About Nordic Swan Ecolabelled

Laundry Detergents and Stain Removers



Version 8.2

Background to ecolabelling
26 January 2021

Nordic Ecolabelling

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Appendix 1 Analyses, test methods and calculations

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Addresses

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

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1 Environmental impact of Laundry Detergents and Stain Removers

Although the focus of the available LCA studies[1,2,3,4] vary, all of them conclude that the main environmental burdens are in the use stage and in the ingredient sourcing. Some studies pinpoint also the emissions to the environment (water) after use. It is therefore very relevant for Nordic Ecolabelling to set requirements for these stages of the life cycle of laundry detergents.

It is also considered relevant to set ambitious packaging requirements that support recycling and circular economy. This is due to the large amounts of packaging used and circular economy action plan adopted in the EU[5] that has a clear focus on recovery and recycling, particularly with regard to packaging material. Dosing and performance affect all stages of the life cycle and are therefore chosen as relevant areas in the criteria.

The LCAs also indicate that less weight should be put on the detergent manufacturing process and the transportation of the products.

Nordic Swan Ecolabelled laundry detergents and stain removers also actively contribute to achieving the UN Sustainability goal 12 on responsible consumption and production. The products have a reduced environmental impact from both production, use and recycling. This is how Nordic Swan Ecolabelled laundry detergents contribute to SDG 12:

- Strict requirements are set for the sustainable use of natural resources, especially palm oil used in surfactants and increased use of sustainable renewable resources.
- The strict chemical requirements on e.g. biodegradability and ecotoxicity ensure minimal release of harmful substances to recipient water bodies from washing laundry.
- Phasing out substances that are hazardous to health and the environment in products and manufacturing helps to prevent both users and factory workers from being exposed to harmful chemicals – and to reduce contamination of air, water and soil.

[1] Laura Golsteijn, Rimousky Menkveld, Henry King, Christine Schneider, Diederik Schowanek and Sascha Nissen, A compilation of life cycle studies for six household detergent product categories in Europe: the basis for product-specific A.I.S.E. Charter Advanced Sustainability Profiles, Environmental Sciences Europe – Bridging Science and Regulation at the Regional and European Level 2015 27:23, http://enveurope.springeropen.com/articles/10.1186/s12302-015-0055-4, 5 October 2015
[2] AISE 2001: The Life-cycle Assessment of European Clothes Laundering. Report 2: LCA of Compact Fabric Washing Powder & main wash process. AISE LCA taskforce.
[3] Van Hoof, G; Schowanek, D and Feijtel, T.C.J 2003: Comparative Life-Cycle Assessment of Laundry Detergent formulations in the UK. Part 1: Environmental fingerprint of five detergent formulations in 2001. Tenside Surf. Det. 40, pp 266-275, 2003.

[4] P&G 2006: Comparative Life Cycle Assessment (LCA) of Ariel “Actif á froid” (2006), a laundry detergent that allows to wash at colder wash temperatures, with previous Ariel laundry detergents (1998, 2001).
[5] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Closing the loop – An EU action plan for the Circular Economy, COM(2015) 614 final, http://eur-lex.europa.eu/legalcontent/EN/TXT/?uri=CELEX%3A52015DC0614

- Promoting use of recycled plastics and cardboard in packaging of laundry detergents and stain removers reduce waste and use of new resources.
- Requirements on packaging design on recycling allow the materials to be recycled.

2 Justification of the requirements

This chapter presents proposals for new and revised requirements, and explains the background to the requirements, the chosen requirement levels and any changes compared with generation 7. The appendices referred to are those that appear in the criteria document "Nordic Swan Ecolabelling of Laundry Detergents and Stain Removers".

2.1 Definition of the product group

The product group Laundry detergents and stain removers encompasses laundry detergents and stain removers in powder, tablets, liquids, gel or any other form. The products shall be used for washing of textiles, and are intended to be used in household machines, but not excluding the use in launderettes and common laundries. The Nordic Swan Ecolabel criteria distinguish between heavy-duty detergents and low-duty detergents.

Heavy-duty detergents are defined as detergents used for regular washing of white and colored textiles at any temperature. Low-duty detergents are defined as detergents promoting special fabric care: e.g. use for delicate fabrics such as viscose, wool, silk, microfiber or other fabric requiring special care. Special care could be e.g. no bleach, no enzymes and gentle wash in excess water. Liquid detergents for normal washing of white and colored textiles are not considered low-duty detergents.

The product group does not comprise products that are exclusively used for hand-washing and products that are dosed via carriers such as sheets, cloths or other materials. Inclusion of polypropylene (PP) laundry wipes was considered by Nordic Ecolabelling (autumn 2018) but rejected as a single use PP wipe is not in line with the EU Plastics Strategy[6].

The product group does not comprise multiple function detergents such as "2 in 1" products with both detergent and fabric softening effects/claims. The product group does not comprise fabric softeners. Inclusion of anti-pilling fabric softeners was considered by Nordic Ecolabelling (autumn 2018). Nordic Ecolabelling received input from various stakeholders. Inclusion was rejected because we did not receive adequate documentation on whether the environmental benefits of possibly prolonged lifetime of some garments outweighs the negative environmental impact caused by production and use of such fabric softeners.

Products for professional laundries cannot be labelled according to this criteria document. Nordic Ecolabelling has criteria for Laundry detergents for professional use.

[6] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018DC0028&from=EN

3 General requirements

The definition of ingoing substances is included to explain what is meant by ingoing substances and impurities. The requirement has been changed compared with the previous generation of the criteria. The aim has been to make the criteria easier to understand.

Definition:

The requirements in the criteria document and accompanying appendices apply to all ingoing substances in the Nordic Swan Ecolabelled product. Impurities are not regarded as ingoing substances and are exempt from the requirements.

Ingoing substances and impurities are defined below, unless stated otherwise in the requirements

- Ingoing substances: all substances in the Nordic Swan Ecolabelled 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 regarded as ingoing substances.
- Impurities: residuals, pollutants, contaminants etc. from production, incl. production of raw materials that remain in the in the Nordic Swan Ecolabelled product in concentrations less than 100,0 ppm (0,01000 w-%, 100,0 mg/kg) in the Nordic Swan Ecolabelled product.
- Impurities in the raw materials exceeding concentrations of ≥ 10 000 ppm (≥ 1,000 w-%, ≥ 10 000 mg/kg) are always regarded as ingoing substances, regardless of the concentration in the Nordic Swan Ecolabelled 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.

Foil that is not removed before use of the product is considered as part of the formulation/recipe.

O1 Description of the product

The applicant must give detailed information on the laundry detergent or stain remover to which the application relates. The following information is required:

- Description of the product
- A complete formulation for the product. The formulation must for each ingoing raw material include:
  a) Trade name
  b) Chemical name for the main component, and, if relevant, additives (eg. colorants, preservatives and stabilizers)
  c) Amount (both with and without solvents, e.g. water)
  d) CAS No / EC No
  e) Function
  f) DID No for substances that can be placed in the DID list
- A safety data sheet for each ingoing raw material

The DID number is an ingredient's number on the DID list, which is used in calculating chemical requirements. The DID list can be obtained from http://www.nordic-ecolabel.org/product-groups/group/?productGroupCode=006 or Nordic Ecolabelling's national websites, see addresses on page 2.

☒ Description of the product, e.g. label and product data sheet (if available). The information on labels and/or product data sheets must be in the languages in which the product is marketed.

☒ A complete formulation of the product with information as set out in the requirement. Nordic Ecolabelling's calculation sheet can be used and can be obtained from http://www.nordic-ecolabel.org/product-groups/group/?productGroupCode=006 or Nordic Ecolabelling's national websites.

☒ Safety data sheets for each raw material in line with prevailing European legislation (Annex II to REACH Regulation, 1907/2006/EC).

Background to requirement O1

A description of the product (e.g. label) and its areas of use is required in order to assess whether the product falls within the product group definition.

Nordic Ecolabelling needs to know the complete formulation, with all ingoing raw materials. This is necessary in order to check the individual requirements below and make the calculations necessary in respect of each requirement.

The safety data sheets must be updated in line with European legislation, which at the time of writing the criteria (spring 2019) means compliance with Appendix II of REACH (Regulation (EC) No 1907/2006 as amended by Regulation (EU) 2015/830).

The requirement has been adjusted slightly compared with the previous generation of the criteria and is now in line with other newer criteria for cleaning products and detergents.

O2 Classification of the product

The product must not be classified with any of the hazard classes described in Table O2:

Table O2 Classification of the product

CLP Regulation 1272/2008		
Classification	**Hazard Class and Category Code**	**Hazard statement**
Hazardous to the aquatic environment	Aquatic Acute 1 Aquatic Chronic 1 Aquatic Chronic 2 Aquatic Chronic 3 Aquatic Chronic 4	H400 H410 H411 H412 H413
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 1 or 2 Acute Tox 1 or 2 Acute Tox 3 Acute Tox 3 Acute Tox 3 Acute Tox 4 Acute Tox 4 Acute Tox 4	H300 H310 H330 H301 H311 H331 H302 H312 H332 Exemption: Stain removers may be classified as Acute Tox 4 with H302.
Aspiration toxicity	Asp Tox 1	H304
Specific target organ toxicity, single or repeated exposure	STOT SE 1 STOT SE 2 STOT RE 1 STOT RE 2	H370 H371 H372 H373
Skin corrosion/irritation	Skin Corr. 1A, 1B or 1C	H314
Aspiration hazard	Asp. Tox. 1	H304
Respiratory or skin sensitisation**	Resp. Sens. 1, 1A or 1B Skin Sens. 1, 1A or 1B	H334 H317

* The classifications concern all classification variants. For example, H350 also covers classification H350i.

** Products labelled with EUH208 ("Contains <name of sensitising substance>. May produce an allergic reaction.") are restricted as follows:

- Products that are primarily used in an open system (stain removers that are applied directly on clothes or spray products) cannot be Nordic Swan Ecolabelled if labelled with EUH208.
- Other products labelled with EUH208 can be Nordic Swan Ecolabelled only if the sensitising substance is an enzyme that is exempt under the conditions stated in requirement O5.

Please note that the producer/supplier is responsible for the classification.

✉ Safety data sheet for the product in line with prevailing European legislation (Annex II to REACH Regulation, 1907/2006/EC).

Background to requirement O2

Nordic Ecolabelling sets requirements concerning environmental and health classification of products, to ensure that products that are toxic or harmful to the environment and health cannot be Nordic Swan Ecolabelled.

By including requirements stating that substances categorised by specific inherent properties must not be used, the ecolabelling can meet concerns regarding safe use of specific chemicals and thus highlight environmental and/or consumer issues.

The ban on H420 (Hazardous to the ozone layer) has been introduced in this generation. Nordic Ecolabelling does not believe there is a risk of products with H420 entering the market but has chosen to introduce the requirement to emphasise that no form of environmental hazard classification is permitted.

CMR substances are excluded already at a raw material level (see requirement O5). For communication reasons the ban has also been included at product level in this generation.

As in the previous criteria generation, stain removers have been exempted from the ban on H302, in order to allow for a higher level of percarbonates in these products.

Nordic Ecolabelling wishes to minimise the amount of sensitising/allergenic substances in the products, in order to reduce the risk of sensitization and allergic reactions to already sensitized persons. Most sensitizing substances are excluded already at a raw material level (see requirement O5). A restriction on EUH208 ("Contains <name of sensitising substance>. May produce an allergic reaction") has been introduced in order to increase the consumer protection against sensitizing substances. This is in line with the requirements for Nordic Swan Ecolabelling of hand dishwashing detergents and cleaning products (generations 6). An exemption is made to enzymes in products that are primarily not used in an open system.

4 Sustainable renewable raw materials

O3 Sustainable raw materials

1. The licence holder must document that they are working to increase their purchasing of sustainable and renewable raw materials and/or that they require their manufacturer to work on increasing their purchasing of sustainable renewable raw materials for Nordic Swan Ecolabelled laundry detergents and stain removers. This can for example be done by promoting certified raw materials, by avoiding problematic raw materials, by changing from fossil based raw materials to sustainable raw materials, or by increasing the share of segragated or identity preserved RSPO (Round Table for Sustainable Palm Oil) palm oil. The targets must be quantitative and time-based, and they must be set by the company's management.

   Renewable raw materials are defined as raw materials from biological material which are continuously renewed in nature within a short time span, for example grain and wood (European standard EN16575:2014).

2. The following data is required for each ingoing raw material (ingredient) that is included > 1% in the Nordic Swan Ecolabelled laundry detergent or stain remover:

   a) The proportion of the raw material/constituent part of the raw material/ingredient that comprises renewable raw material or originates from renewable raw material, calculated on an annual basis.

      The calculation of the proportion of the renewable material can be done using the following formula:

      Used amount renewable material / (used amount renewable material + used amount non-renewable material) x 100%

      Amounts in kg, molar weight or carbon atoms can be used in the calculation. Average carbon chain lengths can be used.

   b) What does the renewable raw material consist of (e.g. palm oil, coconut oil, grape seed oil, beeswax)?

   c) Does the renewable raw material have any sustainability certification? If yes, state which and at what level of traceability (No Traceability, Identity Preserved, Segregated, Mass Balance, Book & Claim)?

✉ 1. Policy or equivalent documentation of the licence holders work for renewable and sustainable materials in Nordic Swan Ecolabelled products, including quantitative, time-based targets set by management.

✉ 2. Appendix 3 from the raw material manufacturer/supplier completed and signed.

Background O3 Sustainable raw materials

Laundry detergents and stain removers use ingoing substances from both renewable and non-renewable organic raw materials. In addition, there are minerals (inorganic raw materials) as parts of organic raw materials, and e.g. in pigments.

The renewable base materials used in laundry detergents and stain removers are usually various oils and fats, which are subsequently turned into e.g. surfactants and emulsifiers.

Renewable raw materials are defined here as both vegetable raw materials and animal raw materials. This includes for example palm oil, coconut oil, rapeseed oil and beeswax.

In general, Nordic Ecolabelling is working to promote renewable raw materials over fossil raw materials.

The requirement on sustainable raw material procurement is new and the same as in generation 6 cleaning products and hand dishwash detergents generation 6. The concrete, measurable and time-based targets concerning their purchasing of sustainable raw materials can be done, for example, by promoting certified raw materials, by avoiding problematic materials or by changing from fossil raw materials to sustainable renewable raw materials. The requirement is written so that the policy required is on the Nordic Swan Ecolabelled products and not on the entire company, since the Nordic Swan Ecolabel is a product label, i.e. not labelling entire companies. However, the Nordic Ecolabel encourages a company-level policy as long as Nordic Swan labelled products are mentioned in the policy.

The goal of the requirement is to give the laundry detergent and stain remover manufacturers more of a focus on the origin of the raw material and associated certification schemes and to sharpen their focus on renewable raw materials when they are selecting and purchasing raw materials in their everyday operations. It is therefore expected that the proportion of renewable raw materials in Nordic Swan Ecolabelled laundry detergents and stain removers will continue to increase during the lifetime of the criteria. The knowledge that Nordic Ecolabelling acquires via this documentation will also make it possible to set specific requirements concerning the content of renewable raw materials in later revisions.

The cut off limit of 1% is set in order to reduce the burden of documentation and focus on the raw materials that are present at higher percentages (typically surfactants and solvents).

O4 Certified raw materials from oil palms

Palm oil, palm kernel oil and palm oil/palm kernel oil derivatives must be certified according to RSPO. Mass Balance, Segregated or Identity Preserved are accepted as traceability systems.

The requirement does not include raw materials < 1% in the final product.

✉ Information from raw material producer, where palm oil, palm kernel oil or palm oil or palm kernel oil derivatives are included in the raw material, Appendix 3 can be used.

✉ A valid RSPO Supply Chain certificate from raw material manufacturer/supplier.

✉ The manufacturer of the Nordic Swan Ecolabelled product must show by raw material supplier's invoices/delivery notes that the palm oil purchased is certified and information about traceability system (Mass Balance, Segregated or Identity Preserved accepted).

Background O4 Certified raw materials from oil palms

In addition to the policy requirement on sustainable raw materials (O3), special attention is paid to palm oil which raises concerns on e.g. land use. Palm oil is difficult to avoid in laundry detergents and stain removers since many surfactants are palm oil and palm kernel oil derivatives. One way to reduce the negative effects of the increasing use of palm oil products (e.g. rain forest destruction and unsustainable farming) is to increase the proportion of certified sustainable crops.

Nordic Ecolabelling sets general requirements for raw material labels that are used in our criteria documents, and at the current time, RSPO[7] do not fully meet them. Generally, the standard provides too poor protection for important biological areas since it is among other things permitted to establish plantations on peat bogs, which are important carbon sinks. However, in product groups where there is a lack of better alternatives and no steerability for Nordic Ecolabelling to avoid palm oil, Nordic Ecolabelling sets as stringent requirements as possible. This means requiring RSPO certified raw materials, with its associated traceability systems.

Other ecolabels such as the EU Ecolabel[8], The Swedish Good Environmental Choice (Bra Miljöval)[9] and Australia's Good Environmental Choice[10] also set requirements on the proportion of certified palm oil and palm kernel oil derivatives in Laundry detergents.

The cut off limit of 1% is set in order to reduce the burden of documentation and focus on the raw materials that are present at higher percentages (typically surfactants and solvents).

[7] Roundtable on Sustainable Palm Oil (RSPO) https://rspo.org/ (5 March 2019)
[8] Commission Decision (EU) 2017/1218 of 23 June 2017 establishing the EU Ecolabel criteria for laundry detergents https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017D1218&from=EN (7 Feb 2019)
[9] Swedish Society for Nature Conservation - Good Environmental Choice Chemical products Criteria 2018:1 https://www.naturskyddsforeningen.se/sites/default/files/dokument-media/Criteria_Bra_Miljoval_Chemical_Products_2018-1_20181125_0.pdf (7 Feb 2019)
[10] Good Environmental Choice Australia Standard, Cleaning Products, Standard No: CPv2.2ii-2012, Issued: 6 July 2017, http://www.geca.eco/standards/cleaning-products-standard-cpv2-2ii-2012/ (5 March 2019)

Requirement is the same as in generation 6 cleaning products and hand dishwash detergents generation 6, but the documentation of requirement has been made clearer. The new and improved RSPO Principles and criteria (RSPO P&C) 2018[11] will be used as certificate holders must be fully compliant with the new version no later than two years from the date of adoption.

Certification requirement is not set for other renewable raw materials since they are either less relevant in laundry detergents (soy[12] or sugar[13]) or there are not yet sustainability standards (coconut).

5 Requirements for ingoing substances

O5 Classification of ingoing substances

Ingoing substances in the product must not be classified with any of the hazard classes described in Table O5:

Table O5 Classification of ingoing substances

CLP Regulation 1272/2008:		
Classification	**Hazard Class and Category Code**	**Hazard statement**
Carcinogenic*	Carc. 1A or 1B Carc. 2	H350 H351
Mutagenic*	Muta. 1A or 1B Muta. 2	H340 H341
Toxic for reproduction*	Repr. 1A or 1B Repr. 2 Lact	H360 H361 H362
Respiratory or skin sensitisation**	Resp. Sens. 1 Skin Sens. 1	H334 H317

* The classifications concern all classification variants. For example, H350 also covers classification H350i.

** The following substances are exempt, exept for use in spray products:

- Enzymes*** (including stabilisers in the enzyme raw material) can be included if they are in liquid form or granulate capsules.
- Bleach catalysts.
- Fragrance (see requirement O9).

****Enzymes can also be used in spray products if safe use can be documentet by a risk assessment. The risk assessment shall be done according to AISE's "Exposure measurements of enzymes for risk asseessment of household cleaning spray products (AISE, September 25, 2013).*
https://www.aise.eu/documents/document/20171025092749-offline_1_consumer_safety.pdf

[11] RSPO Principles and criteria For the Production of Sustainable Palm Oil 2018. Endorsed by the RSPO Board of Governors and adopted at the 15th Annual General Assembly by RSPO Members on 15 November, 2018, https://rspo.org/publications/download/5ab40fb9d7c79f5

[12] The Round Table on Responsible Soy http://www.responsiblesoy.org/?lang=en (5 March 2019)
[13] Bonsucro https://www.bonsucro.com/ (March 5 2019)

Note that titanium dioxide in solid mixtures (e.g. in enzymes) is prohibited by this requirement, in effect from 2021-10-01. Note: a transition period until 2022-12-31 applies.

☒ Product formulation

☒ Safety data sheet for each raw material in line with European legislation (Annex II to REACH, Regulation (EC) No 1907/2006).

☒ Appendix 2 and 3 or equivalent certification completed and signed.

☒ For enzyme-containing spray products: Risk assessment according to AISE's "Exposure measurements of enzymes for risk asseessment of household cleaning spray products (AISE, September 25, 2013). Note that a risk assessment must be done on all spray products, even if the product has an aerosol reducing foaming nozzle.

Background to requirement O5 Classification of ingoing substances

By including requirements stating that substances categorized by specific inherent properties must not be used in ecolabelled products, the ecolabelling can meet concerns regarding safe use of specific chemicals and thus highlight environmental and/or consumer issues and concerns.

The generation 7 requirements R3 CMR substances and R4 Sensitizing substances have been merged into O5.

Excluding CMR substances is important from a health perspective. The requirement will also exclude these effects in the environment.

Titanium dioxide

Titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm] is classified as carcinogen category 2 by inhalation by the 14.ATP of CLP. In addition, the mandatory warning EUH212 is required on the packaging of solid mixtures containing 1 % or more of titanium dioxide. The mandatory EUH212 applies regardless of titanium dioxide particle size, implying that particles with aerodynamic diameter ≤ 10 µm may be released from any solid mixture containing titanium dioxide when used. These particles, "known to be released from ingoing substances" are counted as ingoing substances according to Nordic Ecolabelling's definition (cf. "General requirements" in the criteria document). Accordingly, all titanium dioxide occurring in solid mixtures (regardless of size) is prohibited.

Enzymes and bleach catalysts

Exemptions to the ban of sensitizing substances apply to enzymes and bleach catalysts. Enzymes and bleach catalysts are important for the function of the product, especially in the process of stain removal. They may also improve the product performance at low wash temperatures, leading to savings in the use stage energy consumption. Enzymes may reduce the content of surfactants and decrease the content of chemicals used per wash[14], and are generally less toxic to

[14] Nielsen and Skagerlind 2007: Per H. Nielsen and Peter Skagerlind: Sustainable Innovation. Cost-neutral replacement of surfactants with enzymes – a shortcut to environmental improvement for laundry washing. Household and Personal Care Today. No. 4/2007.

aquatic organisms than surfactants. Hence, the environmental benefits of enzymes and bleach catalysts are substantial.

Use of a spray forms a spray mist, which the user may breathe in. Therefore, safe use of enzyme-containing spray products must be documented by a risk assessment. Note that a risk assessment must be done on all spray products, even if the product has an aerosol reducing foaming nozzle.

Enzymes must be in liquid form or in the form of granules. This reduces the risk of exposure to enzymes in the manufacture of detergent products. For further risk measurements during production, see e.g. AISE's recommendations for safe handling of enzymes[15].

O6 Prohibited substances

The following substances must not be present in the product:

- Alkylphenol ethoxylates (APEO) and/or alkylphenol derivatives (APD)
- EDTA (Ethylene diamine tetraacetate and its salts) and DTPA (Diethylenetriamine pentaacetate)
- Nitro musks and polycyclic musk compounds
- Per- and polyfluorinated compounds (PFC)
- Antimicrobial or disinfecting ingredients added for other purposes than preservation
- Organochlorine compounds and hypochlorite
- Optical brighteners
- Microplastics

  Microplastic means particles with a size of below 5 mm of insoluble macromolecular plastic, obtained through one of the following processes: (a) a polymerisation process such as polyaddition or polycondensation or a similar process using monomers or other starting substances; (b) chemical modification of natural or synthetic macromolecules; (c) microbial fermentation.

  Note that foils/films wrapping tablets and similar generating microplastics may not be Nordic Swan Ecolabelled.

  Please note that Nordic Ecolabelling is following the ECHA restriction proposal and its definition and reserve the right to change the definition above when the definition used in the restriction proposal is finalized. An appropriate transition period would be granted.

- Nanomaterials/-particles

  Nanomaterials/-particles are defined according to EU commission recommendation on the definition of nanomaterial (2011/696/EU) : "A natural, incidental or 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 the number size distribution, one or more external dimensions is in the size range 1 nm-100 nm." Examples include ZnO, TiO2, SiO2 and Ag. Polymer emulsions are not considered nanomaterials

- Substances judged to be "Substances of very high concern", which are included on the Candidate List: http://echa.europa.eu/candidate-list-table.

[15] https://www.aise.eu/our-activities/standards-and-industry-guidelines/safe-handling-of-enzymes.aspx (accessed 2019-01-14).

- Endocrine disruptors according to the following:
    - Substances that are considered to be potential endocrine disruptors according to the EU commission's Endocrine Disruptor priority list, category 1 and 2, or future priority lists of the EU commission. https://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf (Appendix L, page 238 onwards)
    - Substances that have been identified by the Danish Centre on Endocrine Disrupters (CeHoS) as fulfilling or likely fulfilling the WHO definition of an endocrine disruptor.

      http://www.cend.dk/files/DK_ED-list-final_2018.pdf (table 8 and 13), or later publications
    - Substances that have been identified as endocrine disruptors according to the scientific criteria in the Biocidal Products Regulation (EU 2017/2100) or Plant Protection Products Regulation (EU 2018/605), respectively.
    - Subtances that have been identified as endocrine disruptors by ECHA's ED Expert Group: https://echa.europa.eu/fi/ed-assessment
- Substances evaluated by the EU to be PBT (persistent, bioaccumulative and toxic) or vPvB (very persistent and very bioaccumulative), in accordance with the criteria in Annex XIII of REACH and substances that have not yet been investigated, but which meet these criteria.

✉ Appendix 2 and 3 or equivalent certification completed and signed.

Background to requirement O6 Prohibited substances

There are several problematic substances that are difficult to exclude through general requirements concerning the product's chemistry. Nordic Ecolabelling has compiled a list of the substances that must not be added to products. The aim of the list is to prohibit substances that are not excluded from use via other requirements, but that are associated with environmental and health risks. Some substances are included in the list for the sake of clarity, even though they are prohibited under other requirements. There are also double requirements in the list below. For example, certain perfluorinated substances are also SVHC substances.

APEO

Alkylphenol ethoxylates (APEO) and/or alkylphenol derivatives (APD) are a group of non-readily degradable surfactants that are proven endocrine disruptors. The substances have been phased out of most products through legislation. These substances are excluded from use under the surfactants requirement (O7). Declaring APEO and APD together with other substances under requirement O6 is not considered to add very much extra work for the applicant, but it does simplify the administration process.

The requirement is the same as in generation 7.

EDTA (Ethylene diamine tetraacetate and its salts) and DTPA (Diethylenetriamine pentaacetate)

EDTA (Ethylenediaminetetraacetic acid) and its salts are not readily degradable and the EU's risk assessment states that under the conditions at municipal slight degree (Cefic 2009). Today there are more environmentally aware alternatives that are degradable and that can replace EDTA. One example is MGDA (methylglycine diacetate). The EU is also working to restrict the use of EDTA in the paper industry (Official Journal of the European Union, 2006/C 90/04). EDTA is used as a complexing agent in many chemical products. DTPA has the similar properties to EDTA

The requirement is the same as in generation 7.

Nitro musks and polycyclic musk compounds

Nitro musks and polycyclic musks generally have undesirable properties regarding both health and the environment. Some such compounds are already excluded through the exclusion of CMR substances. The use of nitro musks is extremely limited, but manufacturers outside Europe still produce substances such as Musk ambrette that are prohibited under IFRA. Excluding nitro and polycyclic musks therefore remains relevant as a preventive measure.

The requirement is the same as in generation 7.

Per- and polyfluorinated compounds (PFC)

Per- and polyfluorinated compounds (PFCs) constitute a group of substances that have harmful properties. Certain per- and polyfluorinated compounds can be broken down into the very stable PFOS (perfluorooctane sulphonate) and PFOA (perfluorooctanoic acid) and similar substances. These substances are found all over the globe, from the large oceans to the Arctic. PFOS have also been found in birds and fish and in their eggs. The substances are extremely persistent and are easily absorbed by the body.[16] The substances in this group impact on the biological processes of the body and are suspected to be endocrine disruptors, carcinogenic and to have a negative impact on the human immune system.[17] PFOA, APFO (ammonium pentadecene fluoro octanoate) and certain fluoro acids are on the Candidate List due to their reprotoxicity, as well as PBT. There are new research results showing that shorter chains (2–6 carbon atoms) have been discovered in nature.[18] A Swedish report shows that the compounds are used in

[16] Borg, D., Tissue Distribution Studies And Risk Assessment Of Perfluoroalkylated And Polyfluoroalkylated Substances (PFASS), Doctoral thesis, Institute Of Environmental Medicine (IMM) Karolinska Institutet, Stockholm, Sweden 2013 http://publications.ki.se/xmlui/bitstream/handle/10616/41507/Thesis_Daniel_Borg.pdf?sequence=1

[17] For example, Heilmann, C. et al, Persistente fluorbindelser reducerer immunfunktionen, Ugeskr Læger 177/7, 30.3.2015 OSPAR 2005: Hazardous Substances Series, Perfluorooctane Sulphonate (PFOS), OSPAR Commission, 2005 (2006 Update), MST, 2005b: Environmental project no. 1013, 2005, More Environmentally Friendly Alternatives to PFOS-compounds and PFOA, Danish Environmental Protection Agency, 2005.

[18] Perkola, Noora, Fate of artificial sweeteners and perfluoroalkyl acids in aquatic environment, Doctoral dissertation Department of Environmental Sciences, Faculty of Biological and Environmental Sciences, University of Helsinki, Finland 12.12.2014, https://helda.helsinki.fi/bitstream/handle/10138/136494/fateofar.pdf?sequence=1

impregnating agents for textiles.[19] To be sure that these do not end up in laundry detergents as well, Nordic Ecolabelling has chosen to place PFCs on the list of prohibited substances.

This is a new requirement that was not included in the preceding generation.

Antimicrobial or disinfecting ingredients added for other purposes than preservation

Antimicrobial/disinfecting agents (for other purposes than preservation) are generally unwanted in laundry detergent and other household products as chemical disinfection is not required for household washing purposes. Due to their mode of action, substances with disinfecting or antimicrobial properties generally have a high aquatic toxicity and are often poorly biodegradable due to inhibitory effects on bacteria. Use of antimicrobials and disinfecting agents should also generally be reduced in relation to the possible development of resistant bacteria. Currently, antimicrobial or disinfecting agents do not seem to be used in household laundry detergents in Europe. Claims of antimicrobial effect are not accepted either.

The requirement is the same as in generation 7.

Organic chlorine compounds and hypochlorites

Sodium hypochlorite or organic chlorine compounds are used as disinfecting/antibacterial substances and bleach. Organic chlorine compounds may be or lead to the formation of toxic and bioaccumulative substances that are hard to break down. Chlorine based bleach generally have unwanted health and environmental properties. Reactive chlorine compounds such as hypochlorite are toxic but degrade quickly. Hypochlorite is classified as acutely toxic (H400) and will thus not be covered by the general requirement for environmentally hazardous substances (O11). Sodium hypochlorite can constitute an environmental risk due to the risk of creating organic chlorine compounds. Use of chlorine based bleach is not common in household detergents in Northern Europe but is used e.g. as part of the detergent system in professional laundries. Furthermore, it has been commented by stakeholders that chlorine based bleach is sometimes used in association with low temperature wash in other parts of the world (e.g. in USA) in order to reduce bacterial growth. The exclusion is thus seen as a preventive measure.

Organic chlorine compounds have been added to the list compared with generation 7 of the criteria.

Optical brighteners

Optical brighteners are added to laundry detergents in order to give white/bright textiles a white look and to reduce ”greying” after several washes. Optical brighteners absorb light in a certain wavelength spectrum and re-emit light in the blue region, making the textile look white. Optical brighteners are not readily biodegradable. They are however photodegradeable in the presence of light

[19] Swedish Chemicals Agency, 2015 https://www.kemi.se/en/global/rapporter/2015/report-7-15-occurrence-and-use-of-highly-fluorinated-substances-and-alternatives.pdf (visited 22.03.2016

(HERA-project 2003 & 2004), which has been showed by different studies. Optical brighteners absorb to the sludge in the water treatment plants, which is not wanted, since there is a wish to keep the sludge as free from chemicals as possible.

The use of optical brighteners is not a great "consumer demand" in Scandinavia. The customers will only notice a difference if textiles washed with and without optical brighteners if they are compared against each other. In the Nordic Countries where optical brighteners are already phased out in Nordic Ecolabelled products, it is not seen as a necessity to reintroduce optical brighteners in the ecolabel criteria – although the general criterion on aerobic/anaerobic degradability addresses substances with poor degradability.

The requirement is the same as in generation 7.

Microplastics

An EU Ecolabel definition for microplastics is used in the criteria as the definition used in ECHAs restriction proposal for intentionally added microplastics is currently under development.[20] The Nordic Ecolabelling will continue to follow the work done in EU on microplastics and the microplastic definition and reserve the right to update the definition in the criteria when a new definition is adopted in EU. As this might mean a tightening of the criteria generation, an appropriate transition period will be granted.

According to DG Environment report[21] 190-200 tonnes/year of microplastics are thought to be used in soaps, detergents and maintenance products. Plastics used are for example polyester, polyurethane, and PMMA. Microplastics can according to the report be used as e.g. rheology modifiers and enzyme encapsulation (30-5000µm). Anti-redeposition agents are often polymers and can therefore be microplastics.

When microplastics are rinsed down the drain, they often end up in the sludge, but they also pass through the treatment plants.[22] They can have adverse effects on health and the environment due to their size, resistance to degradation and surface properties, either by physically affecting organisms or because they carry harmful chemicals. Microplastics can accumulate in living organisms, for example shellfish and fish, and be ingested by humans through food or water. [23] There is however a lack of knowledge of fate and effects of microplastics. Since they are non-degradable and potentially harmful precautionary principle is used and microplastics are excluded even though microplastics from laundry

[20] Annex XV restriction proposal for Intentionally added microplastics, Version number: 1, 11 January 2019, https://echa.europa.eu/documents/10162/82cc5875-93ae-d7a9-5747-44c698dc19b6
[21] European Commission (DG Environment), Intentionally added microplastics in products Final report, http://ec.europa.eu/environment/chemicals/reach/pdf/39168%20Intentionally%20added%20microplastics%20-%20Final%20report%2020171020.pdf, October 2017
[22] Miljøstyrelsen, Environmental Project No. 1906 Microplastic in Danish wastewater Sources, occurrences and fate, 2017, http://www2.mst.dk/Udgiv/publications/2017/03/978-87-93529-44-1.pdf
[23] Annex XV restriction proposal for Intentionally added microplastics, Version number: 1, 11 January 2019, https://echa.europa.eu/documents/10162/82cc5875-93ae-d7a9-5747-44c698dc19b6

detergents are a small part of the microplastics problem. Laundry detergents are also covered by ECHAs proposal for restriction[24].

Note that foils/films wrapping tablets and other such products releasing microplastics are not allowed in Nordic Swan Ecolabelled products.

This is a new requirement that was not included in the preceding generation.

Nanomaterials/-particles

A great cause for concern is the use of nanoparticles, which can be released and thereby affect health and the environment. There is concern among public authorities, environmental organisations and others about the lack of knowledge regarding the potential detrimental effects on health and the environment. There does not seem to be laundry detergents on the Nordic Market with nanoparticles as of today. Internet searches show that there are products with nanosilver as an anti-bacterial agent. It is therefore not impossible that nanosilver is going to be used on the Nordic Market. The Nordic Ecolabel therefore uses the precautionary principle to forbid nanomaterials/-particles in the products. The European Commission recommendation for a definition of nanomaterials of 18 October 2011 is used.

This is a new requirement.

Candidate List and SVHC, Substances of Very High Concern

SVHC, Substances of Very High Concern, is a term to describe the substances which fulfil the criteria in article 57 of the REACH Regulation, which states: substances which are CMR (categories 1A and 1B in accordance with the CLP Regulation), PBT substances, vPvB substances (see the section below) and substances which are endocrine disruptors or environmentally hazardous without fulfilling the requirements for PBT or vPvB. SVHC can be included on the Candidate List for later admission to REACH Annex XIV or XVII . On the basis of these adverse characteristics, Nordic Ecolabelling prohibits substances on the Candidate List. There is some overlap between the SVHC substances and other substances listed in this requirement or other requirements. E.g. SVHC substances are also addressed via the requirements on classification of the product (O2) and ingoing substances (O5); prohibition of PBT and vPvB substances (O6); and prohibition of endocrine disruptors (O6).

Siloxanes D4, D5 and D6 are excluded through this requirement.

The requirement concerning SVHC substances is the same as in generation 7 of the criteria.

Endocrine disruptors

Endocrine disruptors (ED:s) are substances which can affect the endocrine system of living organisms and their offspring. Hormones control a number of vital processes including reproduction, development and growth and changes in the hormone balance can have adverse effects, which may appear later in life.

[24] Annex XV restriction proposal for Intentionally added microplastics, Version number: 1, 11 January 2019, https://echa.europa.eu/documents/10162/82cc5875-93ae-d7a9-5747-44c698dc19b6

Discharges to the aquatic environment are one of the biggest sources of the spreading of endocrine disruptors.[25]

Nordic Ecolabelling prohibits the use of substances that are considered to be potential endocrine disruptors, category 1 (clear evidence for endocrine disruption from ≥1 in-vivo study) or category 2 (in-vitro data indicating potential for effects in-vivo, or in-vivo data on effects that may be ED-mediated), in line with the EU's original report on "Endocrine disruptors"[26] and later studies.[27]

The European Commission has established criteria for endocrine disrupting properties in relation to the biocidal[28] and plant protection[29] products regulations (BPR and PPPR). Nordic Ecolabelling prohibits ingoing substances that have been identified as EDs according to the BPR and/or PPPR.

To further ensure that all relevant substances are included, two more lists (Substances that have been identified by the Danish Centre on Endocrine Disrupters (CeHoS) as fulfilling or likely fulfilling the WHO definition of an endocrine disruptor, http://www.cend.dk/files/DK_ED-list-final_2018.pdf (table 8 and 13), or later publications and subtances that have been identified as endocrine disruptors by ECHA's ED Expert Group: https://echa.europa.eu/fi/ed-assessment) are included in the requirements.

If a decision by e.g. ED Expert group is taken that some of the substances on the lists are not endocrine disruptors, they can be exempted.

Note that substances included in the candidate list for endocrine disruptive properties are excluded through previous bullet point.

The reference to the other lists than the first is new in criteria generation 8.

PBT and vPvB

PBT (persistent, bioaccumulative and toxic) and vPvB (very persistent and very bioaccumulative) are organic substances as defined in Annex XIII of REACH (Directive 1907/2006/EC).[30] Nordic Ecolabelling does not generally wish to have these substances.

[25] Miljøstatus i Norge (2008): Endocrine disrupters: http://www.miljostatus.no/Tema/Kjemikalier/Noenfarlige-kjemikalier/Hormonforstyrrende-stoffer/#D (dated February 26 2009)
[26] DG Environment (2002): Towards the establishment of a priority list of substances for further evaluation of their role in endocrine disruption. FINAL REPORT. European Commission DG ENV / BKH Consulting Engineers with TNO Nutrition and Food Research. 21 June 2000
[27] DG Environment. (2002): Endocrine disrupters: Study on gathering information on 435 substances with insufficient data. http://ec.europa.eu/environment/endocrine/documents/bkh_report.pdf#page=1, European Commission / DG ENV / WRc-NSF. (2002): Study on the scientific evaluation of 12 substances in the context of endocrine disrupter priority list of actions, http://ec.europa.eu/environment/chemicals/endocrine/pdf/wrc_report.pdf#page=29 DHI water and environment. (2007): Study on enhancing the Endocrine Disrupter priority list with a focus on low production volume chemicals. DG Environment. http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf
[28] Commission Delegated Regulation (EU) 2017/2100
[29] Commission Regulation (EU) 2018/605
[30] REGULATION (EC) No. 1907/2006 of the EUROPEAN PARLIAMENT AND THE COUNCIL of 18 December 2006 concerning the registration, authorisation and restriction of chemicals (Reach) http://eur-lex.europa.eu/legal-content/sv/TXT/PDF/?uri=CELEX:02006R1907-20160203

Most PBT/vPvB are excluded automatically from laundry detergents and stain removers due to the restrictions on environmentally hazardous substances (see O11). Since some of them, primarily vPvB, may possibly not be excluded in accordance with O11, they are prohibited by Nordic Ecolabelling.

Under the requirement, substances that have not yet been investigated but that meet the criteria for PBT and vPvB are also prohibited. The ban thus also applies to PBT and vPvB substances on the SIN list that are not yet on the SVHC list.

The requirement concerning PBT and vPvB substances is the same as in generation 7 of the criteria.

O7 Surfactants

- All surfactants must be readily biodegradable according to test method No 301 A–F or No 310 in OECD guidelines for testing of chemicals or other equivalent test methods evaluated by an independent body and controlled by Nordic Ecolabelling.
- All surfactants must be anaerobically biodegradable in accordance with ISO 11734, ECETOC No 28, OECD 311 or equivalent testing methods evaluated by an independent body and controlled by Nordic Ecolabelling, where a minimum of 60% degradability under anaerobic conditions is achieved

✉ Reference to the DID list dated 2016 or later versions.

If the DID list lacks the relevant data for surfactants, data may be taken from the safety data sheet on condition that the data is reliable and that the test methods are in agreement with Appendix 1. Section B of the DID list shows how to make the calculations of the various factors. It is also permitted to refer to read across conducted by independent third party. Nordic Ecolabelling will evaluate the quality of read across and decide whether it can be accepted.

Background to requirement O7 Surfactants

Surfactants are the main ingoing substances in laundry detergents. For this reason and since many surfactants are toxic to aquatic organisms it is important that surfactants are degradable both under oxygen-rich (aerobic) and oxygen-poor (anaerobic) conditions. The requirement is the same as in generation 7 and both parts are retained even though the detergent regulation requires surfactants to be aerobically degradable.

In the latest version of the EU Ecolabel's criteria for laundry detergents and stain removers (adopted on 23 June 2017), only surfactants classed as H400 or H412 must be anaerobically biodegradable. Instead there is a limit for the total quantity of non-anaerobically biodegradable surfactants. Nordic Ecolabelling has not identified sufficient environmental gains to justify removing the requirement concerning anaerobically biodegradable surfactants.

Linear alkylbenzene sulphonate (LAS) is toxic to aquatic organisms and not anaerobically biodegradable in DID-list and can therefore not be used in Nordic Swan Ecolabelled products.

Alkylphenol ethoxylates (APEO) and/or alkylphenol derivatives (APD) are a group of non-readily biodegradable surfactants that are proven endocrine disruptors. Legislation has prompted these substances to be phased out in most

products, and this requirement excludes them as well but they are still explicitly prohibited in O6.

The requirement is the same as in generation 7.

O8 Phosphorous

This requirement includes the total amounts of all ingoing substances containing phosphorous, calculated as P.

The total content of phosphorous (P) is limited according to the table O8.

Tabell O8 Limit values for phosphorous

Type of product	Content of phosphorus (P)
Heavy-duty laundry detergent (normally soiled)	0.030g/kg wash
Light-duty laundry detergent (lightly soiled)	0.030g/kg wash
Stain-removers (in-wash)	0.010g/kg wash
Stain-removers (pre-treatment)	0.0050g/kg wash

Note that the prevailing European legislation ("limitations on the content of phosphates and of other phosphorus compounds", Detergent Regulation, as amended by regulation (EU) 259/2012, Annex VIa) also applies.

✉ Documentation of the content of phosphorous in the product (safety data sheets for raw materials and product and Appendix 2 and 3).

✉ Calculation showing that the requirement is fulfilled. Nordic Ecolabelling's calculation sheet can be used and can be obtained from http://www.nordic-ecolabel.org/product-groups/group/?productGroupCode=006 or Nordic Ecolabelling's national websites.

Background to requirement O8 Phosphorous

Phosphorous is a source of eutrophication of water bodies. In 2010, the European Commission carried out an impact assessment regarding the use of phosphates and other phosphorus compounds in household laundry detergents[31]. The four main sources of phosphates in the environment were identified as: fertilisers, metabolic waste from humans and livestock and detergents. Overall, phosphorous from STPP based detergents represented less than 10% of the phosphorous used in fertilisers. Nevertheless, the assessment concluded that restriction of phosphates in laundry detergents would be an effective and proportionate measure to reduce the eutrophication risk throughout the EU. The restriction was introduced in the Detergent regulation from 30 June 2013[32].

The phosphorus limits in generation 7 of laundry detergents were based on 0.2 wt% phosphorus per wash load and transformed to g/kg wash based on the highest accepted dosage. The limit is stricter than the current limit in the Detergent regulation (which is 0.5 wt% per wash load). Hence, Nordic

[31] SEC(2010) 1277 final. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52010SC1277&from=EN (accessed 2019-02-11).
[32] Regulation (EU) No 259/2012 of the European Parliament and of the Council.

Ecolabelling finds it reasonable to uphold the phosphorus limit from generation 7 in these revised criteria.

O9 Fragrances

The requirement also includes fragrances in plant extracts.

a) Fragrances must be added in line with IFRA's guidelines. The guidelines of IFRA (International Fragrance Association) can be found at www.ifraorg.org/

b) A fragrance substance which is judged to be sensitising with the hazard statement H317 and/or H334, or which is subject to declaration according to EC No 648/2004 and subsequent amendments, may be present at a maximum of 0.0100% (100 ppm) in the product.

c) The fragrance substances in Table O9 may be present in products at a maximum of 0.0100% (100 ppm) per substance:

Table O9 Other fragrance substances that may be present to a maximum of 100 ppm

INCI name (or, of none exists, perfuming name according to CosIng)	CAS number
Cananga Odorata and Ylang-ylang oil	83863-30-3; 8006-81-3
Eugenia Caryophyllus Leaf / Flower oil	8000-34-8
Jasminum Grandiflorum / Officinale	84776-64-7; 90045-94-6; 8022-96-6
Myroxylon Pereirae	8007-00-9;
Santalum Album	84787-70-2; 8006-87-9
Turpentine oil	8006-64-2; 9005-90-7; 8052-14-0
Verbena absolute	8024-12-02
Cinnamomum cassia leaf oil/Cinnamomum zeylanicum, ext.	8007-80-5/84649-98-9

d) HICC (CAS 31906-04-4), chloroatranol (CAS 57074-21-2), atranol (CAS 526-37-4), Lilial (CAS 80-54-6) and Benzyl salicylate (CAS 118-58-1) are not permitted in the product.

✉ Appendix 2 and 3 or equivalent certification completed and signed.

✉ Fragrance specifications.

✉ Calculation of the amount of the 26 allergens, substances classified as H334 and/or H317 and substances listed in table O9 present in the end product.

Background to requirement O9 Fragrances

Limitation on sensitizing fragrance substances is imposed to minimise the risk of allergy. Most fragrances do contain sensitizing substances, but a total ban is not considered to be in proportion with the possible impact of low amounts of fragrances on the environment. A complete ban of sensitizing fragrance ingredients is expected to markedly compromise the market penetration of ecolabelled laundry detergents and thus decrease the overall environmental

benefit of the ecolabelled products. Consumers can choose between fragranced and fragrance-free products because fragrance must always be declared on the packaging.

a) Conformity with the Code of Practice of the International Fragrance Association ensures that manufacture, handling and use of the fragrance fulfils certain standards regarding prohibited substances, restricted use and purity. The IFRA Code of Practice supports commitment to provide products that are safe for use by the consumer and to the environment. The Code of Practice applies to the manufacture and handling of all fragrance materials, for all types of applications and contains the full set of IFRA Standards (IFRA).

b) The restriction on sensitising fragrance substances is included in order to reduce the risk of allergies when using ecolabelled products.

c) The first seven substances in table O9 are the ones that are identified with the greatest risk of sensitisation in the SCCS report 1459/11[33]. The last one has been identified by the Danish EPA[34].

d) SCCS 1459/11 recommends that Hydroxyisohexyl 3-cyclohexene carboxaldehyde, Chloroatranol and Atranol are not included in cosmetic products. We therefore consider it relevant to prohibit them in laundry detergents as well. Lilial (CAS 80-54-6) that has been self-classified as Repr2 H361 is added the list in order to be clear that it is excluded even though it is also excluded by O5 classification of ingoing substances. Benzyl salicylate (CAS 118-58-1) is suspected to be a potential endocrine disruptor[35] and therefore excluded in this criteria generation.

Parts c and d are new requirements in this criteria generation.

6 Dosing, ecotoxicity and biodegradability

The requirements in this chapter are based on the recommended dosage at 5.5°dH, i.e. the reference dosage. This is also the reference dosage used for testing the performance according to the Nordic Ecolabelling criteria.

If the on-pack recommended dosage is stated for specific wash load intervals (e.g. 3–5 kg), the reference dosage used for calculation of the ecological criteria must be calculated based on the average load size (for example 4 kg).

For in-wash stain removers the dosage recommended by the producer is used. For stain removers that are used as pre-treatment the dosage is estimated to a dosage of 2 ml per application and 6 applications per wash in a 4.5 kg machine.

33 http://ec.europa.eu/health/scientific_committees/consumer_safety/docs/sccs_o_073.pdf (accessed 2019-01-14)
34 Miljøstyrelsen 2016, Environmental project No. 1840, Evaluation of selected sensitizing fragrance substances A LOUS follow-up project http://www2.mst.dk/Udgiv/publications/2016/03/978-87-93435-46-9.pdf (accessed 2019-01-14).
35 Call for data on ingredients with potential endocrine-disrupting properties used in cosmetic products, Published on 16/05/2019, https://ec.europa.eu/growth/content/call-data-ingredients-potential-endocrine-disrupting-properties-used-cosmetic-products_en (accessed 2019-07-04)

If the product is dosed as a unit containing a water-soluble foil intended not to be removed before washing, the foil must be part of the product formulation in the requirements dealing with CDV, environmental hazards and aNBO and anNBO. (O10-O13).

O10 Maximum dosage

The dosage shall not exceed the limit values in table O10.

The reference dosage is calculated as the recommended dosage in g/kg wash for normally soiled textiles (heavy-duty detergents) and lightly soiled textiles (Light-duty detergents), respectively.

Table O10 Limit values for dosage

Product type	Water hardness	Dosage:
Heavy-duty laundry detergent (normally soiled)	5.5°dH	11.0 g/kg wash
Light-duty laundry detergent (lightly soiled)	5.5°dH	11.0 g/kg wash
Stain-removers (in-wash)	All	4.5 g/kg wash*
Stain-removers (pre-treatment)	All	2.7 ml/kg wash**

**The max dosage of 4.5 g/kg wash applies for all water hardnesses and regardless of degree of soiling.*

*** Estimated average dose to be used in ecotoxicity and biodegradability calculations. Actual dosing will depend on the number of stains in any given wash-load. The estimated dose is based on a dosage of 2 ml per stain and 6 applications per wash-load of 4.5 kg (liquid stain removers).*

Dosage for middle hard and hard water*

The recommended dosage for medium hard water must not exceed 130% of the recommended dosage for soft water. The recommended dosage for hard water must not exceed 160% of the recommended dosage for soft water.

For tablets/pods/capsules:

- if the recommended dosage (at 5.5°dH) is one unit, two units can be recommended for increased water hardness (medium and hard water)
- if the recommended dosage (at 5.5°dH) is two units, three units can be recommended for increased water hardness (medium and hard water)

In either case, the amount of detergent from the recommended number of tablets/pods/capsules at increased water hardness, must not exceed 130% and 160%, respectively, of the limit values in table O10.

** Water hardness can be divided into soft: 0-8°dH, medium: 8-14°dH and hard: >14 °dH. Other intervals (°dH) can be chosen if that is more appropriate for the area were the product is sold.*

Dosage for lightly or heavily soiled textiles (heavy-duty detergents)

If a specific dosage is recommended for lightly soiled textiles, this dosage must not exceed 70% of the recommended dosage for normally soiled textiles. If a

specific dosage is recommended for heavily soiled textiles, this dosage must not exceed 130% of the recommended dosage for normally soiled textiles.

For tablets/pods/capsules:

- if the recommended dosage (at 5.5°dH) is one unit, two units can be recommended for heavily soiled textiles
- if the recommended dosage (at 5.5° dH) is two units, one unit can be recommended for lightly soiled textiles and three units can be recommended heavily soiled textiles

In either case, the amount of detergent from the recommended number of tablets/pods/capsules for heavily soiled textiles, must not exceed 130% of the limit values in table O10.

Prewash and subsequent wash

If recommendations for both prewash and subsequent wash apply, the total recommended dosage (prewash + subsequent wash) has to comply with the maximum dosage level.

Autodosed systems

If the detergent is dedicated for auto dosing machines only, the reference dosage that is used for calculation of ecotoxicity, biodegradability and for performance testing should be in compliance with the limit values in table O10.

✉ Product label or artwork including dosage recommendations.

Background to requirement O10 Maximum dosage

Based on the data we have from the previous revision and from the market today it is obvious that concentration of the products and lowered dosage is an ongoing trend that affect e.g. the amount of packaging and transports needed.

The requirement of a maximum dosage for Laundry Detergents is therefore tightened considerably compared to the previous generation of the criteria. The new dosage limits are established with reference to the dosage levels for the available ecolabelled formulations and to the dosage levels in the criteria for EU Ecolabel[36] and The Swedish Good Environmental Choice (Bra Miljöval)[37].

For stain removers the dosage has not been changed. Dosage for liquid pre-treatment stain removers has been calculated from the weight of 2 ml per stain and 6 applications per wash in a 4.5 kg wash load and is the same as for EU Ecolabel[38].

[36] Commission Decision (EU) 2017/1218 of 23 June 2017 establishing the EU Ecolabel criteria for laundry detergents https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017D1218&from=EN (7 Feb 2019)
[37] Swedish Society for Nature Conservation - Good Environmental Choice Chemical products Criteria 2018:1 https://www.naturskyddsforeningen.se/sites/default/files/dokument-media/Criteria_Bra_Miljoval_Chemical_Products_2018-1_20181125_0.pdf (7 Feb 2019)
[38] Commission Decision (EU) 2017/1218 of 23 June 2017 establishing the EU Ecolabel criteria for laundry detergents https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017D1218&from=EN (7 Feb 2019)

It is not possible to make recommendation in parts of tablets/capsules/pods. Therefore, the limit has been given in whole units. In order to respect the limits relating to the values in table O10, the recommended dosage at the increased water hardness is not, in any case, allowed to exceed 130% and 160% of the limit value in table O10. The recommended dosage at increased soiling is not, in any case, allowed to exceed 130% of the limit value in table O10. Please note that an "additive approach" for the number of tablets/pods/capsules for hard water and heavily soiled textiles is not applicable. I.e, even if the water is hard and the textiles are heavily soiled, it is not allowed to recommend more than two tablets/pods/capsules for one wash if the normal dosage is one unit. Likewise, it is not allowed to recommend more than three tablets/pods/capsules for one wash if the normal recommended dosage is two units.

The limit values for dosage are equivalent regardless of whether the dosing is carried out manually or automatically. It is up to the manufacturer to determine an appropriate reference dosage. This could, for instance, be estimated from measuring the actual amount of detergent used when washing a standard load of normally soiled clothes. If the detergent consists of multiple detergent components (dosed from separate containers), the limit values apply to the sum of the detergent components. In this case, all requirements in this document (including Weight-Utility Ratio) should be fulfilled for all components combined.

Water hardness can be divided into soft: 0-8°dH, medium: 8-14°dH and hard: >14 °dH. Other intervals (°dH) can be chosen if that is more appropriate for the area were the product is sold.

O11 Long-term environmental effects

The use of ingoing substances which are classified with any of the hazard statements H410, H411 or H412 is limited as follows:

$100*C_{H410} + 10*C_{H411} + C_{H412} \leq 0{,}18$ grams/kg wash, where

C_{H410} = concentration of substances with H410 in grams/kg wash

C_{H411} = concentration of substances with H411 in grams/kg wash

C_{H412} = concentration of substances with H412 in grams/kg wash

Exemptions (Note that all products need to fulfil requirement O2 regarding classification of the product):

- Surfactants classified with H412 are exempted from the requirement, provided that they are readily degradable* and anaerobically degradable**.
- Subtilisin classified with Aquatic Chronic 2 (H411) is exempted from the requirement.

* *In accordance to the DID-list version 2016 or later or test method No 301 A-F or No 310 in OECD guidelines for testing of chemicals or other equivalent test methods.*

** *In accordance to the DID-list version 2016 or later or ISO 11734, ECETOC No 28 (June 1988), OECD 311 or other equivalent test methods, where a minimum of 60% degradability under anaerobic conditions is achieved.*

If information about the substance being hazardous to the environment (in the form of data concerning toxicity and biodegradability, or toxicity and bioaccumulability) is not available, the substance is treated as a "worst case",

i.e. as environmentally hazardous, H410. If data on biodegradability or bioaccumulability is required to decide on the classification and such data is missing, the substance is treated as a "worst case", i.e. as bioaccumulable or not biodegradable.

☒ Calculation according to the formula above showing that the requirement is fulfilled. Nordic Ecolabelling's calculation sheet can be used and can be obtained from http://www.nordic-ecolabel.org/product-groups/group/?productGroupCode=006 or Nordic Ecolabelling's national websites.

☒ Appendices 2 and 3 signed and completed, or alternatively equivalent signed information.

☒ A report on surfactants that are to be exempted from the requirement (quantity, classification, biodegradability).

Background to requirement O11 Long-term environmental effects

A Nordic Swan Ecolabelled laundry detergent or stain remover must never be classified as environmentally hazardous, see requirement O2 Classification of the product. To further minimize potential problem for the aquatic environment, a limit to maximum content of environmentally hazardous substances in a product has been set.

Nordic Ecolabelling has decided not to include M-factors, multiplication factors[39], in the requirement, as most substances in laundry detergents or stain removers have M-factor 1.

Thus, the requirement has not been changed compared to previous criteria generation.

Self-classification is considered in addition to harmonized classification. If information of toxicity and biodegradability, or toxicity and bioaccumulability is not available, the substance is treated as a worst case, i.e. as environmentally hazardous, H410 with M-factor=1.

Exemptions

As part of the 2nd ATP to CLP, the basis for environmental risk classification was amended.[40] This mostly affects surfactants, which often have low toxicity values, but are biodegradable and in the CLP system based solely for the substance's chronic toxicity are often classified as toxic or harmful to aquatic life with long-lasting effects.

Nordic Ecolabelling continues exempting aerobically and anaerobically biodegradable surfactants with the H412 classification from the requirement. Other requirements (classification of the product, CDV) restrict the use of these

[39] An M-factor is applied to the concentration of a substance classified as hazardous to the aquatic environment in the categories of acute 1 and chronic 1, on classification in accordance with CLP, http://echa.europa.eu/documents/10162/13643/pg_7_clp_notif_sv.pdf (visited 03.05.2016)
[40] https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:083:0001:0053:en:PDF (visited 15.02.2019)

surfactants to some extent. In future revisions products are reviewed in order to assess the need for this exemption.

Protease (Subtilisin, EINECS 232-752-2, CAS 9014-01-1) degrades efficiently protein-based stains and cannot be replaced by other enzymes. Protease is classified as Aquatic Chronic 2 (H411), even though it is readily biodegradable. Protease is exempted from the requirement in order to achieve well performing laundry detergents.

O12 Critical dilution volume (CDV)

The product's critical dilution volume (CDV) shall not exceed the limit values for $CDV_{chronic}$ in table O12.

Table O12 CDV limit values

Product type	Water hardness	$CDV_{chronic}$
Heavy-duty laundry detergent (normally soiled)	5.5°dH	31,500 l/kg wash
Light-duty laundry detergent (lightly soiled)	5.5°dH	15,000 l/kg wash
Stain-removers (in-wash)	Not applicable	7,500 l/kg wash
Stain-removers (pre-treatment)	Not applicable	3,500 l/kg wash

CDV is calculated using the following formula for all substances in the product:

$CDV_{chronic} = \sum CDV_i = \sum (dose_i \times DF_i \times 1000 / TF_i \text{ chronic})$

$dose_i$ = the constituent volume of each individual substance "i", in g/kg wash

DF_i = degradation factor for substance "i", in accordance with the DID list

TF_i chronic = chronic toxicity factor for substance "i", in accordance with the DID list.

If TF_i chronic is lacking, TF_i acute can be used.

✉ Calculation of CDVchronic for the laundry detergent or stain remover.

Nordic Ecolabelling's calculation sheet can be used and can be obtained from http://www.nordic-ecolabel.org/product-groups/group/?productGroupCode=006 or Nordic Ecolabelling's national websites

Reference to the DID list, version 2016 or later. If substances are not on the DID list, or data on the DID list is lacking, the parameters must be calculated based on the guidance in part B of the DID list, and the related documentation must be submitted.

Background to requirement O12 Critical Dilution Volume (CDV)

CDV is a theoretical value that takes account of each substance's toxicity and biodegradability in the environment. The method was developed together with the EU Ecolabel. A maximum limit for CDV ensures that the Nordic Swan Ecolabelled products have a limited impact on the recipient watercourse.

The critical dilution volume (CDV) is calculated for all ingoing substances included in the laundry detergent or stain remover, see definition of ingoing substances at the start of the criteria document.

The CDV limit value for heavy duty laundry detergents has been tightened based on data which Nordic Ecolabelling has for products that hold ecolabelling licenses. The new EU Ecolabel limit values from the 2017 criteria[41] were also taken into account when setting the limits.

It is only referred to DID-list from 2016 or later in this criteria generation. In this generation CDV is calculated only with chronic values. The use of chronic data is generally preferable, since long-term toxicity data is considered of higher quality and gives more precise/reliable estimates of potential environmental effects compared with acute toxicity data. The requirement specifies that if TFchronic is lacking, TFacute may be used. The applied safety factors are much larger for acute toxicity values than for chronic values.

O13 Biodegradability - aerobic and anaerobic (aNBO and anNBO)

The product's total content of substances that are not aerobically biodegradable (aNBO) and/or not anaerobically biodegradable (anNBO) shall not exceed the limits stated in Table O13.

Note that all surfactants must be aerobically and anaerobically biodegradable in accordance with O7. See also the exemption from the requirement of anaerobic biodegradability for substances which are not surfactants (Appendix 1, item 6, Anaerobic biodegradability).

Table O13: Limit values for aNBO and anNBO

Product type	Water hardness	aNBO	anNBO
Heavy-duty laundry detergent (normally soiled)	5.5°dH	0.50 g/kg wash	1.00 g/kg wash
Light-duty laundry detergent (lightly soiled)	5.5°dH	0.30 g/kg wash	0.30 g/kg wash
Stain-removers (in-wash)	Not applicable	0.10 g/kg wash	0.10 g/kg wash
Stain-removers (pre-treatment)	Not applicable	0.10 g/kg wash	0.10 g/kg wash

☒ Calculation of the concentration of aNBO and anNBO for the laundry detergent or stain remover. Nordic Ecolabelling's calculation sheet can be used and can be obtained from http://www.nordic-ecolabel.org/product-groups/group/?productGroupCode=006 or Nordic Ecolabelling's national websites

☒ Reference to the DID list, 2016 or later versions. If substances are not on the DID list, or data on the DID list is lacking, the related documentation must be submitted.

Background to requirement O13 Biodegradability - aerobic and anaerobic (aNBO and anNBO)

A general requirement on the permitted amount of non-readily (aerobically) degradable and non-anaerobically degradable substances reduces the use of non-biodegradable substances in cleaning products to a minimal level. It reduces the

[41] Commission Decision (EU) 2017/1218 of 23 June 2017 establishing the EU Ecolabel criteria for laundry detergents https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017D1218&from=EN (7 Feb 2019)

potential accumulation of non-readily degradable substances in waste sludge and in other relevant pockets in the environment.

Substances that are commonly used in laundry detergents and stain removers and that are not readily degradable (aNBO) include: fragrances, phosphonates, and colorants.

The limit values have been tightened for some categories based on data which Nordic Ecolabelling has for products that hold ecolabelling licenses. The new EU Ecolabel limit values from the 2017 criteria[42] were also taken into account when setting the limits.

7 Consumer guidance

O14 Dosage instructions

a) Water hardness for the recommended dosage must be stated (in German degrees °dH). Indications of the most prevalent water hardness in each Nordic country where the product is on sale, or where this information can be found, shall be provided.

b) For liquid products contained in a conventional bottle it must be possible to use the closure as a dosing device. (This does not apply for products that are intended for auto dosing machines only.) A scale on the closure as well as a picture on the label is required.

c) For products that does not have a cap of sufficient volume to be used as a dosing device (eg a squeeze bottle or a carton for liquids) an alternative method, eg. dosing scale on the bottle/carton is accepted. The bottle/carton should be designed so that the detergent can be dosed conveniently and accurately.

d) For product formats where neither a cap nor a dosing scale is feasible (eg. liquid product in flexible pouch or powder detergent in box), the label shall contain advice on how correct dosage can be readily achieved. Eg. “Use a table spoon or a kitchen measuring cup in order to dose the correct amount of powder. A normal table spoon equals 15 ml (15 grams) of product”. If separate dosage equipment is made available in order to ensure correct dosing (eg measuring scope, measuring ball), the equipment shall fulfil all relevant packaging requirements (see chapter 9 Packaging).

✉ Product label or artwork including dosage instructions, dosing scale and a picture of the closure where dosing scale is visible.

Background to requirement O14 Dosage instructions

Overdosing of laundry detergents increases its environmental burden in each life cycle stage of the product. Overdosing has previously been identified as a common phenomenon[43] In a more recent study of consumer laundry practices in

[42] Commission Decision (EU) 2017/1218 of 23 June 2017 establishing the EU Ecolabel criteria for laundry detergents https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017D1218&from=EN (7 Feb 2019)
[43] Brückner, A., Kruschwitz, A., Stamminger, R. Consumer washing behaviour: results of a survey involving 100 households. 54. Universität Bonn. Sepawa Kongress mit European Detergents Concerence, 10-12. October 2007.

Germany, it is pointed out that consumer practice that may lead to under- or overdosing prevails.[44] Likewise, according to the A.I.S.E Pan-European Consumer Habits Survey 2017[45], even though most EU consumers find it easy to dose laundry detergents, a significant number of the consumers add either more or less detergent than recommended.

In order to further facilitate correct dosing a new requirement that the closure in liquid products contained in conventional bottle must function as a dosing device has been added. A scale either directly in the closure or as a picture in the label is required. New requirements to facilitate correct dosing has been added for other packaging formats as well.

O15 Washing guidance on packaging

The following three washing advices (or equivalent) shall appear on the packaging of laundry detergents (not applicable for stain removers). The washing advices may be present either as text or symbols.

- Preferably wash with full load.
- Dose correctly according to the degree of soiling and water hardness. Overdosing does not make the laundry any cleaner and is harmful to the environment.
- Reduce the temperature of your normal wash programmes to reduce energy consumption.

✉ Product label or artwork including washing guidance.

Background to requirement O15 Washing guidance on packaging

The three washing advices address optimised use of the products in order to achieve lowest possible environmental impact of the washing process. These are general advices for normal circumstances, as it appears from the wording "preferably" and "normal". Special conditions such as infectious diseases, as well as regular maintenance of the machine, may require e.g. increased wash temperatures.

These three advice are the same as in generation 7, but three other advice have been removed from the list since new advice/guidance on recycling the packagin and dosing laundry detergent have been added. See O14 and O16.

O16 Recycling guidance on packaging

It must be stated on the packaging how it should be sorted for recycling by the consumer. I.e. is most commonly as plastics or as cardboard. Text or symbols can be used.

✉ Product label or artwork including recycling information

Background to requirement O16 Recycling guidance on packaging

The waste stage is influenced by many factors, such as sorting opportunities in each country or municipality, and how the consumer ultimately sorts waste.

Elforsk: PSO-projekt 337-009 sited in PSO-projekt 337-021. Low temperature/cold-washing detergents (2006). https://elforsk.dk/sites/elforsk.dk/files/media/dokumenter/elforsk/Rapport_337-021_temp_vaskemiddel.pdf (last checked 2018-12-07)

[44] Kruschwitz, A., Karle, A., Schmitz, A., Stamminger, R. Consumer laundry practices in Germany. Int J Consum Stud. 38(3), 265-277 (2014)

[45] Séjourné, V., H&PC Today ,13(5), 54-59 (2018)

Nordic Ecolabelling can, however, generally work for the recycling of packaging and set requirements intended to support this process.

To stimulate greater collection of packaging for recycling a new requirement is added that requires guidance on packaging on how it should be sorted/recycled. To make it simple it should be stated on the packaging if it should be recycled as plastics or as cardboard.

This is a new requirement.

O17 Claims on the packaging

- Products marketed as cold water products* should pass the performance test in O18 at the lowest indicated temperature where the effect of the product is stated - but maximum at 20 °C. Reference is still washed at 40 °C.

  **i.e. "cold water product" or similair text or symbol (for example washtub with 20 °C), indicating a normal user temperature at < 30 °C.*

- A stain remover must always pass the performance requirements (O18) for any specific stain type for which the product claims to be effective. Documentation for other performance related claims shall be made available to the Nordic Ecolabelling on request.
- If claims are made regarding the content of certified raw materials (e.g. organically grown or sustainably produced ingredients,), it must be made clear what part of the product is certified (e.g. "contains x% organic ingredients"). The certification body, system or standard must be indicated.

✉ Product claims on washing temperatures or stain removal must be documented through appropriate test reports.

✉ If claims of certified ingredients are made on the package, the certificates for these ingredients must be provided.

Background to requirement O17 Claims on the packaging

Claims made on the packaging must be based on test/other relevant data.

When the "normal way of using the product" is at a low temperature, below 30°C, it needs to be tested at the claimed temperature in accordance to the test protocol in appendices 6a-c (as in O18). A test performed at a temperature below 30°C still requires the reference product to be tested at 40°C as described in the appendices. Pictograms for example washtubs with 20ºC and similar are included here.

If a stain remover is claimed to have effect on certain stains, the stain remover needs to fulfill the requirements for performance for each of the claimed stains in accordance with O18.

It is important that if organic or sustainability certified raw materials are claimed, there is certificates to back the claims.

The requirement is the same as in generation 7.

8 Performance

O18 Fitness for use

The fitness for use shall be documented by use of the Nordic Ecolabelling Performance Test for laundry detergents and stain removers (Appendix 5). The performance of coloursafe detergent at the recommended dosage on normally soiled clothing must be satisfactory at 30 °C compared to the reference detergent tested at 40 °C.

The performance for detergents for white wash and for stain removers must by the recommended dosage on normally soiled clothing be satisfactory at 40 °C compared to the reference detergent tested at 40 °C.

For detergents for delicates the performance must be satisfactory at the recommended dosage to lightly soiled clothing at 30 °C compared to water, which also is tested at 30 °C.

Please note that all the products must always pass the performance test at the lowest temperature stated on the packaging or in another marketing material. If lower washing temperature than the normal temperature for the product type is stated (for example 30 °C stated on white wash), the washing efficiency must be determined at this temperature. For cold water products (see the definition R18), the temperature should maximum be 20 °C. The reference is still to be washed at 40 °C for all product types except for detergents for delicates, where the reference is to be washed at 30 °C.

The performance test is performed with

- The reference dosage multiplied with 3.5 for washes in 3–5 kg washing machines or
- The reference dosage multiplied by 4.5 for washes in 4–5 kg washing machines.

The reference dosage = the recommended dosage to 1 kg laundry (see section 4 Dosing, ecotoxicity and biodegradability).

See Appendix 1 (part 1B) concerning the requirements applicable to test institutions.

Heavy-duty laundry detergents

The table below summarizes the limit values for the performance parameters tested for heavy-duty laundry detergents according to the Nordic Ecolabelling Performance Test:

	Heavy-duty, white wash	Heavy-duty, coloured wash
Cleaning effect		
ΔY	≤ 10* *ΔY for one staintype may be < 20	≤ 10* *ΔY for one staintype may be < 20
ΔM	≤10	≤ 10
Average ΔM	< 5	< 5

Secondary effects		
Greying	< 2.8	Not applicable
Encrustation	< 0.6%	< 0.6%
Chemical wear	< 1.0 Rhes	Not applicable

ΔY is defined as follows: ΔY = Yr – Yp; where Yr is the mean reflectance value for the reference detergent and Yp is the mean reflectance value for the test product.

ΔM is defined as follows: ΔM = Mr – Mp; where Mr is the mean reflectance value for the soil type (bleachable, enzymatic (protease and amylase) or general) for the reference detergent and Mp is the mean reflectance value for the soil type for the product.

Low-duty laundry detergents

The ΔY for all soil strips must be less than -5 (more negative). ΔY for one of the tested stain types can be 0,0.

The dimension changes in relation to water must not exceed ± 2%.

ΔY is defined as follows: ΔY = Yw – Yp; where Yw is the mean reflectance value for water and Yp is the mean reflectance value for the product.

Products for washing of silk and products without specific declaration on type of textile must in addition meet the following requirements:

Colour maintenance must be lower (better) than or equal to the average value for water.

Stain removers

Documentation must be submitted on the performance for all stain types for which the product is claimed to have an effect. If no particular stains are emphasized on the product, the product must be tested on a minimum of four different stain strips and the reasons for the choice of stains must be given. The following performance requirement must be met for the stain types tested.

<u>Stain removers with subsequent washing</u>

The normalized wash result for each stain type must be at least 110% in relation to the reference product.

<u>Stain removers without subsequent washing</u>

Stain removers that are used without subsequent washing (stain removers used e.g. for carpets or upholstery furniture) must fulfil one of the following two requirements:

Visual evaluation: the resulting sum of the score must be at least 10 for each textile within each stain type. No result must be lower than a score of 2

Mechanical evaluation: The Y value of the cleaned textile must be at least 80% in relation to the unsoiled textile

✉ A test report from a testing institute (as described in appendix 1, part B) describing all the relevant test parameters as given in the appendix 5 Nordic Ecolabelling Performance Test.

Background to requirement O18 Fitness for use

During the years, we have received some criticism on the performance test:

- Reference detergent IEC-A*: High recommended dosage, contains perborate (CMR classified), and somewhat outdated composition (e.g. on enzymes).
- Stain set: The number of stains is limited, and more consumer relevant stains might be added.

However, ICE-A* is solely a reference detergent, and used to define an appropriate level of performance of the products. IEC-A* is used in numerous test protocols. In the revised criteria we will include reference detergent IEC P in addition to IEC-A*. IEC P is based on IEC-A* but with sodium perborate substituted by sodium percarbonate (IEC P has also been introduced in the EU Ecolabel protocol46). During this criteria revision there is no budget for other changes. However, we welcome any ideas and proposals for cooperation. These will be discussed at a later date.

In view of the criticism we looked into the possibility of accepting the EU Ecolabel protocol along with our test but concluded that this is not feasible. One obstacle is the prescribed water hardness of 14°dH, while in the Nordic Swan criteria the performance testing, the standard dosage and calculations (ecotoxicology, weight-utility ratio) are based on water hardness 5,5 °dH.

The test temperature for colour safe detergents was reduced to 30 °C in generation 7 of the criteria. 40 °C was maintained for stain removers and whitewash. No changes are made to these in generation 8. The average wash temperature has remained unchanged in Europe in recent years[47]. 26% of wash loads are done at 30 °C, whitewash is not among these. Lowering the temperature requirement could push the formulations towards tougher chemistry. That would be counterproductive from an environmental point of view, unless the consumers would change their habits towards 30 °C.

Three minor adjustments have been made:

- It has been clarified that it is not mandatory to test chemical wear for liquid laundry detergents for whitewash without bleach. Chemical wear is principally caused by bleaching agents.
- A paragraph about dosing of detergents dedicated to auto dosing machines has been added to appendix 5A section 4.5.
- A water reference has been added to the test requirements for stain removers without subsequent washing, appendix 5D.

[46] Revised EU Ecolabel protpcol for testing laundry detergents. Version 1.1/26.03.2018. http://ec.europa.eu/environment/ecolabel/documents/fitness_performance_ld_20180326.pdf (Accessed 2019-02-14).
[47] A.I.S.E Pan-European consumer habits survey 2017. https://www.aise.eu/documents/document/20180528165059-aise_consumershabitssurvey2017_summary_final.pdf (Accessed 2019-31-01).

9 Packaging

Packaging, plastic and recycling plastic is a focus area in society today. Nordic Ecolabelling wishes to set strict requirements on packaging to ensure optimal possibilities for recycling.

All requirements below relate to the entire primary packaging e.g. bottles, boxes containers, pouches, cardboard boxes etc. inclusive closures and labels (unless otherwise mentioned).

O19 Recycling and recycled material in packaging

- It must be possible to recycle the main materials in the primary packaging* in today's existing material recirculation systems in the Nordic countries. Incineration with energy recovery is not considered to be material recovery. The main materials are defined as the materials making up 90% or more of the individual components (ref. requirement O22). Exemption: Cardboard packaging for liquid products must contain a minimum of 60% paper/cardboard (ref. requirement O21).
- All hard/rigid plastic packaging must contain a minimum 50% (by weight, calculated on the total mass of the bottle/box/container, closure and label) post-consumer/commercial recycled material (PCR)**.
- Paper/cardboard-based packaging must contain a minimum 90% (by weight) post-consumer recycled material (PCR)**. An exemption is made for corrugated board where minimum 50% (by weight) post consumer/commercial recycled material** is required, and for cardboard packaging for liquid products, which does not need to contain PCR.

  **The packaging includes box/bottle/container/flexible pouches, labels and closures (e.g. caps, lids).*

  *** Post-consumer/commercial recycled material is defined in the requirement according to ISO 14021:2016:*

  "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.

✉ Documentation showing that the primary packaging is recyclable: List the used materials in Appendix 4 (Declaration from the manufacturer of the packaging) and define how the component should be recycled. For plastic packaging fulfilling requirements O20 and/or O21 is sufficient to document this part of O19 about recyclability.

✉ Packaging specifications (box/bottle/container, labels and closures) or certificate showing the material used and whether it contains PCR material. Appendix 4 Declaration from the manufacturer of the packaging can be used as part of the documentation. Nordic Ecolabelling's calculation sheet can be used to summarize the used materials by license holder.

Background to requirement O19 Recycling and recycled material in packaging

The waste stage is influenced by many factors, such as sorting opportunities in each country or municipality, and how the consumer ultimately sorts waste. Nordic Ecolabelling can, however, generally work for the recycling of packaging and set requirements intended to support this process.

The EU has adopted a circular economy action plan[48] that has a clear focus on recovery and recycling, particularly with regards to packaging material. Collecting waste can either lead to a high level of material recovery, where valuable materials are returned into the economy, or to an ineffective system where recyclable waste largely ends up in landfill or is sent for incineration. EU has also accepted a plastic strategy[49] focusing on making recycling of plastics more profitable, reduce the use of single use plastic products, stop the littering of oceans, push investments and innovations regarding minimization of waste and work toward global solutions and standards to reduce the amounts of plastic used.

Recyclability is important step in shifting towards circular economy. The main material in packaging must be recyclable. In current systems small amounts of plastic in cardboard packaging (e.g. barrier) or paper in plastic recycling (e.g. label) goes to reject and the requirement means that these materials up to 10% do not need to be material recycled also. Requirements O20 and O21 (Design for recycling) ensure that packaging is recyclable in today's recirculation systems in the Nordic countries.

To promote the use of recycled materials and to save virgin resources, an obligatory requirement on the amount of post-consumer recycled materials (PCR) for both hard/rigid plastic and paper/cardboard packaging is introduced.

There is no requirement for PCR materials for flexible plastic pouches and cardboard packaging for liquid products. For plastic pouches, the requirement for monomaterial (O21) is currently a challenge even with virgin material only.

The availability of liquid packaging board with PCR materials is very limited. This format has been accepted from November 2020. We find relevance, potential and steerability in setting ambitious requirements for bio-based material in liquid cardboard packaging (see requirement O21). Additionally, the format compares favourably to hard/rigid plastic packaging with respect to i.a.: Reduced overall plastic and virgin plastic consumption (calculated on a bottle with 50% PCR), reduced overall packaging weight and higher fill ratio[50] as well as higher degree of material recycling in Norway, Sweden and Finland[51]. In Denmark, there is currently no material recycling of beverage cartons, and no liquid detergents in cardboard packaging on the market. Hence, it is difficult to estimate the future material recycling degree of liquid detergents in cardboard packaging.

After the sub consultation on packaging a definition of post-consumer/commercial recycled (PCR) material was added in order to clarify the requirement.

This is a new requirement.

[48] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Closing the loop – An EU action plan for the Circular Economy, COM(2015) 614 final, http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52015DC0614
[49] EU, Plastic Waste: a European strategy to protect the planet, defend our citizens and empower our industries, 2018, http://europa.eu/rapid/press-release_IP-18-5_en.htm (visited 2018-01-24)
[50] Substantiated by data from one stakeholder
[51] Substantiated by data from one stakeholder, based on Grønt Punkt Norge and Mepex data for Norway.

O20 Design for recycling of packaging (except plastic pouches and cardboard packaging for liquid products)

Packaging should have a design that enables material recovery. This means that:

- The individual components of the primary plastic packaging (excluding labels) must be made from monomaterial of polyethylene (PE), polypropylene (PP) or polyethylene terephthalate (PET).

  Exemption is made for spray triggers in stain removers that can contain following plastics in small technical details: polyoxymethylene (POM), expanded polyethylene (EPE), ethylene butyl acrylate copolymer (EBA), synthetic rubber copolymer of acrylonitrile and butadiene (NBR).

Exemption is made for PE- or PP-closures that are used in squeeze bottles. The closures can contain a TPE (thermoplastic elastomer)-membrane of the type TPE-PE (based on polyethylene), TPE-PP (based on polypropylene) or SEBS (Styrene-Ethylene-Butylene-Styrene thermoplastic elastomer). If the closure is to be used on a PET-bottle, the membrane must have a density below 1.0 g/cm³.

- It is not allowed to add pigments to PET used for box/bottle/container. Coloured, recycled PET-granulate where the pigment originates from the recycled material is allowed for use.
- Carbon black pigments can not be added to the box/bottle/container of PE or PP or closures. Exemption is made for small amounts of carbon black used in other colours than black. It must then be documented that the NIR sensor reads and sorts the box/bottle/container or the closure to the correct plastic fraction.
- Silicone is not allowed in closures
- Barriers are not allowed in plastic packaging
- Fillers (such as CaCO3) cannot be included in PE or PP box/bottle/container and closures at a level that the density of the plastic exceeds 0.995g / cm3.
- Metal must not be part of the packaging (box/bottle/container, closure or label).

  Exemption is made for pump bottles, where metal spring can be used

- Polystyrene (PS) and polyvinyl chloride (PVC) or plastics based on other types of halogenated polymers must not be present in the label or the cardboard packaging.
- PET-G (polyethylene terephthalate glycol-modified) cannot be used in labels/shrink-film labels
- Labels/shrink film labels shall not cover more than a maximum of 60% of the surface of the box/bottle/container. The calculation of the percentage shall be based on the two-dimensional profile of the box/bottle/container i.e. the area of the top and bottom of the packaging and the sides of a box container/bottle/can shall not be included in the calculation. If the label on the front of pack and back of pack are of different size, the maximum percentage of 60% shall be fulfilled for each side separately. For a cylindrical bottle, the calculation can also be based on the three-dimensional profile exclusive bottom and top of the bottle

Please note that foil that is not removed before use of the product is counted as part of the formulation/ingredient, and not as packaging.

Please note: The Nordic Ecolabelling will start a project on labels to see if more requirements on labels should be included in the requirements. There will be a decision made in March 2021 including a plan for implementation.

- ☒ Packaging specifications (including bottle, labels and closures) or certificate showing the plastic used and what pigments have been added.
- ☒ Appendix 4 Declaration from the manufacturer(s) of the packaging (box/bottle/container, labels and closures).
- ☒ A calculation showing that the density measurement is not exceeded.
- ☒ Calculation of label size compared to the surface of the packaging

Background to requirement O20 Design for recycling

The Nordic recycling manuals[52] are the base for the requirement stating that plastic bottles/containers and closures must be made from PE, PP or PET. These are the best plastics from the recycling perspective. Biodegradable plastics are not suitable in today's recycling systems and can cause problems in the material recovery process. TPE based on TPE-PE, TPE-PP and SEBS is allowed as membranes in squeeze-bottle closures made of PE or PP. These are compatible with PE/PP, hence small amounts will not disturb the recycling process or quality. Membranes on closures attached to PET-bottles must have a density < 1.0 g/cm3, in order to separate from the PET during the sink/float process[53].

Colourless plastics have the highest recovery value. Dark colours result in darker recycled fraction, which is not preferable and carbon black cause problems in automated sorting plants, as the NIR (near infrared reflectance) detector cannot identify dark colours produced with carbon black.

For PE and PP carbon black is excluded from packaging and closures, to contribute to lighter recycled fraction, and to avoid problem with NIR-detection. An exemption to lighter colors, incl. shadows of grey with small amounts of carbon black has been made if it can be shown that the NIR-sensor can read and sort them. For virgin PET, pigments are not accepted since there is no market for coloured packagings and coloured packagings are currently burned in Nordic recycling systems.

Fillers are restricted so that the HDPE or PP density does not exceed 0.995g/cm3. If the plastic becomes too dense, it sinks in the water bath recycling process and goes to incineration instead of material recovery.

Metal is not allowed because residues cause plastics to be rejected if there are metal detectors on the sorting line. Metal residues can also break down plastics and become a problem in recycled plastic production[54, 55].

Silicone is not allowed in packaging as it is difficult to remove in recycling process and silicone impurities in recycled fraction are problematic.

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[52] "Plastförpackningar – En återvinningsmanual från FTI, version 0.7,
Suomen Uusiomuovi Oy: Opas kierrätyskelpoisen muovipakkauksen suunnitteluun
http://www.uusiomuovi.fi/document.php/1/130/packdes_painos_1/442070829017fd4aa7d7e00bf960978b (visited 2019-04-30)
https://plast.dk/wp-content/uploads/2018/11/Design-manual-ENG-Forum-for-Circular-Plastic-Packaging-NOVEMBER-2018.pdf, https://plast.dk/wp-content/uploads/2018/06/Bilag-A-designmanual.pdf

[53] Correspondence with Sina Lystvet, Grønt Punkt Norge, 2021-01-08
[54] Plastkretsen and FTI, Bättre förutsättningar för återvinning av plastförpackningar.
[55] http://www.plasticsrecycling.org/hdpe sourced on 08.08.2017

From a recycling point of view, labels should preferably be of the same material as the bottle[56]. Therefore, PS or PVC is not allowed. If the NIR detector at the sorting facility hits the label instead of the bottle, the bottle may end up in the rejected fraction. Therefore, sleeves and labels should not cover more than 60% of the container/bottle surface[57]. Exemption is made when the label is of the same plastic as the bottle. PET-G labels/shrink film labels are excluded since PET-G is problematic in recycling in large quantities as it is not compatible with A-PET.

This is a new requirement.

O21 Design for recycling of flexible plastic pouches/bags and cardboard packaging for liquid products

Flexible plastic pouches

Plastic packaging should have a design that enables material recovery. This means that:

- The plastic packaging (incl. closure, excl. label) must be made from Polyethylene (PE), Polypropylene (PP) or Polyethylene terephthalate (PET).
- The pouch/bag must be made of monomaterial, i.e. not laminates with layers of different materials. Barrier coating of EVOH (Ethylene vinyl alcohol) is allowed in maximum amounts of 2% related to the total weight.
- Carbon black pigments can not be added to the pouch or closures. Exemption is made for text and pictograms. Exemption is also made for small amounts of carbon black used in other colours than black. It must then be documented that the NIR sensor reads and sorts the pouch or the closure to the correct plastic fraction.
- Fillers (such as CaCO3) cannot be included in PE or PP packaging (incl. closures) at a level that the density of the plastic exceeds 0.995g / cm3.
- Polystyrene (PS) and polyvinyl chloride (PVC) or plastics based on other types of halogenated plastics must not be present in the label.
- Silicone is not allowed in closures

Please note that foil that is not removed before use of the product is counted as part of the formulation/ingredient, and not as packaging.

✉ Packaging specifications (including pouch, labels and closures) or certificate showing the plastic used and what colours the packaging and closure has.

✉ Appendix 4 declaration from the manufacturer(s) of the packaging (box/bottle/container/flexible pouches, labels and closures).

✉ Documentation showing that the density limit is not exceeded.

Cardboard packaging for liquid products

- Cardboard packaging for liquid products must contain at least 60% paper/paperboard.

[56] Please note that Nordic Ecolabelling is planning to start a project to evaluate how different labels influence the recycling. The goal is to have new requirements on labels by March 2021 and at the same time present a plan for implementation and how to handle the change in licensing.
[57] Grönt Punkt, Basic Facts Report on Design for recycling, 2017, https://www.grontpunkt.no/media/2777/report-gpn-design-for-recycling-0704174.pdf (visited 2018-01-29)

- Tree species listed on Nordic Ecolabelling's list of prohibited tree species must not be used in pulp/paperboard. The list of prohibited tree species is located on the website: www.nordic-ecolabel.org/wood/
- Paper/paperboard: A minimum of 70% of the wood raw material that are used in the paper/cardboard must originate from forestry certified under the FSC or PEFC schemes. Alternatively, the raw material can be recycled (PCR)*, or a combination of the two. The remaining proportion of wood raw material must be covered by the FSC/PEFC control schemes (FSC controlled wood/PEFC controlled sources).
- At least 90% by weight of the primary packaging must be made of bio-based material** or post-consumer/commercial recycled material (PCR)* or a combination of these. A mass balance approach is permitted.
- Palm oil and soy cannot be used as a raw material in the production of bio-based plastic. For bio-based plastic that originates from sugar cane: Sugar cane must be certified according to a standard that meets Nordic Ecolabelling's requirements for raw material standards. This requirement does not apply for secondary raw materials***
- PVC or plastic based on other types of halogenated plastics must not be used.
- Aluminum and other metals must not be used.
- Packaging that is Nordic Swan Ecolabelled according to the criteria for Nordic Ecolabelling for Packaging for Liquid Foods, and that consists mainly of paper/paperboard (fibre), can be used without further documentation of requirement O19 or O21. The Weight-Utility Ratio (WUR) in O22 must still be documented.

** Post-consumer/commercial recycled material is defined in the requirement according to ISO 14021:2016: "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.*

*** Bio-based means that the material consists of biomass that may have undergone physical, chemical or biological treatment(s). Biomass has a biological origin, but excludes material that is found embedded in geological and/or fossil formations. Examples of biomass are: (all or parts of) plants, trees, algae, marine organisms, microorganisms, animals, etc.*

****Secondary raw materials are defined here as residual products from other production processes, such as waste products from the food industry, by-products such as straw from grain production, by-products from maize and dried palm leaves. PFAD from palm oil is not counted as a residual/waste product.*

✉ Description of the packaging from the packaging producer showing percentage (by weight) of paperboard material, barrier material (material type, whether it is bio-based or PCR and percentage) and other elements such as closure (material type, whether it is bio-based or PCR and percentage). Appendix 6 must be used.

✉ Declaration from the producer of the packaging or paperboard producer that tree species from the Nordic Ecolabelling's list of prohibited tree species are not used. Appendix 6 must be used.

✉ The producer of the packaging shall document, for instance based on invoice or delivery note, that the requirement of minimum 70% certified paper/paperboard

is purchased on a yearly basis, and that the remaining proportion is covered by the FSC/PEFC control schemes.

- ✉ Calculation showing that the requirement for the proportion of bio-based or recycled material in the primary packaging is fulfilled. Appendix 6 must be used.
- ✉ Declaration that palm oil and soy has not been used. Appendix 6 must be used.
- ✉ For sugar cane: Copy of valid CoC certificate or certification number. The CoC certificate holder shall declare that all sugar cane used in the plastic for the cardboard packaging that is used for the Nordic Swan Ecolabelled product is certified according to a specified standard. The standard must meet Nordic Ecolabelling's requirements for raw material standards. A mass balance approach is permitted.
- ✉ Declarations that PVC and other plastic based on other types of halogenated plastics has not been used. Appendix 6 must be used.
- ✉ Declarations that aluminium and other metals has not been used. Appendix 6 must be used.
- ✉ For packaging that is Nordic Swan Ecolabelled according to the criteria for Nordic Ecolabelling for Packaging for Liquid Foods: Please state the Nordic Swan Ecolabel license number.

Background to requirement O21 Design for recycling of flexible puoches/bags and cardboard packaging for liquid products

Flexible plastic pouches

The requirement is more or less the same as O20 on hard/rigid plastic packaging. Nordic Ecolabelling has had dialouges with FTI (Förpacknings & Tidnings Insamlingen in Sweden) regarding pouches. They suggested only accepting pouches of PE since they are the easiest to recycle, but since this is the first generation of this requirement Nordic Ecolabelling has decided to use the same requirements on plastics as in O20 for bottles/containers etc. An extra requirement has been added regarding not allowing laminates of different material layers, i.e. the pouches should be made of monomaterials. Nordic Ecolabelling has decided only accepting EVOH up to maximum 2% (in relation to the maximum weight) as a barrier coating, which is the same limit as the recyclers recommend in their guidance documents[58]. The reason for this requirement is to make sure that the recycling is not affected in a negative way. For the other bullet points, see background in O20.

Cardboard packaging for liquid products

The requirement promotes sustainable, renewable raw materials (both paper/paperboard and bio-based plastics) as an alternative to PCR plastics. The requirement of minimum 60% paper/board is set to ensure a relatively high content of paper/board, which is material recycled in Norway, Sweden and Finland. The plastic fraction of the liquid packaging board is currently not being material recycled.

[58] E.g. https://www.grontpunkt.no/media/2777/report-gpn-design-for-recycling-0704174.pdf, Plastförpackningar – En återvinningsmanual från FTI, version 0.7

PVC and other halogenated plastics are excluded since they lead to adverse environmental impacts in waste handling. Even thoug aluminum from liquid packaging board is currently separated and material recycled[59], it is excluded due to the energy consumption required in the recirculation process.

This is a new requirement.

O22 Weight-Utility Ratio (WUR)

The weight/utility ratio of the product and its packaging must not exceed the following values:

Product type	WUR
Laundry detergents in plastic-based* packaging	1.1 g/kg wash
Stain removers in plastic-based* packaging	0.7 g/kg wash
Solid products in paper-based** packaging	1.0 g/kg wash
Liquid products in cardboard packaging	1.0 g/kg wash

**Packaging made of more than 90% plastic.*

***Packaging made of more than 90% paper/cardboard.*

*Packaging with both plastic and carboard that can be manually separated (e.g. bag in a box or cardboard box with a plastic closure or handle) need to use a weighed calculation that takes into account both materials. This kind of packaging, consisting of X% plastic and Y% cardboard should fulfil the WUR-limit X/100*WUR (plastic-based packaging) + Y/100*WUR (paper-based packaging).*

Other types of packaging can currently not be used. Exemption: Cardboard packaging for liquid products must contain a minimum of 60% paper/cardboard (ref. requirement O21).

The WUR is calculated only for primary packaging (including caps, labels, handles, spraying devices etc.) using the formula below:

$$WUR = \Sigma\ [(Wi + Ui)/(Di * ri)]$$

Where:

Wi = the weight (g) of the packaging component (i) including the label if applicable.

Ui = the weight (g) of non-recycled (virgin) material in the packaging component (i). If the proportion of recycled material in the packaging component is 0% then Ui = Wi.

Di = the number of functional units contained in the packaging component (i). The functional unit = reference dosage in g/kg wash.

ri = recycling figure, i.e. the number of times the packaging component (i) is used for the same purpose through a return or refill system. The default value for r is set to 1 (= no re-use). Only if the applicant can document that the packaging component is re-used for the same purpose and how many times, a higher value for r can be used in the calculation.

✉ Declaration/documentation from the packaging manufacturer stating the type of material in the packaging components (e.g. closure (cap, spray nozzle etc.),

[59] Information from Fiskeby Board AB

bottle and labels). Appendix 4 can be used. For cardboard packaging for liquid products, appendix 6 can be used.

☒ Calculation of weight-utility ratio (WUR) and required documentation on reuse of the packaging component. Nordic Ecolabelling's calculation sheet can be used and can be obtained from http://www.nordic-ecolabel.org/product-groups/group/?productGroupCode=006 or Nordic Ecolabelling's national websites

☒ Declaration from the packaging manufacturer about the proportion of recycled material, if recovered/recycled material is used. Appendix 4 can be used. For cardboard packaging for liquid products, appendix 6 can be used.

Background to requirement O22 Weight-Utility Ratio (WUR)

The purpose of the weight-utility ratio (WUR) is to reduce the amount of packaging and promote the use of recycled materials, helping to ensure a reduction in transport of packaging and air, and so lower CO_2 emissions. This restriction promotes the use of concentrated products by relating the amount of packaging to the dose.

For products with plastic-based packaging, the WUR limit for laundry detergents in plastic based packaging has been adjusted by considering the new requirement O19, which implies that all hard/rigid plastic-based packaging will have a minimum of 50% recycled plastic material (pouches are lighter and will, according to our current licence data, be able to fulfil the WUR-limit even without recycled plastic). The same filling degree will be required as in criteria generation 7. (The calculation is based on 0% recycled material in generation 7 vs. 50% in generation 8.)

The WUR limit for stain removers in plastic-based packaging has been tightened to 0,7. The new limit is based on a review of the current license data while considering that a minimum of 75% recycled plastic material is required.

Solid products with paper-based packaging: A high percentage of recycled material is already extensively used in Nordic Swan Ecolabelled products. A review of the licence data suggests that it is reasonable to tighten the limit from 1,2 to 1,0.

Liquid products in cardboard packaging: The WUR-limit is set on a similar level as for laundry detergents in plastic-based packaging (1.0 vs 1.1 g/kg wash), as plastic-based packaging is the main alternative for liquid products. Data from one stakeholder shows that a WUR of 1.0 is achievable, even if the packaging does not contain PCR material.

10 Quality and regulatory requirements

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

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

O23 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.

O24 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.

O25 Quality of laundry detergent and stain remover

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 laundry detergent or stain remover

🔑 The claims archive is checked on site.

O26 Planned changes

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

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

O27 Unplanned nonconformities

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

✉ Procedures detailing how unplanned nonconformities are handled.

O28 Traceability

The licensee must be able to trace the Nordic Swan Ecolabelled laundry detergent or stain remover in the production.

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

O29 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.

🔑 The requirement is checked on site (e.g. plant-specific conditions and environmental permits issued by the authorities).

11 Changes compared to previous generation

Here we list the most important changes compared to the previous generation.

Figure 1 Overview of changes to criteria for Laundry detergents and stain removers generation 8 compared with previous generation 7.

Proposed requirement generation 8	Requirement generation 7	Same requirement	Change	New requirement	Comment
O1 Description of the product	R1 Description of the product and packaging		X		Slight adjustement, is now in line with other newer criteria for cleaning products and detergents
O2 Classification of the product	R2 Product classification		X		EUH208 (“Contains (name of sensitising substance). May cause an allergic reaction”) added to the requirement
O3 Sustainable raw materials	-			X	Sustainable raw material procurement, in line with other newer criteria for cleaning products and detergents
O4 Certified raw materials from oil palms	-			X	Requirement on RSPO, in line with other newer criteria for cleaning products and detergents
O5 Classification of ingoing substances	R3 CMR substances and R4 Sensitizing substances		X		The generation 7 requirements R3 CMR substances and R4 Sensitizing substances have been merged into O5
O6 Prohibited substances	R6 Other excluded substances		X		Some new substances on the list such as mikroplastics and per- and polyfluorinated compounds
O7 Surfactants	R12 Biodegradability - aerobic (aNBO) and anaerobic (anNBO)	X			
O8 Phosphorous	R7 Phosphorous	X			
O9 Fragrances	R5 Fragrances		X		New sensitizing fragrances limited/excluded, in line with other newer criteria for cleaning products and detergents
O10 Maximum dosage	R9 Maximum dosage		X		Limit value tightened from 14 to 11 g/kg wash

O11 Long-term environmental effects	R10 Environmentally hazardous substances	X			
O12 Critical dilution volume (CDV)	R11 Critical Dilution Volume (CDV)		X		Some limit values have been tightened and are now in line with EU Ecolabel
O13 Biodegradability - aerobic and anaerobic (aNBO and anNBO)	R12 Biodegradability - aerobic (aNBO) and anaerobic (anNBO)		X		Some limit values have been tightened and are now in line with EU Ecolabel
O14 Dosage instructions	R16 Dosage intructions		X		New requirement that the closure in liquid products must functions as a dosing device has been added
O15 Washing guidance on packaging	R17 Mandatory consumer guidance on packaging		X		Less relevant washing requirements have been removed
O16 Recycling guidance on packaging	-			X	New requirement on recycling guidance
O17 Claims on the packaging	R18 Claims on the packaging	X			
O18 Fitness for use	R19 Fitness for use		X		Smaller adjustments to e.g. the machines and reference detergent
O19 Recycling and recycled material in packaging	-			X	New requirement on recycling and recycled material
O20 Design for recycling of packaging (except plastic pouches)	-			X	New requirement on design for recycling
O21 Design for recycling of flexible plastic pouches/bags	-			X	New requirement on design for recycling
O22 Weight-Utility Ratio (WUR)	R14 Weight/utility ratio (WUR)		X		Limit values have been adjusted to take into account recycled material in packaging
O23-O29 Quality and regulatory requirements	R20-R29		X		These have been slightly adjusted and are now in line with other newer Nordic Swan Ecolabelling criteria

Deleted requirements:					
	R8 Colouring agents				
	R13 Origin and traceability of vegetable raw materials				
	R15 Plastic packaging				

Appendix 1 Analyses, test methods and calculations

1A Requirements on the analysis laboratory

The following stipulations apply regarding ecotoxic effects. The analysis laboratory must be competent and impartial as specified below.

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

1B Requirements on the analysis laboratory for performance

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

The applicant's own laboratory, and external testing institutes that do not meet EN ISO 17025 or do not have official GLP status, may be approved to carry out performance tests. In this case, the following conditions must be met:

- The organisation must be ISO 9001 certified.
- The test laboratory must be covered by the certification, and the performance test must be included in the quality management system.
- Nordic Ecolabelling is to be given access to all the raw data from the performance test.

The applicant's own laboratory may be approved to carry out performance tests even if the test laboratory and the performance test are not covered by ISO 9001 certification. The following conditions must be met:

- The organisation must have a quality assurance system and an ISO 9001 certification. The laboratory and the performance test do not have to be within the certification, but it needs to be described in that system. Nordic Ecolabelling is to be given access to all the raw data from the performance test.
- The laboratory must document that the test method used is aimed at differentiating between different laundry detergents or stain removers, and that the results achieved are reproducible.
- It must be possible for Nordic Ecolabelling to come and observe the performance of a test.

2 Ecotoxicological test methods

International test methods (OECD Guidelines for the Testing of Chemicals) or similar methods must be used. If equivalent methods are used, these must be evaluated by an independent body and controlled by Nordic Ecolabelling to ensure that the test results are equivalent. The test methods to be used are specified below.

3 Aquatic toxicity

Acute aquatic toxicity is tested with the aid of test methods Nos. 201, 202, 203 and 212 in OECD guidelines for testing of chemicals or equivalent test methods.

Other scientifically accepted test methods can be used if the test result is evaluated by an independent body and controlled by Nordic Ecolabelling.

For chronic aquatic toxicity test methods nos. 210, 211, 215 and 229 in the OECD Guideline for the Testing of Chemicals or equivalent test methods are used. OECD 201 can be used as chronic test if chronic endpoints are chosen.

4 Bioaccumulation

A substance is considered bioaccumulating if tested for bioaccumulation on fish according to method OECD 305 A-E and its bioconcentration factor (BCF) is >500. If no BCF value has been determined, a substance is considered bioaccumulating if its logKow value ≥ 4.0 according to method 107, 117 or 123 in the OECD Guidelines for the Testing of Chemicals or equivalent method, unless proven otherwise. If the maximum measured BCF ≤ 500, the substance is not considered bioaccumulating even if logKow ≥ 4.0.

OECDs test method 107 cannot be used for surface-active substances, which are both fat and water soluble. Based on current knowledge, for such substances it must be shown to a high degree of certainty that the substance itself and its decomposition products do not pose a long-term hazard to aquatic organisms

Data models (such as BIOWIN) are permitted but if the results of an approximation are close to the set limit values or if Nordic Ecolabelling holds contradictory information, more reliable information is required.

5 Aerobic biodegradability

Test methods 301 (A to F) or 310 in the OECD Guidelines for the Testing of Chemicals should be used to test aerobic biodegradability.

Other scientifically accepted test methods may also be used. The test results of such equivalent methods must be evaluated by an independent body and controlled by Nordic Ecolabelling.

6 Anaerobic biodegradability,

Anaerobic degradability can be tested in accordance with ISO 11734, ECETOC No 28 (June 1988), OECD 311 or some other scientifically approved method. In order for a substance to be regarded as anaerobically degradable in the ISO test, a minimum of 60% degradability under anaerobic conditions is required.

Other scientifically accepted test methods can be used if the test result is evaluated by an independent body and controlled by Nordic Ecolabelling.

Substances that are not surfactants and are not found on the DID-list or data on the DID list is lacking, may be exempted from the anaerobic degradability requirements if they are aerobically degradable and not toxic to aquatic organisms (NOEC/ECx > 0.1 mg/l or LC50/EC50/IC50>10 mg/l), and if any of the following criteria are fulfilled:

- readily degradable aerobically and have low adsorption (A<25%) or
- readily degradable aerobically and have high desorption (D>25%) or
- readily degradable aerobically and are not potentially bioaccumulable

Adsorption/desorption is determined using method 106 in OECD Guidelines or ISO CD 18749 "Water quality – Adsorption of substances on activated sludge", mineralisation in the test (> 70% BOD/ DOC/COD reduction) after 28 days.

7 Endocrine disruptors

Endocrine disruptors (ED:s) are exogenous substances that alter the function(s) of the endocrine (hormonal) system and thus cause serious health effects in an exposed organism, its offspring or populations.

Nordic Ecolabelling prohibits substances that are considered to be potential endocrine disruptors, category 1 (clear evidence for endocrine disruption from ≥1 in-vivo study) or category 2 (in-vitro data indicating potential for effects in-vivo, or in-vivo data on effects that may be ED-mediated), in line with the EU's original report on "Endocrine disruptors"[60] and later studies[61]. Future updates of the European Commission's endocrine disruptor priority list apply.

The European Commission has established criteria for endocrine disrupting properties in relation to the biocidal[62] and plant protection[63] products regulations (BPR and PPPR). Nordic Ecolabelling prohibits substances that have been identified as EDs according to the BPR and/or PPPR.

Nordic Ecolabelling also refers to the Danish Centre on Endocrine Disrupters (CeHoS) list of substances fulfilling or likely fulfilling the WHO definition of an endocrine disruptor: http://www.cend.dk/files/DK_ED-list-final_2018.pdf (table 8 and 13, or later publications) and substances that have been identified as endocrine disruptors by ECHA's ED Expert Group: https://echa.europa.eu/fi/ed-assessment

If a decision by the European Commission, or an opinion by ECHA's ED Expert group, is taken that some of the substances on the lists above are not endocrine disruptors, they can be exempted.

Note that substances included in the candidate list for endocrine disruptive properties are excluded through exclusion of candidate list substances.

8 DID list

The DID list is common to the European ecolabel and Nordic Ecolabelling. The list has been established in collaboration with stakeholders from industry and consumer and environmental organisations. The list contains information on the toxicity and biodegradability of substances that may be used in

[60] DG Environment (2002): Towards the establishment of a priority list of substances for further evaluation of their role in endocrine disruption. FINAL REPORT. European Commission DG ENV / BKH Consulting Engineers with TNO Nutrition and Food Research. 21 June 2000
[61] DG Environment. (2002): Endocrine disrupters: Study on gathering information on 435 substances with insufficient data. http://ec.europa.eu/environment/endocrine/documents/bkh_report.pdf#page=1, European Commission / DG ENV / WRc-NSF. (2002): Study on the scientific evaluation of 12 substances in the context of endocrine disrupter priority list of actions, http://ec.europa.eu/environment/chemicals/endocrine/pdf/wrc_report.pdf#page=29 DHI water and environment. (2007): Study on enhancing the Endocrine Disrupter priority list with a focus on low production volume chemicals. DG Environment. http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf
[62] Commission Delegated Regulation (EU) 2017/2100
[63] Commission Regulation (EU) 2018/605

chemical/technical products. The DID list does not show which substances can be used in ecolabelled products.

The DID list cannot be used to document the toxicity of individual substances for classification purposes. For this purpose, MSDS, pertinent literature and information from the primary producer shall be used.

The DID list is available via the relevant national Nordic Ecolabelling website (see page 2 for addresses).

For these criteria, the DID list dated 2016 or later versions apply.

If no data for chronic toxicity are available, acute data and the associated safety factor can be used to estimate the chronic toxicity factor, se DID list part B.