

































































and function of the product on the basis of its design and materials used.

In the case of varnished, film and laminate-finished surfaces the surface must fulfil the following durability requirements. The requirements do not apply to untreated, soap, wax and oil-finished surfaces. Furthermore the requirement does not apply to doors for indoor use. The level of the requirements refers to the test methods specified in the table in Section 6.2 of Appendix 1.

Table 7. Requirements applicable to various furniture groups

Seating	Seat and arm rests	Requirement level 2
Storage units	External horizontal surfaces (up to 1.25 m), shelves and bases	Requirement level 3
Table tops	Private use and normal contract use	Requirement level 4
	Tough contract use (restaurants/cafes)	Requirement level 5
Kitchens	Internal surfaces, including drawer bottoms, excluding shelves and bottoms	Requirement level 1
	External horizontal surfaces, shelves and bottoms	Requirement level 3
	Worktops	Requirement level 6

A general rule for selection of products for testing shall be based on the test standard. Tests shall be conducted within the product family to which the product belongs unless otherwise described. The weakest and most critical elements in terms of stability must be selected for testing, e.g. the widest or the shortest possible distance between hedges, drawers with the largest dimensions and longest travel, tables with the longest free spans, etc.

Appendix no. \_\_\_\_\_

- ☒ Information on the function end user for which the product was tested and the standard used, the test institution and test report. If applicable, details of how national standards relate to the requirements of ISO or EN. Relevant standards are shown in the tables in Section 6.1 and 6.2 of Appendix 1.

Alternative (if no relevant standards exist):

Information on the test institution, test report and the assessment criteria.

The test institution must provide details of variations within the product group represented by the tested products and verify that the product is representative.

Are the requirements met?

### 3.3 Instructions

Yes  No

#### R67 Instructions

The instructions must include:

- Guidance on cleaning and maintaining the product with specific instructions for the various materials in the product.
- Illustrated assembly instructions if the furniture or fitment is so constructed that it needs to be assembled.
- Information on the materials used in the product and how these can be recycled or if applicable processed in some other environmentally responsible way.
- In the case of light fittings: A recommendation that Nordic Swan Ecolabelled low-energy light bulbs, or other low-energy light bulbs with a low mercury content in the fitting, be used.

Appendix no. \_\_\_\_\_

- ☒ User instructions.

3.4 Requirements from the authorities as to safety, working environment and the external environment

Are the requirements met?

Yes  No

R68 The requirements from the authorities

The licensee is responsible for ensuring that all ecolabelled products and the production thereof fulfil all applicable provisions relating to the working environment, legislation and concessions in the various countries of production.

3.5 Environmental and quality assurance

Are the requirements met?

Yes  No

R69 Environmental and quality assurance

Producers who hold an ecolabelling licence themselves or through vendors/importers must have documented procedures and instructions in place that:

- ensure that the requirements in the ecolabelling criteria are fulfilled
- ensure that the requirements are verifiable during the licence's validity period
- ensure the quality of ecolabelled products encompassed by the licence
- outline the ways in which the organization for environmental assurance is structured to ensure that the requirements in the ecolabelling criteria are fulfilled
- a contact person for the ecolabelling organization is appointed.

Appendix no. \_\_\_\_\_

⊙ A description of the ways in which the ecolabelling requirements are followed up, documented and reported in the daily production must include details of the following:

- 1) the organizational structure, quality manager, contact person and other responsible persons and their areas of responsibility
- 2) procedures for processing and reporting unforeseen deviations from the ecolabelling requirements
- 3) procedures for documenting and reporting planned production changes that will affect assessment of whether the ecolabelling criteria are fulfilled
- 4) the contact person's procedures for reporting 2) and 3) to the ecolabelling organization (external routines for reporting to the ecolabelling organization)
- 5) procedures for documenting, reporting and processing complaints on ecolabelled products
- 6) traceability of ecolabelled products in the production line.

The licence holder needs an acceptance in writing from the ecolabelling organization before any changes on the product with any reference to the requirements in the criteria document, can be carried out.

# Regulations for the Nordic Ecolabelling for 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/](http://www.nordic-ecolabel.org/regulations/)

## Criteria version history

This criteria document was adopted by the Nordic Ecolabelling Board on 17 March 2011 and will remain in force up to and including 30 of June 2015.

On 16 February 2012 the Secretariat Manager's meeting decided to adopt changes regarding formaldehyde (R13) and metal complex dyes (R44). The new version is called 4.1.

On 10 May 2012 the Secretariat Manager's meeting decided to adopt changes regarding contents and additives (R4). The new version is called 4.2.

On 11 October 2012 the Secretariat Manager's meeting decided to adopt changes regarding a clarification about pillows in the product definition. The new version is called 4.3.

On 15 November 2012 the Secretariat Manager's meeting decided to adopt the following: Change regarding formaldehyde (R13) and exemption for requirements R22 to R25 for metal parts weighing less than 50 grams. The new version is called 4.4.

On 19 June 2013 the Secretariat Manager's meeting decided to adopt the following: Expansion of an exception of the requirement for additives (K4) and the trivality limit of 1% for the requirements in Chapter 2.7 Padding materials. The new version is called 4.5.

On 25 September 2013 the Secretariat Manager's meeting decided to prolong the criteria document until 31 December 2017. The new version is called 4.6.

On 12 November 2013 the Secretariat Manager's meeting decided to adopt the following: Change regarding the requirements for recycled metal (R22 and R23) and adjustments in the reference to test standards in Appendix 1, Section 4.2 for textile requirements (R48-R54). The new version is called 4.7.

On 18 December 2013 the Secretariat Manager's meeting decided to adopt the following: New requirement for mineral raw materials for sound insulation (R39) and new requirements for linoleum (R60). The new version is called 4.8. The background is updated.

On 13 May 2014 the Board of Directors decided to adopt the following: Requirement R4: Extension of the exemption for the use of adhesives with polychloroprene additive for mattresses and upholstered furniture manufacturers. The new version is called 4.9.

On 29 April May 2015 the Nordic Criteria Managers decided per capsulam to adopt the following: Requirement R4: Extension for one year of the



exemption for the use of adhesives with polychloroprene additive for mattresses and upholstered furniture manufacturers. On 17 November 2014 the Board of Directors decided to remove the general part of requirement R67 Marketing. The new version is called 4.10.

On 5 November 2015 the Nordic Ecolabelling Board decided the following: extension of the criteria for 18 months to 30 June 2019. Editorial changes in the evaluation of generation 4 criteria, R16, R35, R62 and R67 are removed, new requirements for HPL panels are inserted, and an exception for minor bronopol in requirement R4 Contents and additives. The new version is called 4.11.

The Nordic criteria group decided on 22 June 2016 and on 11 October 2016 the following adjustments in requirements K4: Extension of exemption for the use of adhesives with polychloroprene additive for mattresses and upholstered furniture manufacturers until generation 4 expires. In addition, there is inserted an exception for formaldehyde impurities in new produced polymer and exemption for the use of epoxy acrylate in UV curing coatings. The new version is 4.12.

On 8 March 2017 the Nordic Ecolabelling's Criteria Group decided to implement Nordic Ecolabelling's new forestry requirements as an alternative to the present forestry requirements. The new version is 4.13.

On 5 September 2017 the Nordic Ecolabelling's Criteria Group decided to adjust requirement R35 for recycled plastic. On the 9 October 2017 Nordic Ecolabelling's Criteria Group decided to remove R65 Recycling systems for products and packaging. Nordic Ecolabelling's Criteria Group decided on 14 December 2017 to prolong the criteria with 9 months to 31 March 2020. The new version is 4.14.

On 3 October 2018 the Nordic Ecolabelling's Criteria Group decided to remove the classification H413 (R53) from requirement R19. Furthermore, on 15 November 2018 Nordic Ecolabelling decided to prolong the criteria with 15 months to 30 June 2021. The new version is 4.15.

On 23 June 2020 Nordic Ecolabelling decided to prolong the criteria with 12 months to 30 June 2022. The new version is 4.16.

On 28 September 2021 Nordic Ecolabelling decided to prolong the criteria with 6 months to 31 December 2022. The new version is 4.17.

On 14 June 2022 Nordic Ecolabelling decided to prolong the criteria with 12 months to 30 June 2023. The new version is 4.18.

## Future criteria

The next revision of the criteria will consider the following areas:

- New requirements aimed at reducing climate and energy effects
- Transport requirements
- Emissions of VOC at factory level
- SVHC (substances of very high concern) – criteria for chemicals

## Appendix 1 Testing and control

## 1 Requirements as regards test institution

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

The laboratory performing the analysis must fulfil the general requirements contained in standard EN ISO 17025 or be an official GLP-approved laboratory. The applicant will be liable for costs in connection with documentation and analyses.

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

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

## 2 Follow-up inspection

Products for which an ecolabelling licence has been granted may be checked by an impartial test institution. Responsibility for submitting products for checking rests with the ecolabelling organization. These checks may take the form of a spot check taken from goods on sale. The licensee will be liable for the costs if it is found that the licensee has provided definitely incorrect information to the ecolabelling organization. If not, the costs will be borne by the ecolabelling organization.

## 3 Wood and woodbased plates and boardss

### 3.1 Formaldehyde

For the purpose of determining the content of free formaldehyde, the most recent applicable European standard for the perforator method is to be used. This must at all times be followed by the applicable EN 120 standard until and if the method is replaced by a different EN method. Other test methods such as JIS A 1460 or similar can be used on request to the Nordic Ecolabel. It shall be reported which method is used and conversion factors shall be documented if such are used.

As a suitable chamber method for plates and boardss of wood and mineral wool, the European Standard: ENV 717 – 1 is recommended. This must at all times be followed by the EN standard applicable from time to time for reference determination of emission value. Other test methods, such as ASTM D 6007-2 or similar, may be approved by the Nordic Ecolabel. The method used must be reported and conversion factors shall be documented if such are used.

The test method for analysis of emissions for classification M1 is given in "Emission Classification of Building Material" ([http://www.rts.fi/emission\\_classification\\_of\\_building\\_materials.htm](http://www.rts.fi/emission_classification_of_building_materials.htm)).

The sampling frequency for the three aforementioned tests are given in the standard (the Perforator method), statutory provisions in the individual Nordic countries (Climate Chamber method, ENV-717-1) and in the rules of the Finnish classification system.

### 3.2 Emissions from production of wood based plates and boards (COD)

Test method:	When measuring oxygen demanding organic material to water, chemical oxygen demand (COD) ISO 6060 2nd Ed. 1989, NS 4748 alternatively DS 217, SFS 3020, SFS 5504, SS028142, DIN 38409, part 41, NFI 90101, ASTM D 1252 83 or test kits using potassium dichromate as an oxidizing agent (and with silver sulphate as a catalyst), e.g Dr Lange, Hack or WTW "Determination of the chemical oxygen demand" or similar.
Sample frequency:	Emissions to water are calculated as a yearly mean value and based on minimum one representative daily sample per week.
Sampling:	Samples of process water shall be taken after external treatment, and analyses shall be carried out on unfiltered sample. Sampling frequency set by the authorities, can be approved.

### 3.3 Measurement of Air quality – HPL production

Air measurements are carried out in accordance with relevant standard test methods, including among others:

- EN 689, Air quality - Workplace atmospheres, guidance in the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy.
- EN 482, Air quality - Workplace atmospheres, general performance requirements for methods for determining the concentration of chemicals in the air.
- EN 14042, Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

#### **Air measurements of phenol and formaldehyde**

Air Measurements of phenol and formaldehyde submitted for the last 12 months, with a description of the sampling program, including measurement methods and measuring frequency. Air measurement is performed both for a reference period of 8 hour time weighted average (TWA) and a short-term value of no more than 15 minutes.

Air measurement shall be conducted as the exposure measurement, which conducted a review of each employee's exposure to pollution. For these measurements measuring equipment shall be personally carried.

When sampling for exposure measurements, thus including shall be ensured:

- the sampling is carried out under normal operating conditions with normal ventilation

- including the particularly stressful phases of different work processes
- the sampling time is so long that it shows a representative average value
- the planning of sampling carried out the identification of potential variations in concentration during the work or working.

## 4 Padding materials and textiles

### 4.1 Substances harmful to health and the environment

One kilogram of each type of padding material/textile shall be sent to an analysis laboratory. For products that have the same fibre composition or the same chemical content and have been subjected to the same chemical treatment, but which differ in design, one sample for analysis is adequate.

#### **Butadiene**

Determination of 1.3 butadiene in latex: Milling and weighing of sample. Sampling by headspace sampler. Analysis by gas chromatography and detection by flame-ionisation detector.

#### **Formaldehyde**

Formaldehyde emissions from padding materials and textiles.

Formaldehyde emissions are determined using the analysis method in EN ISO 14184 or similar method (e.g. Japanese law no. 112:1972) approved by Nordic Ecolabelling. It shall be reported which method is used and conversion factors shall be documented if such are used.

#### **Nitrosamines**

The concentration of Nitrosamines shall be provided in a test report.

A test report in which chamber test ENV 13419-1 is used must be submitted. The test must be performed no later than one week after the foam was produced. The latex sample must be packaged separately in aluminium foil and vacuum packed in polyethylene. The packaged sample must be stored at room temperature for at least 24 hours and then unpacked and transferred without delay to the test chamber.

Test conditions: The latex sample must be placed in a sample holder with air contact on all sides. The climate conditions in the chamber must comply with ENV 13419-1. To facilitate comparison of test results the area-specific ventilation rate ( $q = n/l$ ) must be 1 and the ventilation rate must be in the range 0.5-1. Sampling must commence 24 hours after chamber loading and be completed no later than 30 hours after chamber loading.

The following method must be used for the sampling and analysis of air samples: Hauptverband der gewerblichen Berufsgenossenschaften ZH ISO 1/120.23 (or equivalent).

#### **Metal complex dyes based on copper, chromium or nickel**

Testmethods: ISO 8288 for Cu, ISO 9174 for Ni and prEN 1233 for Cr.

### 4.2 Durability, textiles

- Abrasion resistance is determined using EN ISO 12947-2.
- Pilling is determined using the EN ISO 12945-2, or an equivalent standard.

- Dimensional change is determined using ISO 6330, ISO 5077 and ISO 3759.
- Colour fastness to wash is determined using the following method: ISO 105 C06.
- Colour fastness to wet rubbing: ISO 105 X12 Colour fastness to rubbing
- Colour fastness to dry rubbing: ISO 105 X12 Colour fastness to rubbing.
- Colour fastness to light is determined by ISO 105 B02.

#### 4.3 Emissions to water (COD), textiles

Test methods: Determination of oxygen demanding organic material to water, in accordance with ISO 6060 or equivalent.

Sampling frequency: Emissions to water are calculated as a yearly mean value and based on minimum one representative daily sample per week.

Sampling: Samples of process water shall be taken after external treatment, and analyses shall be carried out on unfiltered sample. Sampling frequency set by the authorities can be approved.

## 5 Adhesives

### 5.1 Free formaldehyde

To determine the free formaldehyde emissions from liquid adhesive, the EN standard EN 1243:1998. Adhesives - Determination of free formaldehyde in amino and aminoformaldehyde. CEN/TC 193 – Adhesives shall be used.

### 5.2 Rest Momomers

To determinate the chloroprene (2-chloro-1,3-butadiene) content in adhesives the chamber method EN ISO 16000 is to be used.

## 6 Strength, safety, stability and durability

### 6.1 Standards for various furniture types

The requirements do not apply to doors for internal use.

Table A. Standards for various furniture categories.

Fitness for use	Furniture category	Standard
Domestic environment	Seating	EN 12520:2010
		EN 1728:2000
		EN 1022:2005
	Tables	EN 12521:2010
		EN 1730:2000
	Storage units, kitchen and bathrooms	EN 14749:2005
		ISO 7170:2005.
		EN 14072:2003
	Beds and mattresses	EN 1725:1998
		EN 1957:2000
		EN 1022:2005
	Bunk beds and high beds	EN 747-1:2007
EN 747-2:2007		
Public environment	Seating	EN 15373:2007
		EN 1728:2000
		EN 1022:2005
		EN 1335-1:2000
		EN 1335-3:2000
	Table	EN 15372:2008
		EN 1730:2000
	Storage units	Revision of relevant standard is ongoing. When updated standard is available, this shall be used.
	Beds and mattresses	EN 1725:1998
		EN 1957:2000
		EN 1022:2005
	Bunk beds and high beds	EN 13453-1:2004
		EN 13453-2:2004
	School furniture (chairs and tables)	EN 1729-1:2006
EN 1729-2:2006		

Office environment	Office work chairs	EN 1335-2:2009
		EN 1335-3:2009
		EN 12529:1998
	Work tables and desks (for sitting)	EN 527-2:2002
		EN 527-3:2003
	Work tables and desks (for standing)	Revision of relevant standard is ongoing. When updated standard is available, this shall be used.
	Storage furniture	EN 14073-2:2004
		EN 14073-3:2004
		EN 14074:2004
		ISO 7170:2005

## 6.2 Durability of varnished, film-covered and laminated surfaces

The requirements do not apply to untreated surfaces or surfaces treated with soap, wax or oil.

Table B. Requirements for durability/resistance

Requirement category			Requirement levels					
Test		Test methods	1	2	3	4	5	6
Water	1)	EN 12720	6 h	16 h	16 h	24 h	24 h	24 h
Grease	1)	EN 12720	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 + 3 N	24 h + 3 N
Scratches	2)	SS 83 91 17	-	3 N	3 N	5 N	5 N	5 N
Alcohol	1)	EN 12720	-	-	-	1 h	1 h	1 h
Coffee	1)	EN 12720	-	1 h*	1 h	1 h	1 h	1 h
Heat, dry	1)	EN 12722	-	-	-	70°C	70°C	-
Heat, dry	1)	EN 12722	-	-	-	-	-	180°C
Heat, humid	1)	EN 12721	-	-	-	-	-	85°C
Heat against edge	1)	NS 8061	-	-	-	-	-	85°C
Water against edge (kitchen only)	1)	SS 83 91 20 NS 8062 DS2175	-	-	1 h***	-	-	-
Perspiration - acid and alkaline	1)	ISO 105E04	-	1 h**	-	-	-	-

1) Result 4 – Assessment after 24 hours – will be acceptable for the purpose of assessment

2) Permitted width of scratch max. 0.5 mm. Penetration of varnish coat not acceptable.

\* Relevant for storage units - outside horizontal surfaces ≤ 1 250 mm above floor level

\*\* Relevant for armrests

\*\*\* Relevant for doors and drawer fronts



Appendix 2 Forms

**Skema 1 Erklæring af trævarer**

Træart (latin og nordisk navn)	Geografisk oprindelse (land, delstat)	Certificering (se krav næste side)	Leverandør (se krav næste side)

Er nogen af trævarerne overbeholdt med beskyttelsesmiddel eller fældning?  
 Hvis ja:  Ja  Nej

Er deklarationsmåden i henhold til WMO som type 1A eller 1B?  
 (Se overgør den til på [www.ecolabel.eu](http://www.ecolabel.eu) "The WMO non-wooden identification of products by hazard and pollution in circulation 2008" eller ved hjælp af et af de enkelte indførelsesregler)  
 Ja  Nej

Indsend 15 punkters sikkerhedsudvalget af lign. dokumentation

Leverandørens navn:

(Navn)	(Sikkerheds)
(Sikkerheds)	(Navn)

Forsikring af informationssystemet 2010

## Form 1 Overview of materials from producer

Form for overview of materials (Chapter 1)

Producer:	Signatory
Product	Total weight in kg

Table 1 below shall give a general overview over which requirements that are relevant for the furniture or fitment. The weight and composition of each material can decide which requirements that apply. Applicants must fill in table 1.

Table 1 Overview of materials and chapters where the requirements are specified

Material	Level	Requirement	Form	Quantities (kg and weight %)	Relevant
Chemical products	General, and even for the production of some constituent substances	R3 – R6	2a		Yes <input type="checkbox"/> No <input type="checkbox"/>
Wood	General	R7, R8	3a and 3b		Yes <input type="checkbox"/> No <input type="checkbox"/>
	More than 10 w/w%	R9	3a and 3b		Yes <input type="checkbox"/> No <input type="checkbox"/>
Wood-based panels	General (more than 5 w/w%)	R10-R13	2a, 3a, 3b and 3.1 in Appendix 1		Yes <input type="checkbox"/> No <input type="checkbox"/>
	More than 10 w/w%	R14 – R15	3a, 3b, 4a and 3.2 in Appendix 1		Yes <input type="checkbox"/> No <input type="checkbox"/>
Surface treatment of wood and wood-based panels	More than 5 w/w%	R16–R19	2a		Yes <input type="checkbox"/> No <input type="checkbox"/>
HighPressureLaminate	More than 10 w/w% HPL in the product	R20			Yes <input type="checkbox"/> No <input type="checkbox"/>
	More than 10 w/w% paper/pulp in the panel	R21 and R22			Yes <input type="checkbox"/> No <input type="checkbox"/>
	More than 30 w/w% paper/pulp in the panel	R23	4b		Yes <input type="checkbox"/> No <input type="checkbox"/>
	More than 10 w/w% HPL in the product	R24 and R25			Yes <input type="checkbox"/> No <input type="checkbox"/>
Metal	General	R26	5		Yes <input type="checkbox"/> No <input type="checkbox"/>
	More than 50 w/w%	R27, R28	5		Yes <input type="checkbox"/> No <input type="checkbox"/>
Surface treatment of metal	General	R29, R30	2a and 5		Yes <input type="checkbox"/> No <input type="checkbox"/>
Plastic	General	R31 - R34	2b and 6		Yes <input type="checkbox"/> No <input type="checkbox"/>
	More than 10 w/w%	R35	6		Yes <input type="checkbox"/> No <input type="checkbox"/>
Padding materials	More than 1 w/w%	R36 - R39	2b and 7		Yes <input type="checkbox"/> No <input type="checkbox"/>
	Synthetic latex and natural latex	R40, R41	7		Yes <input type="checkbox"/> No <input type="checkbox"/>
	Polyurethane	R42	7		Yes <input type="checkbox"/> No <input type="checkbox"/>
Mineral raw materials for sound insulation	More than 5 w/w%	R43	-		Yes <input type="checkbox"/> No <input type="checkbox"/>
Textiles	More than 1 w/w%	R44 - R52	8		Yes <input type="checkbox"/> No <input type="checkbox"/>
	Properties in use seating furniture	R53 - R59			Yes <input type="checkbox"/> No <input type="checkbox"/>
Glass	Glass	R60	9		Yes <input type="checkbox"/> No <input type="checkbox"/>
	Mirror glass and laminated glass	R61, R62	9		Yes <input type="checkbox"/> No <input type="checkbox"/>
Light sources	Light sources	R63	-		Yes <input type="checkbox"/> No <input type="checkbox"/>
Linoleum	More than 1 w/w%	R64	-		Yes <input type="checkbox"/> No <input type="checkbox"/>
Other requirements	General	R65 - R69	6.1 and 6.2 in Appendix 1		Yes <input type="checkbox"/> No <input type="checkbox"/>

The table below shall give an overview over the following:

- All suppliers of products/materials that are a part of the furniture/fitment.
- Which furniture part the product is a part of (for example frame for a mattress, mattress, legs, seat, back etc.).
- What type of material/product that is used (for example textile, padding materials, metals, plastics, varnishes, glue etc.). If relevant, which composition the material has (for example for textiles, padding and plastic).
- Weight in kg for each material and weight %. The total weight for the furniture/fitment is given in the first table of Form 1.

Nordic Ecolabel will also accept complete worksheets or similar from the applicant as long as all required information is given. However, Table 1 above must always be filled in.

Table 2 Overview of suppliers, furniture parts, weights and compositions of the products/materials

Supplier	Furniture part	Material/product and composition	Weight in kg	weight %
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				

## Form 2 Classification and additives

Form 2a for requirements R3, R4, R5 and R6.(Chapter 2.1)

The form used for chemical products and chemical additives in wood-based panels.

The name and area of use of the chemical product/raw material

Manufacturer of the chemical product  or supplier of chemical raw material  :

Classification of chemical products

Exceptions from the following classification may occur in the individual requirement.

Classification	Associated hazard symbol and R-phrases <sup>1</sup>	CLP-regulation 1272/2008 <sup>1</sup>
Environmental hazard	N with R50, R50/53, R51/53 and/or R59	H400 Very toxic to aquatic life, Category 1 acute; H410 Very toxic to aquatic life with long-lasting effects, Category 1 chronic; H411 Toxic to aquatic life with long-lasting effects, Category 2 chronic; and/or EUH059 hazardous to the ozone layer
Highly toxic	Tx (T+ in Norway) with R26, R27, R28 and/or R39	H330 Fatal to inhale, Category 1 and 2; H310 Fatal in contact with skin, Category 1 and 2; H300 Fatal if swallowed, Category 1 and 2; and/or H370 Causes damage to organs, Category 1
Toxic	T with R23, R24, R25, R39 and/or R48	H330 Fatal to inhale, with Category 2; H331 Toxic if inhaled, Category 3; H311 Toxic in contact with skin, Category 3; H301 Toxic if swallowed, Category 3; H370 Causes damage to organs, Category 1; and/or H372 causes damage to organs through prolonged or repeated exposure, Category 1
Carcinogenic	T with R45 or R49 Or Xn with R40 <sup>2</sup>	H350 May cause cancer, Category 1A/1B; H350i May cause cancer by inhalation, Category 1B; Or H351 Suspected to cause cancer, Category 2
Mutagenic	T with R46 or Xn with R68	H340 May cause genetic defects, Category 1A/1B; H341 Suspected to causing genetic defects, Category 2
Reproductive toxicity	T with R60 and/or R61 Or Xn with R62 and/or R63	H360F May damage fertility, Category 1A/1B and/or H360D May damage the unborn child, Category 1A/1B H361f Suspected to damaging fertility, Category 2 and/or H361d Suspected to damaging the unborn child, Category 2

<sup>1</sup> Products shall not be classified in accordance with the table above, and in accordance with the EU directive 67/548/EEC with subsequent amendments and adaptations or/and CLP -regulation 1272/2008 with subsequent amendments. In the transition period e.g. until 1st June 2015, the Dangerous Substances Directive or the CLP-regulation can be used. After the transition period only the CLP-regulation will be used. A list of R-sentences and their meaning is given in form 2c in appendix 2.

<sup>2</sup> For adhesives with isocyanate and formaldehyde, exception is given for classification as R40/H351.

Please note that the producer is responsible for correct classification.

Is the product/raw material classified in accordance with the above table?

Yes  No

Product safety data sheets/product sheets in accordance with the legislation in force in the country of application for example Appendix II of REACH (Directive 1907/2006/EC) for each product.

Appendix no. \_\_\_\_\_

Information from the chemical producer in the form of a recipe may be submitted directly to Nordic Ecolabelling and will be treated confidentially.

#### The content and additives to chemical products and materials

The declaration applies to all additives.

Additives are all substances in the product, including additives (e.g. pigments) in the ingredients, not pollutants from the production of raw materials. Pollutants are traces from raw material production present in the finished product in concentrations of less than 100 ppm (0.01% by weight, 100 mg/kg), but not products that have been added to a raw material or product deliberately and for a purpose, irrespective of quantity. Declaration is made by the chemical supplier based to the best of his/her knowledge at the given time, also based on information from raw material manufacturers, recipe and available knowledge on the chemical product with reservations for new advances and new knowledge. Should such new knowledge arise, the undersigned is obliged to submit an updated declaration to Nordic Ecolabelling.

Does the product/raw material contain free formaldehyde?  
If yes, specify quantity in % by weight:

Yes  No

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Does the product/raw material contain volatile aromatic compounds (VAC)?  
If yes, specify chemical name, CAS number and quantity in % by weight:

Yes  No

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Does the surface treatment of the product/raw material contain volatile organic compounds (VOC)?  
If yes, specify chemical name, CAS number and quantity in % by weight:

Yes  No

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Does the product/raw material contain substances classified as environmentally dangerous in the surface treatment in accordance with any of the following risk phrases: N; R50, R50/53, R51/53, R52/53 eller R59 (H400, H410, H411, H412, EUH059)?  
If yes, specify chemical name, CAS number and quantity in % by weight:

Yes  No

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Does the product/raw material contain isothiazolines or a mixture of CMIT/MIT (mixing ratio 3:1)?  
If yes, specify chemical name, CAS number and quantity in % by weight:

Yes  No

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Does the product/raw material contain nano-metals, -minerals, -carbon compounds and/or -fluorine compounds? Yes  No

If yes, specify chemical name, CAS number and quantity in % by weight:

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Is the product an adhesive containing volatile organic compounds (VOC)? Yes  No

If yes, specify chemical name, CAS number and quantity in % by weight:

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Are the following constituent substances added to the product:

Halogenated organic compounds in general. For example PVC, chloroparaffins, fluorine compounds, flame-retardants and bleaching chemicals? Yes  No

If yes, is it because of chlorine in epoxy acrylate in UV-curing products? Yes  No

PFOA (Perfluorooctanoic acid), PFOS (Perfluorooctanesulfonic acid) or compounds thereof? Yes  No

Bisphenol A? Yes  No

Biocidene: chlorophenols (their salts and esters) or dimethylfumarates\*? Yes  No

Bronopol cas nr. 52-51-7 in more than 0.05% by weight? Yes  No

Phthalates? Yes  No

Aziridine and/or polyaziridine? Yes  No

Carcinogenic, mutagen and reproduction damaging compounds (Category 1 and 2 according to 67/548/EC) or (Category 1A and 1B according to CLP-regulation 12727/2008)? Yes  No

Pigments/ additives based on lead, tin, cadmium, chromium VI and mercury and their compounds? Yes  No

Does the chemical product contain alkylphenols, alkylphenolethoxylates or other alkylphenol derivatives? Yes  No

Have biocides been added to the finished surface of the furniture or parts of it, in order to give disinfecting or antibacterial effect? Yes  No

\* This also applies to transport and storage of products and semi-finished products

Example of calculation of quantity of VOC applied in R18 and accordingly for criteria R20:

The manufacturer has disclosed consumption of varnish of 120 g/m<sup>2</sup> and spraying equipment with recycling (70%) as the means of application. Form 2a states that the varnish in total contains 6% organic solvents.

The calculation will be:  $(120/0.7) \times 0.06 = 10.3 \text{ g/m}^2$  organic solvents.

Signature of manufacturer or raw material producer:

Date	Company name
Signatory	Telephone

## Form 2. Classification and additives

Form 2b for R4 additives in plastic and fabric materials

The form used for chemical additives in plastics/plastic granules or stopping materials

The name and area of use of the material:

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Manufacturer of the material:

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The declaration applies to all additives.

Additives are all substances in the product, including additives (e.g. pigments) in the ingredients, not pollutants from the production of raw materials. Pollutants are traces from raw material production present in the finished product in concentrations of less than 100 ppm (0.01 % by weight, 100 mg/kg), but not products that have been added to a raw material or product deliberately and for a purpose, irrespective of quantity. Declaration is made by the chemical supplier based to the best of his/her knowledge at the given time, also based on information from raw material manufacturers, recipe and available knowledge on the chemical product with reservations for new advances and new knowledge. Should such new knowledge arise, the undersigned is obliged to submit an updated declaration to Nordic Ecolabelling.

Does the product/raw material contain volatile aromatic compounds (VAC)?

Yes  No

If yes, specify chemical name, CAS number and quantity in % by weight:

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Does the surface treatment of the product/raw material contain volatile organic compounds (VOC)?

Yes  No

If yes, specify chemical name, CAS number and quantity in % by weight:

---

Does the product/raw material contain isothiazolines or a mixture of CMIT/MIT (mixing ratio 3:1)?

Yes  No

If yes, specify chemical name, CAS number and quantity in % by weight:

---

Are the following constituent substances added to the product:

- Halogenated organic compounds in general. For example PVC, chloroparaffins, fluorine compounds, flame-retardants and bleaching chemicals? Yes  No
- PFOA (Perfluorooctanoic acid), PFOS (Perfluor octane sulfonic acid) or compounds thereof? Yes  No
- Bisphenol A? Yes  No
- Biocides: chlorophenols (their salts and esters) or dimethylfumarates\*? Yes  No
- Bronopol cas. No 52-51-7 in more than 0.05% by weight? Yes  No
- Phthalates? Yes  No
- Aziridine and/or polyaziridine? Yes  No
- Carcinogenic, mutagen and reproduction damaging compounds (Category 1 and 2 according to 67/548/EC) and (Category 1A and 1B according to CLP-regulation 1272/2008) Yes  No
- Pigments/ additives based on lead, tin, cadmium, chromium VI and mercury and their compounds? Yes  No
- Does the chemical product contain alkylphenols, alkylphenoethoxylates or other alkylphenol derivates? Yes  No
- Have biocides been added to the finished surface of the furniture or parts of it, in order to give disinfecting or antibacterial effect? Yes  No

\*This also applies to transport and storage of products and to semi-finished products

Signature of manufacturer or raw material producer:

Date	Company name
Signatory	Telephone



## Form 2c Overview of R-phrases

### Overview of R-phrases and associated names

#### Environmentally dangerous

- R50: Very toxic to aquatic organisms
- R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
- R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
- R52: Harmful to aquatic life
- R52/53: Harmful to aquatic life with long-lasting effects
- R59: Dangerous for the ozone layer
- H400: Very toxic to aquatic life
- H410: Very toxic to aquatic life with long-lasting effects
- H411: Toxic to aquatic life with long-lasting effects and/or EUH059 hazardous to the ozone layer
- H412: Harmful to aquatic life with long-lasting effects
- EUH059: Hazardous to the ozone layer

#### Very toxic/toxic

- R23: Toxic by inhalation
- R24: Toxic in contact with skin
- R25: Toxic if swallowed
- R26: Very toxic by inhalation
- R27: Very toxic in contact with skin
- R28: Very toxic if swallowed
- R39: Danger of very serious irreversible effects
- R48: Danger of serious damage to health by prolonged exposure
- H331: Toxic if inhaled
- H311: Toxic in contact with skin
- H301: Toxic if swallowed
- H330: Fatal if inhaled
- H310: Fatal in contact with skin
- H300: Fatal if swallowed
- H370: Causes damage to organs
- H372: Causes damage to organs

#### Carcinogenic

- R33: Danger of cumulative effects
- R40: Limited evidence of a carcinogenic effect
- R45: May cause cancer
- R49: May cause cancer by inhalation
- R46: May cause heritable genetic damage
- R60: May impair fertility
- R61: May cause harm to the unborn child
- R62: Possible risk of impaired fertility
- R63: Possible risk of harm to the unborn child
- R68: Possible risk of irreversible effects
- H350: May cause cancer
- H351: Suspected of causing cancer
- H340 May cause genetic defects
- H341 Suspected of causing genetic defects
- H360: May damage fertility. May damage the unborn child
- H361: Suspected of damaging fertility. Suspected of damaging the unborn child.

Form 3a Wood, willow and bamboo  
Origin, traceability and certified raw material

(To be filled in by supplier or producer)

Supplier/Producer:
Product type (for example wood chips, veneer, timber, solid wood):

For documenting the wood raw material:

- Type of wood/willow/bamboo and geographical origin (country/state and region/province):
- Copy of certificate(s) of forestry certification and type of standard:
- Proportion (%) wood from certified forestry in product:
- Copies of invoices may be used as documentation

Table 1 Overview of origin, traceability and certification

Type of raw material*	Geographical origin (country/state and region/provins)	Forest Management (nr.) Chain of Custody (nr.)	Prop. (%) wood from certified forestry in product

\*Describe the type of raw material (example: pine, spruce, bamboo) and give the latin name

Are any of the above-mentioned raw wood materials treated with pesticides classified by WHO as type 1A and/or type 1B after felling? Yes  No

Supplier's/producer's signature:

Date	Company name
Signatory	Telephone

Form 3b Wood, willow and bamboo  
Description and proportion of certified raw material

(To be filled in by the furniture producer)

Documentation of the raw material:

- Give a detailed description of the chain of suppliers from felling of the raw material to the furniture producer

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- Alternatively, submit a separate flow diagram showing the chain of suppliers from felling of the raw material to the furniture producer

Table 1: Raw materials purchased by the furniture supplier on a yearly basis.  
Applies to both certified and non-certified materials

Type of raw material*	Supplier	Quantity (m <sup>3</sup> /year)	Proportion (%) wood from certified forestry
Total			

\*Describe the type of raw material (example: pine, spruce, bamboo) and give the latin name

Furniture producer's signature:

Date	Company name
Signatory	Telephone

## Form 3c Forestry certification requirements

### Forestry certification requirements

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

The following requirements apply to standards and certification systems that are acceptable to Nordic Ecolabelling.

### The standards

- 1) The standard must balance economic, ecological and social interests and comply with the Rio Declaration's forestry principles, Agenda 21 and the Forest Principles and respect relevant international conventions and agreements.
- 2) The standard must contain absolute requirements and promote and be directed towards sustainable forestry.
- 3) The standard must be widely accepted nationally or internationally and be developed as a part of an open process in which ecological, economic and social interests are invited to participate.

### The certification system

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

### The certification body

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

## Form 4a Calculation of energy consumption

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### Calculation of energy consumption

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

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

Purchased electricity is defined as electricity purchased from external suppliers. Electricity generated on the premises must be added to the fuel consumption. For the total consumption of fuels, both purchased fuels and residual products is included.

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

Example of calculation for a chipboard plate:

A = Wood raw material from certified sustainable forestry: 0%

B = Recycled raw material: 50% (sawdust)

C = Proportion of renewable fuel: 80%

D = Electricity consumed: 0.5 kWh/kg.

E = Fuel consumed: 1.3 kWh/kg

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

= 0+2+3.2+2+2.5= 9.7 → The chipboard plate fulfils the requirement!

The energy content of fuel must be calculated from the data given in the table below.

If electrical energy is produced on the premises the consumption of fuel can be calculated in one of the following ways:

- The actual consumption of fuel calculated on annual basis
- Consumption of on-site electrical energy is multiplied with 1.25

## Theoretical energy content and emission factors.

Sources: Statistics Norway: Energy statistics 1995, SFT Report 9513: Incinerators. Guidance for case officers and SFT: Emission coefficients (Audun Rosland, 1987).

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

1 All figures in tonnes except for Wood Fuel, where figures are in tonnes per firm cubic meter (ton/fm<sup>3</sup>) and Natural Gas which is in kg per standard cubic meter (kg/Sm<sup>3</sup>).

2 All figures in MWh/m<sup>3</sup>, except for Natural Gas which is given in kWh/Sm<sup>3</sup> and Coal, Coke, Wood Fuel, Waste liquer and Waste wood which are given in MWh/ton.

3 All figures in GJ/m<sup>3</sup> except for Coal, Coke, Waste liquer and Waste wood which are in GJ/ton, Natural Gas which is given in GJ/Sm<sup>3</sup> and Wood Fuel in GJ/fm<sup>3</sup>.

4 Natural Gas in kg/Sm<sup>3</sup>.

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

Example of a calculation using the standard value for adhesives:

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

0.12 kg adhesive/ kg panel x 15 MJ/ kg adhesive = 1.8 MJ/ kg panel.

Conversion to kWh per kg panel: (1.8 MJ/kg panel)/3.6 = 0,5 kWh/kg panel

Ratio (4:1) for fuel and el: 0.4 kWh fuel/kg panel and 0.1 kWh el/kg panel

## Form 4b Energy requirements for paper and pulp production

### 4b.1 Guidelines for energy calculation

Requirements are laid down for the application of energy in the form of fuel or electricity. The starting point is information about the actual energy consumption from production compared to a documented reference value. The quotient of these values is stated as energy points.

The energy calculations cover all the paper products: both paper production and the pulp employed. In the case of paper, the calculations are performed without regard to fillers. Energy consumption for transporting the raw materials and for conversion and packing are not included in the energy calculation.

#### Applied energy:

State the total energy consumption for the paper or pulp production processes per tonne of product, broken down into fuel and electricity.

#### Fuel:

With regard to fuel, bought-in fuel, internally produced fuel and residual products should all be stated. This means, for example, that lye, bark and wood chips must be included to the extent that their heating values contribute to energy supplies for the process. Fuel used both for heat production and internal electricity production must be stated. Fuel consumption is calculated from the effective heating value of the dry substance. The calculations may derive from internally measured heating values or values according to table 4b.4. If the fuel is damp, the calculation method in table 4b.5 may be used.

As fuel can also be used for electricity production internally, in such cases corresponding amounts of fuel must be subtracted from the actual fuel consumption ( $=1.25 \times$  internally produced electricity). This will avoid the double counting of energy information for fuel used for internal electricity production.

#### Electricity:

Both bought-in and internally produced electricity must be included in the calculations.

☒ The calculation of electricity and fuel consumption must be based on invoices and readings from in-house electricity meters. The calculated points level must then be forwarded by the pulp producer to the paper producer and to Nordic Ecolabelling. The paper producer can then carry out a calculation of the total energy points for the finished paper. The calculation includes the energy points for all pulps used and energy points for paper production.

Internally produced electricity can be documented by readings from in-house electricity meters. In the case of bought-in fuel, the amount purchased must be reconciled with the amounts at the start and end of the year in question. Internal consumption of residual products such as lye, bark, wood chips, etc. is calculated from the estimated heating values of the fuels used (see Table 4b.4.1 in chapter 4b.4). Hence, the total consumption of electricity and fuel is reported.

#### Steam:

If surplus 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, the steam table in this form 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 2.5.

#### Integrated production:

The energy reference values for both paper production and pulp production must be used for integrated production (Tables 4b.2.1 and 4b.3.1). For integrated enterprises which act both as suppliers of market pulp and pumped pulp for ecolabelled products, the reference value for drying the market pulp must be used for the market pulp but not for the pumped pulp.

Appendix no. \_\_\_\_\_



Energy surplus:

Energy surpluses sold in the form of electricity, steam or heat should be subtracted from the total consumption. The amount of fuel used for producing sold-on electricity or heat is calculated by dividing the sold electricity or heat by 0.8. This corresponds to an average efficiency for the total production of electricity and heat. Alternatively, the actual efficiency of the plant for converting fuel to heat energy may be used, if this can be documented to Nordic Ecolabelling.

4b.2 Energy calculation, paper manufacturer

Energy points for paper production

The energy points  $P_{p(\text{electricity})}$  and  $P_{p(\text{fuel})}$  for paper manufacture on the paper machine are calculated by the following formulae:

$$P_{p(\text{electricity})} = \frac{\text{Electricity}_{\text{used}}}{\text{Electricity}_{\text{reference}}}$$

and

$$P_{p(\text{fuel})} = \frac{(\text{Fuel}_{\text{used}} - 1.25 \cdot \text{in-house generated electricity})}{\text{Fuel}_{\text{reference}}}$$

Values for  $\text{Electricity}_{\text{reference}}$  and  $\text{Fuel}_{\text{reference}}$  can be found in Table 4b.2.1.

Table 4b.2.1 Energy for paper production

Processes	Fuel kWh/t Ref. value	Electricity kWh/t Ref. value
FBB (Folding box board)* SBS (Solid bleached sulphate)* SBB (Solid bleached board)* SUB (Solid Unbleached Board)* WLC (White lined chipboard)*	1700	800
News	1700	750
LWC	1700	800
SC	1700	750
Uncoated fine paper	1700	750
Coated fine paper	1700	800

\* Only one of the marked processes must be used

Calculation of points by means of a calculation spreadsheet designed by Nordic Ecolabelling.

Appendix no. \_\_\_\_\_

Energy points for a mixture of different pulp types

For a mixture of different pulp types, the following formulae are used for calculating the energy points,  $P_{m(\text{electricity})}$  and  $P_{m(\text{fuel})}$ :

$$P_{m(\text{electricity})} = \sum_{i=1}^n P_{m(\text{electricity})i} \cdot m_i$$

and

$$P_{m(\text{fuel})} = \sum_{i=1}^n P_{m(\text{fuel})i} \cdot m_i$$

in which  $m_i$  is the proportion of the individual pulp in the total pulp mix, i.e. tonnes of individual pulp used per tonne of pulp. Due to wastage and differences in water content, the total of  $m_i$  may be greater than 1.  $P_{m(\text{electricity})i}$  is the energy points for electricity for pulp number  $i$ , and  $P_{m(\text{fuel})i}$  is the energy points for fuel for pulp number  $i$ .

Calculation of points by means of a calculation spreadsheet designed by Nordic Ecolabelling.

Appendix no. \_\_\_\_\_

Total energy points for paper and pulp production

The total points for both electricity and fuel consumption is calculated from the pulp and paper consumption points by weighting the reference values (X= weighting of reference value of pulp or paper production):

$$P_{el} = X_{El,m} \cdot P_{El,m} + X_{El,p} \cdot P_{El,p}$$

where

$$X_{el,m} = \frac{El_{reference,m}}{(El_{reference,m} + El_{reference,p})}$$

$$X_{el,p} = \frac{El_{reference,p}}{(El_{reference,m} + El_{reference,p})}$$

$$P_{fuel} = X_{Fuel,m} \cdot P_{Fuel,m} + X_{Fuel,p} \cdot P_{Fuel,p}$$

where

$$X_{Fuel,m} = \frac{Fuel_{reference,m}}{(Fuel_{reference,m} + Fuel_{reference,p})}$$

$$X_{Fuel,p} = \frac{Fuel_{reference,p}}{(Fuel_{reference,m} + Fuel_{reference,p})}$$

For a mixture of pulps, the reference values for electricity and fuel must be weighted by the proportion of pulp, mi, in the expressions for X.

- ☒ The calculation of points with part results must be shown in the documentation. It must be clearly stated what starting values were applied for use of fuel and electricity. A calculation spreadsheet designed by Nordic Ecolabelling must be used for the calculation.

Appendix no. \_\_\_\_\_

#### 4b.3 Energy calculation, pulp manufacturer

The energy points  $P_{electricity,mi}$  and  $P_{fuel,mi}$  for production of a pulp i should be calculated according to the formulae below:

$$P_{m(electricity)i} = \frac{Electricity_{used}}{Electricity_{reference}}$$

and

$$P_{m(fuel)i} = \frac{(Fuel_{used} - 1.25 \cdot in - housegenerated\ electricity)}{Fuel_{reference}}$$

The values for  $Electricity_{reference}$  and  $Fuel_{reference}$  are taken from Table 4b.3.1 below.

Table 4b.3.1 Energy for pulp production

Processes	Fuel kWh/t Ref. value	Electricity kWh/t Ref. value
Bleached chemical pulp	3750	750
Dried, bleached chemical pulp	4750	750
Unbleached chemical pulp	3200	550
Dried, unbleached chemical pulp	4500	550
CTMP	n.a	2000
Dried CTMP	1000	2000
DIP	350	500
Dried DIP	1350	600
TMP	n.a	2200
Dried TMP	1000	2200
Slip	n.a	2000
Dried slip	1000	2000

Calculation of points by means of a calculation spreadsheet designed by Nordic Ecolabelling.

Appendix no. \_\_\_\_\_

#### 4b.4 Heating value

Table 4b.4.1 Effective (lower) heating values for dry substance of fuel

Fuel	Heating value (lower)	Unit
Wood briquettes	10.0	GJ/m <sup>3</sup> loose
Wood pellet	10.0	GJ/m <sup>3</sup> loose
Wood powder	3.80	GJ/m <sup>3</sup> loose
Wood chips	3.55	GJ/m <sup>3</sup> loose
Saw dust	2.90	GJ/m <sup>3</sup> loose
Bark	2.22	GJ/m <sup>3</sup> loose
Lump peat	4.50	GJ/m <sup>3</sup> loose
Milled peat	3.75	GJ/m <sup>3</sup> loose
Sulphate lye	12.7	GJ/kg dry matter
Sulphite lye	14.7	GJ/kg dry matter
Tall oil pitch	36.8	GJ/m <sup>3</sup>
Natural gas	38.9	MJ/m <sup>3</sup>
Light fuel oil	36.0	GJ/m <sup>3</sup>
Heavy fuel oil	38.7	GJ/m <sup>3</sup>
LPG	46.1	MJ/kg
Coal	26.5	MJ/kg

#### 4b.5 Energy content of damp fuel

##### Calculation of energy content of damp fuel

The effective heating value of damp fuel can be calculated with the following formula:

$$Q_{iw} = Q_{ik} * (100 - w)/100 - 2.45 * w/100,$$

where

$Q_{iw}$  = lower heating value of damp fuel expressed in kJ/kg

$Q_{ik}$  = lower heating value of dry substance expressed in kJ/kg

$w$  = water content of damp fuel expressed as water percentage.

##### Calculation of energy content of wood chips

The energy content of wood chips depends primarily on the water content. The following explains how this can be calculated.

The energy content (lower heating value) of dry wood is stated as 19 MJ/kg.

Energy is required for evaporating the water normally present in wood. This energy demand reduces the wood's heating value. The formula for calculating the relationship between the energy content and the water content can be formulated as follows:

$$19 \text{ MJ} * (100 - \text{water}\%)/100 - 2.45 * \text{water}\%/100 = xx \text{ MJ/kg}$$

It is necessary for the water content of the wood to be known.

Immediately after the tree is felled, the water content can be up to 55%. The water slowly evaporates from the wood, first during transport and then when it is cut up and seasoned for use in pulp production etc. During this period, the water content depends on the precipitation during the period. Normally, it will reduce to 20-40%.

For a 40% water content, the energy content can be calculated as:

$$19 \text{ MJ} * (100 - 40\%)/100 - 2.45 * 40/100 = 10.4 \text{ MJ/kg}$$

For a 20% water content, the energy content can be calculated as:

$$19 \text{ MJ} * (100 - 20\%)/100 - 2.45 * 20/100 = 14.7 \text{ MJ/kg}.$$

## Form 5 Metals

Form for metals (Chapter 2.6)

Name of product:
Producer/importer/furniture producer:

Can the metal parts be separated from the other materials without the use of special tools?

Yes  No

Describe how: \_\_\_\_\_

\_\_\_\_\_

How large a proportion of the metal raw material consists of recycled material?

Aluminium: \_\_\_\_\_

Other metals (e.g. steel): \_\_\_\_\_

Attach: Report from the smelting plant documenting the proportion of recycled material.

Appendix no. \_\_\_\_\_

Is the metal part plated with cadmium, chromium, nickel and their compounds?

Yes  No

If yes, does the plating occur in a closed system?

Yes  No

Give a short description of the process: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Is the metal part plated with Zn and/or its compounds?

Yes  No

If yes, is the Zn emission from surface treatment less than or equal to 0,5 mg/l?

Yes  No

Result, Zn emission (submit analysis report): \_\_\_\_\_

Test method for zinc: EN ISO 11885

Sampling frequency: Emissions to water are calculated as a yearly mean value and based on minimum one representative daily sample per week.

Signature of producer/importer/furniture producer:

Date	Name of company
Signatory	Telephone

## Form 6 Plastics and rubber

Form for plastics and rubber (Chapter 2.7)

Name of product and chemical name of plastic material:

\_\_\_\_\_

Producer/supplier: \_\_\_\_\_

Note: For additives in plastics and rubber and/or surface treatment of plastics, Form 2a must also be completed.

Does the plastic material contain PVC?

Yes  No

Which types of plastic does the plastic material contain and in what quantities?

\_\_\_\_\_

\_\_\_\_\_

Does the plastic material contain fillers and/or reinforcement?

Yes  No

If yes, which types and in what quantities? \_\_\_\_\_

\_\_\_\_\_

Are plastic parts that weigh more than 50 g labelled for recycling in accordance with ISO 11 469?

Yes  No

If no, state which equivalent standard has been used: \_\_\_\_\_

\_\_\_\_\_

Does the rubber contain nitrosamines?

Yes  No

If yes, which types and in what quantities? \_\_\_\_\_

\_\_\_\_\_

Has the surface of the plastic part been coated?

Yes  No

Does the surface treatment interfere with recycling of the plastic?

Yes  No

If no, submit documentation to support this.

Appendix no. \_\_\_\_\_

If the plastic represents > 10% weight of the furniture/fitment, answer the following:

How large a proportion of the plastic material is recycled pre- or post-consumer material\* (fillers or reinforcement must be deducted)?

Specify proportion per plastic type:

\_\_\_\_\_

\*Recycled plastic is defined in the requirement according to ISO 14021 in the following two categories:

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

Nordic Ecolabelling defines rework, regrind or scrap, that cannot be recycled directly in the same process, but requires a reprocessing (eg sorting, reclamation and granulation) before it can be recycled, to be pre-consumer/commercial material. This is whether it is produced in-house or externally.

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

Report from producer/supplier documenting the proportion of recovered material.

Appendix no. \_\_\_\_\_

Signature of producer:

Date	Company name
Signatory	Telephone

## Form 7 Padding materials

Form for requirements applicable to padding materials (Chapter 2.8)

Name and description of type of padding material:

\_\_\_\_\_

Producer/importer: \_\_\_\_\_

Does the product contain dyes?

Yes  No

If yes:

Are the dyes used solely to distinguish between different qualities within the same type of padding material?

Yes  No

Are metal complex dyes used?

Yes  No

State which dyes are used:

Name:

CAS No:

\_\_\_\_\_

\_\_\_\_\_

Polyuretane

Are CFC, HCFC, HFC, methylene chloride or halogenated organic compounds used as blowing agents?

Yes  No

Describe the expansion process: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Are isocyanates used in a closed process, is the prescribed protective equipment used and are requirements from authorities regarding the use of isocyanates followed?

Yes  No

If no, please explain: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Signature of producer:

Date	Company name
Signatory	Telephone



Form 8 Textile

Page 1(3)

Form for requirements applicable to textiles (Chapter 2.10)

Name and description of type of textile:

\_\_\_\_\_

Producer/importer: \_\_\_\_\_

Does the product contain, or is the products surface treated with, halogenated flame retardants, biocides or halogenated treatments?

Yes  No

If yes, state chemical name and CAS No:

Name:

CAS No:

\_\_\_\_\_

\_\_\_\_\_

Does the product/raw material contain nano-metals, -minerals, -carbon compounds and/or -fluorine compounds?

Yes  No

If yes, state chemical name and CAS No:

Name:

CAS No:

\_\_\_\_\_

\_\_\_\_\_

Are dyes, pigments, flame retardants or auxiliary chemicals classified in accordance with the table below?

Yes  No

Submit MSDS according to regulations in the country of the application

Appendix no. \_\_\_\_\_

Classification	Associated hazard symbol and R-phrases*	CLP-regulation 1272/2008*
Environmental hazard	N with R50, R50/53, R51/53 and/or R59	H400 Very toxic to aquatic life, Category 1 acute; H410 Very toxic to aquatic life with long-lasting effects, Category 1 chronic; H411 Toxic to aquatic life with long-lasting effects, Category 2 chronic; and/or EUH059 hazardous to the ozone layer
Highly toxic	Tx (T+ in Norway) with R26, R27, R28 and/or R39	H330 Fatal to inhale, Category 1 and 2; H310 Fatal in contact with skin, Category 1 and 2; H300 Fatal if swallowed, Category 1 and 2; and/or H370 Causes damage to organs, Category 1
Toxic	T with R23, R24, R25, R39 and/or R48	H330 Fatal to inhale, with Category 2; H331 Toxic if inhaled, Category 3; H311 Toxic in contact with skin, Category 3; H301 Toxic if swallowed, Category 3; H370 Causes damage to organs, Category 1; and/or H372 causes damage to organs through prolonged or repeated exposure, Category 1
Carcinogenic	T with R45 or R49. Or Xn with R40	H350 May cause cancer, Category 1A/1B; H350i May cause cancer by inhalation, Category 1B; Or H351 Suspected to cause cancer, Category 2
Mutagenic	T with R46 or Xn with R68	H340 May cause genetic defects, Category 1A/1B; H341 Suspected to causing genetic defects, Category 2
Reproductive toxicity	T with R60 and/or R61. Or Xn with R62 and/or R63.	H360F May damage fertility, Category 1A/1B and/or H360D May damage the unborn child, Category 1A/1B H361f Suspected to damaging fertility, Category 2 and/or H361d Suspected to damaging the unborn child, Category 2

\*Classification in accordance with the EU Dangerous Substances Directive 67/548/EEC with subsequent amendments and adjustments and/or CLP regulation 1272/2008 with subsequent amendments and adjustments. In the transition period until the 1st of June 2015, the classification can be according to EU Substance Directive or according to CLP. After the transition period, only classification according to CLP is valid. A list of R-sentences and their meaning is given in form 2b in appendix 2. Please note that the producer is responsible for correct classification.

Is chrome mordant dyeing used?

Yes  No

Are metal complex dyes used?

Yes  No

If yes, are emissions of Cu, Cr and Ni to the discharge water  $\leq$ :  
75 mg/kg (Cu); 50 mg/kg (Cr); 75 mg/kg (Ni) after treatment?

Yes  No

Do preparations or formulations with which the textile comes into contact contain the following?

Alkylphenoethoxylates (APEO)?

Yes  No

Alkylbenzenesulphonates (LAS)?

Yes  No

Dimethylbis (hydrogenated tallow) ammoniumchloride (DHTDMAC)?

Yes  No

Distearyldimethylammoniumchloride (DSDMAC)?

Yes  No

Ditallowalkyldimethyl-ammoniumchloride (DTDMAC)?

Yes  No

Ethylene diamine tetraacetate (EDTA) ?

Yes  No

Diethylene triamine pentaacetic acid (DTPA)?

Yes  No

If wet processes are used in the textile production, calculations for average COD discharge shall be submitted along with COD analysis reports.

Result: \_\_\_\_\_g COD/kg textile

State the formaldehyde concentration (ppm) measured in the textile and submit analysis report.

Result: \_\_\_\_\_ppm formaldehyde

R52 Example of calculation for waste water discharged from wet process

500,000 litres of water is used per 40,000 m of textile during dyeing. The average weight of the substance is 500 grams per metre (depending on the quality).

In other words, 40,000m x 0.5 kg/m = 20,000 kg textile.

500,000 litres of water/20,000 kg textile = 25.00 water/kg textile.

Since the average annual value for COD is 0.25 g/l water, the calculation will be as follows:

25 l water/kg textile x 0.25 g COD/l water = 6.25 g COD/ kg textile, i.e. the requirement has been fulfilled.

Signature of producer:

Date	Company name
Signatory	Telephone

## Form 9 Glass/mirror glass and laminated glass

Form for requirements applicable to glass, mirror glass and laminated glass (Chapter 2.11)

Name of metal coating product:

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Producer/importer of chemical product:

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Does the metal coating used for the mirror glass contain lead (Pb)?

Yes  No

If yes, state quantities (% by weight): \_\_\_\_\_

Specify test method: \_\_\_\_\_

Test report

Appendix no. \_\_\_\_\_

Does the metal coating used in mirror glass contain copper (Cu)?

Yes  No

If yes, state quantity (% by weight): \_\_\_\_\_

Specify test method: \_\_\_\_\_

Test report

Appendix no. \_\_\_\_\_

Signature of producer:

Date	Name of company
Signatory	Telephone

## Form 10 Revised requirement for wood raw material

The following text includes “wood raw material” all the raw materials of wood, willow and bamboo.

### A) Tree species that may not be used in Nordic Swan Ecolabelled furniture and fitments

Species of trees on the Nordic Ecolabelling list of protected tree species\* may not be used in Nordic Ecolabelled furniture and fitments.

\*The complete list of protected tree species is available for viewing at:  
[www.nordic-ecolabel.org/wood/](http://www.nordic-ecolabel.org/wood/)

The requirement only applies to virgin wood species and not wood species defined as recycled material (see definition of recycled material in requirement B below).

- Declaration from applicant/manufacturer/supplier that the requirement to wood species not permitted to be used in Nordic Swan Ecolabelled furniture and fitments are met. Form 12 may be used.

### B) Wood raw material

The applicant must state the name (species name in Latin, Scandinavian or English language) of the wood raw material used in the Nordic Swan Ecolabelled furniture and fitments.

#### Chain of Custody certification

Applicant, manufacturer or wood material supplier of the applicant must have Chain of Custody certification under the FSC/PEFC schemes.

Subcontractors (e.g. a carpentry) who does not have a chain of custody certification can in certain cases be exempted from the above requirement. The premise is that the subcontractor can guarantee that the specific wood raw material is purchased from a FSC/PEFC Chain for Custody certified supplier, and that the wood material fulfils Nordic Ecolabelling requirements.

Manufacturer / supplier who uses only recycled material in the Nordic Swan Ecolabelled furniture and fitments, are exempted from the requirement for Chain of Custody certification. Definition of recycled material according to ISO 14021, see definition below\*.

#### Certified wood raw material

On an annual basis;

A minimum of 70% of the wood raw material used in Nordic Swan Ecolabelled products must be certified as sustainably forested under the FSC or PEFC schemes or be recycled material.

The remaining percentage of wood raw materials must be FSC Controlled Wood or wood from PEFC Controlled Sources.

If the producer is Chain of Custody certified under the FSC/PEFC schemes the certified wood raw materials (FSC and PEFC) must be accounted/recorded from the manufacturer's Chain of Custody account to the Nordic Swan Ecolabelled product/production line.

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

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

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

Nordic Ecolabelling defines byproducts from primary wood industries (sawdust, wood chips, bark ect.) or residues from forestry (bark, branches, roots etc.) as recycled material.

- ☒ Name (species name in Latin, Scandinavian or English language) of the wood raw materials that are used in the Nordic Swan Ecolabelled product. Form 4a may be used.
- ☒ Applicant/manufacturer are required to present a valid FSC/PEFC Chain of Custody certificate that covers all wood raw materials used in the Nordic Swan Ecolabelled furniture and fitments.
- ☒ Manufacturer, which is Chain of Custody certified under the FSC/PEFC schemes must submit documentation showing that the requirement to the percentage of certified wood or recycled material are met by the manufacturer's Chain of custody account.
- ☒ In cases where the applicant does not have FSC/PEFC Chain of Custody certified supplier, the supplier must present; an invoice for the specific wood, documentation showing that the wood supplier is FSC/PEFC Chain of Custody certified together with the supplier's Chain of Custody certificate. The Chain of Custody certificate has to comply with the data on the invoice. The volume of purchased certified wood raw material must appear on the invoice. The applicant must have an agreement with the wood supplier, which describes how the supplier guarantees that the delivered certified wood matches the information on the invoice. The agreement shall also specify that the wood supplier is required to notify the applicant if the wood supplier is replaced. Nordic Ecolabelling may request further information.

## Form 11 Revised requirement for woodbased panels

The following text includes “wood raw material” all the raw materials of wood, willow and bamboo.

### A) Tree species that may not be used in Nordic Swan Ecolabelled furniture and fitments

Species of trees on the Nordic Ecolabelling list of protected tree species\* may not be used in Nordic Swan Ecolabelled furniture and fitments.

\* The complete list of protected tree species is available for viewing at: [www.nordic-ecolabel.org/wood/](http://www.nordic-ecolabel.org/wood/)

The requirement only applies to virgin wood species and not wood species defined as recycled material (see definition of recycled material in requirement B below).

- Declaration from applicant/manufacturer/supplier that the requirement to wood species not permitted to be used in Nordic Swan Ecolabelled outdoor furniture, playground equipment and outdoor fixtures are met. Form 10 may be used.

### B) Wood raw material

The applicant/panel manufacturer must state the name (species name in Latin, Scandinavian or English language) of the wood raw material used in panels in the Nordic Swan Ecolabelled furniture and fitments.

Chain of Custody certification

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

Manufacturer/supplier who uses only recycled material in panels in the Nordic Swan Ecolabelled furniture and fitments, are exempted from the requirement for Chain of Custody certification. Definition of recycled material according to ISO 14021, see definition below\*.

Certified wood raw material

On an annual basis;

A minimum of 70% of the wood raw material in panels used in Nordic Swan Ecolabelled products must be certified as sustainably forested under the FSC or PEFC schemes or be recycled material.

The remaining percentage of wood raw materials must be FSC Controlled Wood or wood from PEFC Controlled Sources or recycled material.

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

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

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

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

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

If the panel are Nordic Swan Ecolabelled the requirement are met.

- ☒ Name (species name in Latin, Scandinavian or English language) of the wood raw materials that are used in the Nordic Swan Ecolabelled product. Form 4a may be used.
- ☒ The panel manufacturer is required to submit a valid FSC/PEFC Chain of Custody certificate that covers all wood raw materials used in panel in the Nordic Ecolabelled Furniture and fitments.
- ☒ Invoice from the panel manufacturer showing that the requirement to the percentage of certified wood or recycled material are met.



Form 12 Declaration of tree species not permitted to be used  
in Nordic Swan Ecolabelled products

Applicant/supplier
Product group/type
Version and date of the list of prohibited tree species used

It is hereby declared that species of trees on the Nordic Ecolabel list of protected tree species\* are not used in Nordic Swan Ecolabelled Furniture and fitments.

\* The complete list of protected tree species is available for viewing at: [www.nordic-ecolabel.org/wood/](http://www.nordic-ecolabel.org/wood/)

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

The requirement only applies to virgin wood species and not tree species defined as recycled wood\*\*.

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

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

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

Nordic Ecolabelling defines byproducts from primary wood industries (sawdust, wood chips, bark ect.) or residues from forestry (bark, branches, roots etc.) as recycled material.

Signature of the applicant/manufacturer of the woodsupplier

Place and date	Company name/stamp
Responsible person	Signature of the responsible person
Telephone	E-mail