy calculation, paper production

Energy score for paper production

Energy scores for $P_{paper(electricity)}$ and $P_{paper(fuel)}$ for paper production are calculated using the following formulas:

$$P_{paper\_electricity} = \frac{Electricity_{consumed}}{Electricity_{reference}}$$

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

The following reference values for kraft paper must be used:

$Electricity_{reference}$ = 1600 kWh/ADt

$Fuel_{reference}$ = 2100 kWh/ADt

Verification

Calculation of energy score. The calculation sheet produced by Nordic Ecolabelling can be used.

Energy score when a mixture of different pulp types are used

The following formulas are used to calculate the energy score when a mixture of different pulp types are used:

$$P_{pulp\_electricity} = \sum_{i=1}^{n} P_{pulp\_electricity\_i} \cdot pulp_i$$

$$P_{pulp\_fuel} = \sum_{i=1}^{n} P_{pulp\_fuel\_i} \cdot pulp_i$$

$Pulp_i$ is the percentage of the individual pulp relative to the total pulp mixture. Due to wastage and differences in water content, the sum total of the pulp may be greater than 1. P pulp(electricity)i is the energy score for electricity for pulp i. P pulp(fuel)i is the energy score for fuel for pulp i.

Verification

Calculation of energy score. The calculation sheet produced by Nordic Ecolabelling can be used.

Total energy score for paper and pulp production

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

$$P_{electriciy} = P_{electriciy\_pulp} + P_{electriciy\_paper}$$

$$P_{fuel} = P_{fuel\_pulp} + P_{fuel\_paper}$$

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 meets the requirements if no specific calculations are reported for each pulp mixture.

Verification

The documentation must include calculations with 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 meets the requirements if no specific pulp-mixture calculations are reported for each pulp mixture present. The calculation sheet produced by Nordic Ecolabelling can be used.

Energy score for pulp production

Energy scores for P pulp(electricity) and P pulp(fuel) for paper production are calculated using the following formulas:

$$P_{pulp\_electricity\_i} = \frac{Electricity_{consumed}}{Electricity_{reference}}$$

$$P_{pulp\_fuel\_i} = \frac{Fuel_{consumed} - 1.25 \cdot in - house\ generated\ electricity}{Fuel_{reference}}$$

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, bleached 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
Slip	N/A	2000
Dried slip	900	2000

Verification

Calculation of energy score. The calculation sheet produced by Nordic Ecolabelling can be used.

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 3 Azo dyes and aromatic amines

Carcinogenic aromatic amines	**CAS no**
4-aminobiphenyl	92-67-1
Benzidine	92-87-5
4-chloro-o-toluidine	95-69-2
2-naphthylamine	91-59-8
o-amino-azotoluene	97-56-3
2-amino-4-nitrotoluene	99-55-8
p-chloraniline	106-47-8
2,4-diaminoanisole	615-05-4
4,4’-diaminodiphenylmethane	101-77-9
3,3’-dichlorobenzidine	91-94-1
3,3’-dimethoxybenzidine	119-90-4
3,3’-dimethoxybenzidine	119-93-7
3,3’-dimethyl-4,4’-diaminodiphenylmethane	838-88-0
p-cresidine	120-71-8
4,4’-oxydianiline	101-80-4
4,4’-thiodianiline	139-65-1
o-toluidine	95-53-4
2,4-diaminotoluene	95-80-7
2,4,5-trimethylaniline	137-17-7
4-aminoazobenzene	60-09-3
o-anisidine	90-04-0
2,4-xylidine	95-68-1
2,6-xylidine	87-62-7
4,4'-methylene-bis-(2-chloro-aniline)	101-14-4
2-amino-5-nitroanisole	97-52-9
m-nitroaniline	99-09-2
2-amino-4-nitrophenol	99-57-0
m-phenylenediamine	108-45-2
2-amino-5-nitrothiazole	121-66-4
2-amino-5-nitrophenol	121-88-0
p-aminophenol	123-30-80
p-phenetidine	156-43-4
2-methyl-p-phenylenediamine; 2,5-diaminotoluene	615-50-9
2-methyl-p-phenylenediamine; 2,5-diaminotoluene	95-70-5
2-methyl-p-phenylenediamine; 2,5-diaminotoluene	25376-45-8
6-chloro-2,4-dinitroaniline	3531-19-9