About Nordic Swan Ecolabelled

Car, boat and train care products



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Nordic Ecolabelling

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

Addresses

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

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1 Environmental impact of car, boat and train care products

The table below shows an overall analysis of the product group in terms of MECO and RPS. MECO stands for Material, Energy, Chemicals and Other aspects, while RPS means Relevance, Potential and Steerability. The MECO analysis describes the product group's environmental impact and therefore contributes mainly to the Relevance category in the subsequent RPS analysis. Relevance is assessed on the basis of which environmental problems the product group causes and how extensive those problems are. Potential is assessed in terms of potential environmental benefits within the specific product group. Steerability is assessed based on the extent to which the Nordic Swan Ecolabel can do anything about the environmental problems.

All the areas in the MECO analysis that are judged to have high RPS are marked in green. Nordic Ecolabelling sets requirements in all the areas with high RPS in the criteria for the Nordic Swan Ecolabelling of car, boat and train care products. This is described in more detail later in the document.

Table 1 **Analysis of the product group in terms of MECO and RPS**

	Material phase	**Production phase**	**Use phase**	**Waste phase**	**Transport**
Materials	Packaging material	Production of packaging: Processing containers and pipes	What you clean and polish with (sponge, brush, pressure washer, cloth)	Packaging is incinerated, reused or recycled	Shipping pallets, plastic wrap or cardboard
Energy	Raw material production, energy for extraction of oil / veg. oil and thus emissions of CO_2	Energy use and CO_2 emissions during the process (packaging production and mixing of chemicals)	Professional users: Electricity for wash installation (incl. hot water) Consumers: Electricity for hot water	Water treatment plant (cleaning wastewater) Energy from incineration of packaging	Transport of raw materials and finished products
Chemicals	Extraction of surfactants, ethanol and other raw materials from oil or plants (renewable resources)	Chemicals for washing equipment between batches and oil to maintain machinery	Professional users and consumers: Generation of POCP	Degradability, allergies (preservatives and fragrance), toxic to aquatic organisms, dosage / overdosing	No chemicals in the transport phase
Other	Work environment and ecosystem	Work environment, management system	Professionals and consumers: work environment (including allergies), performance	Toxic road film (oily film with particles from road surface and exhausts)	Ecodriving and logistics

For car, boat and train care products that are not used in wash installations, there is a major risk that they are released directly into the aquatic environment without passing through a water treatment plant. Windscreen washer fluid is always carried directly into the recipient watercourse. In addition, the products

concerned here are intended to clean / polish objects that are subject to heavy soiling in the form of oil residues, dirt from roads and rails, seaweed and algae, and so on. Properties such as biodegradability, both aerobic and anaerobic, bioaccumulation and ecotoxicity for aquatic organisms are therefore important environmental parameters for all ingredients.

The capacity of the ingoing substances to form tropospheric ozone through photochemical reactions is another environmental problem addressed in the criteria.

In car, boat and train care products, most of the raw materials are organic substances. Both renewable and non-renewable organic raw materials are used, as well as raw materials that are synthesised from both renewable and non-renewable sources. In the long term, the amount of non-renewable raw materials is limited, since they are extracted from fossil oil. Renewable raw materials, on the other hand, are replenished through natural processes, but it is important that they are produced sustainably in order to reduce their environmental impact. Possible negative effects of non-sustainable production of renewable raw materials include the use of environmentally harmful pesticides, genetic modification and use of land that was originally a key biotope, such as rainforest, or that could have been used for food production. Nordic Ecolabelling therefore sets requirements that emphasise the purchase of sustainable, renewable raw materials.

The environmental impact depends on how and where the products are used. It is therefore necessary to provide user information about dosage and the choice of washing location, for example. It is important that Nordic Swan Ecolabelled products are as good as or better than other competing products and the criteria therefore contain requirements concerning the performance of the products.

In "Closing the loop – An EU action plan for the Circular Economy"[1], the European Commission writes that the transition to a more circular economy is an important element in the EU's work to develop a sustainable, low carbon, resource efficient and competitive economy. The action plan has a clear focus on recycling, particularly with regard to packaging material. Nordic Ecolabelling therefore sets ambitious packaging requirements that support recycling and a circular economy.

1.1 The UN Sustainable Development Goals

Below, the Nordic Swan Ecolabelling of car, boat and train care products is described in relation to the UN's Sustainable Development Goals.



Nordic Swan Ecolabelling actively helps towards fulfilling Goal 12 to "Ensure sustainable consumption and production patterns".

Nordic Swan Ecolabelled car, boat and train care products have a reduced environmental impact from production, use and recycling.

[1] European Commission. 2015. Closing the loop – An EU action plan for the Circular Economy.

Nordic Swan Ecolabelled car, boat and train care products contribute towards Goal 12 as follows:

- Strict chemical requirements, for example on biodegradability and ecotoxicity, ensure **minimal emissions of aquatically toxic and non-readily biodegradable substances to land and water**.
- **Strict chemical requirements** also reduce the amount of hazardous substances and promote a healthy life for all. For example, all substances classified as carcinogenic, mutagenic, reprotoxic or allergenic and those that the EU lists as potential endocrine disruptors are prohibited.
- Requirements limiting the use of volatile organic compounds reduce the formation of tropospheric ozone and thus contributes to **better air quality**.
- Requirements concerning the recycling design of packaging and closures ensure that the material can be **recycled** after use, thus supporting a circular economy.
- A focus on increased use of raw materials that are both sustainable and renewable contributes to **sustainable management and efficient use of natural resources**.

Nordic Swan Ecolabelled car, boat and train care products contribute to other goals as follow:

Goal 3: Reduces the use of substances that are hazardous to health and the environment

- All substances classified as carcinogenic, mutagenic, reprotoxic or allergenic and those that the EU lists as potential endocrine disruptors are prohibited.



Goal 6: Limits emissions of hazardous chemicals and contributes to better water quality

- Requirements on biodegradability and ecotoxicity, ensure minimal emissions of aquatically toxic and non-readily biodegradable substances to the water.
- All substances classified as carcinogenic, mutagenic, reprotoxic and those that the EU lists as potential endocrine disruptors are prohibited.



Goal 14: Prevents pollution of the oceans

- Phosphorus compounds that pollute the oceans must not be included in products for boats and ships.
- Requirements on biodegradability and ecotoxicity, ensure minimal emissions of aquatically toxic and non-readily biodegradable substances to the water.
- All substances classified as carcinogenic, mutagenic, reprotoxic and those that the EU lists as potential endocrine disruptors are prohibited.



Goal 15: Promotes biodiversity and sustainable use of terrestrial ecosystems

- Ethanol that is produced from sugar cane and genetically modified organisms (GMOs) is prohibited because it is grown in an unsustainable way.
- Requirements on sustainable renewable raw materials, such as ethanol in windscreen washer fluid.



2 Justification of the requirements

This chapter presents the requirements, the background to the requirements, the selected requirement levels and any changes from generation 5. The appendices can be found in the criteria document “Nordic Swan Ecolabelling for car, boat and train care products, generation 6”.

2.1 Definition of the product group

Products that have a cleaning function (e.g. degreasers, shampoos and windscreen washer fluids) and / or polishing function (e.g. waxes or polishes) for the care of cars, buses, trucks, boats, ships, trains and other rail transport can be Nordic Swan Ecolabelled.

Both consumer products and products for professional use can be Nordic Swan Ecolabelled.

Drying aids for automated wash installations can only be Nordic Swan Ecolabelled if they are part of a system together with other Nordic Swan Ecolabelled cleaning and / or polishing products for automated wash installations. All the products in the system must carry the Nordic Swan Ecolabel.

The criteria are not applicable to products whose main purpose is something other than the care of cars, buses, trucks, boats, ships, trains and other rail transport.

Specialist products such as anti-corrosion agents, hull cleaners, antifouling paint, wood oil and appliances for mechanical cleaning (such as washing sponges, brushes, cloths or equivalent) cannot be Nordic Swan Ecolabelled in accordance with these criteria.

The product group has been expanded to include products for trains and other rail transport as part of the revision for generation 6 of the criteria.

3 General requirements

The requirements in the criteria document and accompanying appendices apply to all ingoing substances in the Nordic Swan Ecolabelled car, boat and train care products. 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 raw material / ingredient and / or in the in the Nordic Swan Ecolabelled product in concentrations less than 100 ppm (0,0100 w-%, 100 mg / kg) in the Nordic Swan Ecolabelled product.
- Impurities in the raw materials exceeding concentrations of 1,0 % 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.

O1 Description of the product

The applicant must provide the following information about the product:

- Description of the product's area of use.
- The product's volume.
- All trade names if the product is sold in several countries.
- Whether the product is intended for consumers or professional use.
- Whether the product is intended for manual washing or automated wash installations, and whether it is part of a system together with other Nordic Swan Ecolabelled cleaning and / or polishing products for automated wash installations.

- The product's dosing stated as grams / litre of working solution and a description of how this value was arrived at, based on the recommended dosing on the label / product sheet.

✉ Description of the product in line with Appendix 1.

✉ Product sheets and labels can be sent in as part of the documentation.

Background to requirement O1

A description of the product as set out in requirement O1 is needed in order for Nordic Ecolabelling to be able to assess whether it fits into the product group definition.

The requirement has been updated in relation to generation 5 of the criteria and now requires a statement on how the product's dosing in grams / litre of working solution has been arrived at, based on the recommended dosing on the label / product sheet.

O2 Formulation

The applicant must provide a complete formulation for the product. The formulation must contain the following information for each ingoing raw material:

- Trade name
- Chemical name of main component and any additives (e.g. colourants, preservatives and stabilisers)
- Amount (both with and without solvents, e.g. water)
- CAS no. / EC no.
- Function
- DID number* for substances that may be placed on the DID list

** The DID number is an ingredient's number on the DID list, version 2016 or later, which is used when calculating chemical requirements. The DID list can be obtained from Nordic Ecolabelling's websites, see addresses on page 3.*

✉ The complete formulation of the product as set out in the requirement. Nordic Ecolabelling's calculation sheet may be used. It is available from our websites.

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

Background to requirement O2

Nordic Ecolabelling needs a complete formulation for the product in order to check that it meets the requirements.

The requirement is unchanged compared with generation 5 of the criteria.

O3 Sustainable raw materials

The licence holder must document that they are working on increasing their purchases of renewable raw materials that are sustainable and / or that they require the manufacturer to work on increasing its purchase of sustainable, renewable raw materials for Nordic Swan Ecolabelled car, boat and train care products. This may be done, for example, by promoting certified raw materials, avoiding problematic raw materials, switching from fossil raw materials to sustainable alternatives or increasing the proportion of palm oil that has RSPO certification (Round Table for Sustainable Palm Oil). The targets must be quantifiable, time-based and set by senior management.

A renewable raw material is defined as a raw material originating from biological material which is renewed continuously in nature within the immediate future, such as cereals and wood (European standard EN 16575:2014).

✉ Policy or equivalent documentation stating the licence holder's work on ensuring sustainable, renewable raw materials in Nordic Swan Ecolabelled products, including quantifiable and time-based targets that are set by senior management.

Background to requirement O3

Car, boat and train care products use ingoing substances from both renewable and non-renewable organic raw materials. In this context renewable raw materials are both vegetable and animal raw materials, such as palm oil, coconut oil, rapeseed oil and beeswax. In addition, minerals occur as part of organic raw materials, and in pigments, for example.

The renewable base materials used in car, boat and train care products are usually various oils, fats and sucrose from sugar cane. These are used to produce substances such as surfactants and solvents.

Nordic Ecolabelling works generally to promote renewable raw materials over fossil ones. The purpose of the requirement is to increase the focus on the origin of the raw materials and to encourage the licence holder to increase their purchases of sustainable, renewable raw materials. The proportion of sustainable, renewable raw materials in Nordic Swan Ecolabelled car, boat and train care products is therefore expected to increase over the validity period of the criteria.

The requirement applies to the Nordic Swan Ecolabelled products and not to the entire company, since Nordic Swan Ecolabelling is a product labelling scheme. Nordic Ecolabelling may, however, approve policies at corporate level.

The requirement is new compared with generation 5 of the criteria.

O4 Classification of the product

The product must not have a classification listed in Table 2.

Table 2 **Classification of the product**

CLP Regulation 1272/2008:

Hazard class	Code for hazard class and category	Hazard statement code
Toxic to aquatic organisms	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
May cause genetic defects*	Muta. 1A or 1B Muta. 2	H340 H341
Toxic for reproduction*	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
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 *Exception: Products for professional use may be classified as H302.*
Specific target organ toxicity: single exposure and repeated exposure	STOT SE 1 STOT SE 2 STOT RE 1 STOT RE 2	H370 H371 H372 H373
Skin corrosion or irritation	Skin Corr. 1A, 1B or 1C	H314 *Exceptions:* • *Products for professional use may be classified as H314 Skin Corr. 1B or 1C.* • *Products for professional use for closed, automatic wash installations may be classified as H314 Skin Corr. 1Aif the classification concerns pH.*
Aspiration hazard	Asp. Tox. 1	H304 *Exception: Products for professional use may be classified as H304.*
Respiratory or skin sensitising	Resp. Sens. 1, 1A or 1B Skin sens. 1, 1A or 1B	H334 H317
Explosive		H240
Extremely flammable		H224
Highly flammable		H225 *Exception: Windscreen washer fluid may be classified as H225.*

Please note that the producer is responsible for the classification.

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

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

☒ Appendix 2 for the product or equivalent certification duly completed and signed.

☒ If an exception is made for H302 and / or H304: Confirmation that the product is intended for professional use.

☒ If an exception is made for H314: Documentation confirming that the classification relates to pH.

Background to requirement O4

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

Professional products are exempt from some of the classification requirements (only health requirements, not environmental requirements) because the user does not come into contact with the products (due to the packaging design or the fact that the products are used in enclosed / automated wash installations).

Windscreen washer fluid is exempt from flammability classifications, since it must contain alcohol for functional reasons.

The requirement largely remains unchanged compared with generation 5 of the criteria. To clearly indicate that CRM substances are undesirable, these classifications are also prohibited at product level, in addition to raw material level.

4 Requirements concerning ingoing substances

O5 Classification of ingoing substances

The ingoing substances must not have a classification listed in Table 3.

Table 3 **Classification of ingoing substances**

CLP Regulation 1272/2008:		
Hazard class	**Code for hazard class and category**	**Hazard statement code**
Carcinogenicity*	Carc. 1A or 1B Carc. 2	H350 H351**
May cause genetic defects*	Muta. 1A or 1B Muta. 2	H340 H341
Toxic for reproduction*	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
Respiratory or skin sensitising***	Resp. Sens. 1, 1A or 1B Skin sens. 1, 1A or 1B	H334 H317

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

*** Complexing agents of the MGDA and GLDA type may contain NTA impurities in the raw material in concentrations of less than 0.2%, if the concentration of NTA in the product is below 0.1%.*

**** Exemptions from the classification:*

- *Products for professional use if the packaging is designed so that the user is at no risk of coming into contact with the product.*
- *Fragrances (see separate requirements in O9).*
- *Sensitising preservatives.*

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

✉ Appendix 2 for the product and Appendix 3 for all raw materials or equivalent certification duly completed and signed.

✉ For products for professional use that are exempted from H334 and / or H317: Documentation showing the packaging is designed so that the user is at no risk of coming into contact with the product.

Background to requirement O5

The requirement is a merging of two previous requirements concerning allergenic substances and CMR substances and means that ingoing substances must not be classified as carcinogenic, mutagenic, reprotoxic or sensitising.

Excluding CMR substances is an important parameter from a health perspective. Complexing agents that replace EDTA (GLDA and MGDA) contain small quantities of NTA as residues from raw material production. NTA as an impurity in complexing agents is therefore exempted from the requirement, but with the restriction that the concentration must be less than 0.2% in the raw material and less than 0.1% in the end product – which is best practice in the industry today.

Nordic Ecolabelling wants to minimise the amount of sensitising substances in the products in order to reduce the risk of allergies. In the case of manual use of car, boat and train care products, the products may come into direct contact with the hands. Professional products for automated wash installations are exempted from the requirement if the packaging is designed so that the user is at no risk of coming into contact with the product. Fragrances and sensitising preservatives are exempted from the requirement.

The requirement has been tightened in relation to generation 5 of the criteria through its reference to sensitising substances and in setting a limit for how much NTA is permitted in the raw material.

O6 Organic substances, degradability

All organic ingoing substances and their degradation products must be:

a) Aerobically biodegradable in accordance with test method no. 301 A–F, no. 310 in OECD guidelines for testing of chemicals or other scientifically accepted test methods if the test results are evaluated by an independent body and controlled by Nordic Ecolabelling.

b) Anaerobically biodegradable in accordance with ISO 11734, ECETOC no. 28, OECD 311 or other scientifically accepted test methods if the test results are evaluated by an independent body and controlled by Nordic Ecolabelling, where a minimum of 60% degradability under anaerobic conditions is achieved.

The following compounds are exempted from the degradability requirement:

- non-chlorinated polymers
- non-chlorinated natural and synthetic waxes*
- preservatives
- fragrances
- colourants in windscreen washer fluid
- colourants in professional products
- denaturing agents in ethanol

* *Note the definition of and ban on microplastics in requirement 07.*

✉ The aerobic and anaerobic biodegradability of all organic substances in the product with reference to the DID list, version 2016 or later. For substances not on the DID list, or where data on the DID list is missing, the associated documentation must be submitted. See Appendix 4 for test methods and analysis laboratories. If a substance is exempted from the degradability requirement, state which exception it falls under.

Background to requirement O6

The requirement concerning the biodegradability of organic substances reduces the potential accumulation of non-readily biodegradable substances in waste sludge and in other relevant pockets in the environment. In some places, sludge is used as a soil improver and in this case, it is important that the sludge contains as low a level of non-readily biodegradable substances as possible. Organic substances with poor degradability remain in the environment for a long time, thus increasing the risk of damage to nature (particularly regarding substances that also have other negative environmental or health properties).

Currently, Nordic Ecolabelling is not aware of any appropriate substitutes to the exempted compounds.

The requirement is unchanged compared with generation 5 of the criteria.

O7 Substances prohibited from products

The following substances are prohibited from products:

- Colourants

  Exception: Products for professional use and windscreen washer fluid may contain colourants.
- Linear alkylbenzene sulphonates (LAS)
- Alkylphenol ethoxylates (APEO) and / or alkylphenol derivatives (APD)
- EDTA (ethylenediaminetetraacetic acid) and its salts and DTPA (diethylenetriamine pentaacetate)
- Quarternary ammonium salts that are not readily biodegradable
- Halogenated organic compounds and hypochlorites

  Exception: Acidic products (pH <6) may contain bronopol.
- Benzalkonium chloride
- MG (methyldibromo glutaronitrile, CAS no. 35691-65-7)
- MI (methylisothiazolinone, CAS no. 2682-20-4)
- Nitro musks and polycyclic musk compounds
- Phthalates
- Halogenated and / or aromatic solvents

  Exception: Solvents in cold degreasing products may contain ≤ 5000 ppm aromatic hydrocarbons as a result of the purification / refining process.
- Fluorine surfactants and other per- and polyfluorinated compounds (PFC)
- BHT (butylated hydroxytoluene, CAS no. 128-37-0)

  Exception: Fragrances may contain < 100 ppm BHT on condition that the level in the end product does not exceed 1 ppm.
- HMDS (hexamethyldisiloxane, CAS no. 107-46-0)
- 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.

  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.

- 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.
    - Substances that have been identified as endocrine disruptors by ECHA's ED Expert Group: https://echa.europa.eu/fi/ed-assessment
- Substances that have been judged in the EU to be PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative), in accordance with the criteria in Annex XIII of REACH, plus substances that have not yet been investigated but that meet these criteria.
- Substances categorised as Substances of Very High Concern (SVHC) and included on the Candidate List: https://echa.europa.eu/candidate-list-table.

  Exception: D4 (octamethylcyclotetrasiloxane, CAS no. 556-67-2), D5 (decamethylcyclopentasiloxane, CAS no. 541-02-6) and D6 (dodecamethylcyclohexasiloxane, CAS no. 540-97-6), see requirement O8.
- Nanomaterials / particles

  Nanomaterials / particles are defined in accordance with the European Commission's definition of nanomaterials dated 18 October 2011, "A natural, incidental or purposely manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for at least 50% of the particles in the number size distribution, one or more external dimensions are in the size range of 1–100 nm." Examples are ZnO, TiO2, SiO2, Ag and laponite with particles of nanosize in concentrations exceeding 50%. Polymer emulsions are not considered to be nanomaterial.

✉ Appendix 2 for the product and Appendix 3 for all raw materials or equivalent certification duly completed and signed.

Background to requirement O7

This requirement generally prohibits substances that are known or feared to have negative effects on health and the environment – but that are not covered by other requirements. Some of the substances are also prohibited in other requirements but are included here for the sake of clarity and to minimise the risk of misunderstandings.

Colourants

Colourants tend to be added for aesthetic reasons, but in some cases, it is stated that they help to make correct dosing easier. There are few studies describing the health and environmental properties of dyes. Colourants are generally considered unnecessary for a product's function and are therefore excluded from products for consumer use. The requirement does not apply to windscreen washer fluid, since a colourant makes it easier to see when the opaque washer fluid tank is full when topping it up.

The requirement is unchanged compared with generation 5 of the criteria.

Linear alkylbenzene sulphonates (LAS)

Linear alkylbenzene sulphonates (LAS) are toxic to aquatic organisms and are not biodegradable in an anaerobic environment. LAS are excluded from use in requirement O6, but are also included in the list of substances that must not be present in Nordic Swan Ecolabelled car, boat and train care products, in order to clarify that LAS are undesirable substances.

The requirement is unchanged compared with generation 5 of the criteria.

APEO and APD

Alkylphenol ethoxylates (APEO) and / or alkylphenol derivatives (APD) are a group of non-readily biodegradable surfactants that are proven endocrine disruptors. The substances have been phased out of most products through legislation. APEO and APD are also excluded from use through requirement O6.

The requirement is unchanged compared with generation 5 of the criteria.

EDTA (ethylenediaminetetraacetic acid) and its salts and DTPA (diethylenetriamine pentaacetate)

EDTA is used as a complexing agent in many chemical-technical products. EDTA and its salts and DTPA are not readily degradable. Today there are more environmentally aware alternatives that are biodegradable and that can replace EDTA, such as MGDA (methyl glycine diacetic acid).

The requirement is unchanged compared with generation 5 of the criteria.

Quarternary ammonium salts that are not readily biodegradable

Quarternary ammonium compounds of cationic surfactants that are not readily biodegradable are excluded from use. There are sub-groups (e.g. esterquats) with good environmental properties, which are not excluded from use. Quarternary ammonium compounds are often highly toxic to aquatic organisms and if they are also not readily degradable, this results in an environmental hazard classification of H411 or H412. Quarternary ammonium compounds are associated with bacterial resistance to antibiotics[2] and can promote certain types of allergy.

The requirement is the same as in generation 5.

Halogenated organic compounds and hypochlorites

The substance group includes, for example, PVC, brominated flame retardants, fluorine compounds and several preservatives such as CMIT, IPBC, DCOIT, MG, (methyldibromoglutaronitrile) and bronopol. Bronopol in acidic products (pH <6) is excluded from the requirement.

Reactive chlorine compounds such as sodium hypochlorite or organochlorides such as triclosan are used as disinfecting / antibacterial substances. They may be or lead to the formation of toxic, non-readily biodegradable and bioaccumulative substances. They can also lead to resistance in bacteria, both to biocides and against antibiotics.

The requirement covers halogenated organic compounds instead of just organic chlorine compounds as in generation 5. In addition, the designation "reactive chlorine" has been replaced with "hypochlorites".

Benzalkonium chloride

Benzalkonium chloride is a quarternary ammonium compound that is readily biodegradable. This biocide is undesirable due to its toxicity and risk of creating resistance, since the compound is linked to bacterial resistance to antibiotics and may promote certain types of allergies.

The requirement is the same as in generation 5.

MG (methyldibromo glutaronitrile)

MG (CAS no. 35691-65-7) is a highly allergenic substance. MG has no harmonised classification, but is mostly classified as H302, H315, H317, H318

[2] Buffet-Bataillon S., Tattevin, P., Bonnaure-Mallet, M, Jolivet-Goudeon, A. (2012). Emergence of resistance to antibacterial agents: the role of quaternary ammonium compounds – a critical review. International Journal of Antimicrobial Agents 39: 381–389. DOI: 10.1016 / j.ijantimicag.2012.01.011

and H400. Since MG does not have a harmonised classification, it is included in the requirement in the interests of safety.

The requirement is new compared with generation 5 of the criteria.

MI (methylisothiazolinone)

Allergies to preservatives, particularly MI (CAS no. 2682-20-4) have risen in recent years and Nordic Ecolabelling does not want to contribute towards unnecessary exposure.

The requirement is new compared with generation 5 of the criteria.

Nitro musks and polycyclic musk compounds

Nitro musks and polycyclic musk compounds generally have undesirable health and environmental properties. Some such compounds are excluded from use via the requirement concerning CMR substances. The use of nitro musks and polycyclic musk compounds 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.

Nitro musks and polycyclic musk compounds are listed here, instead of in a separate requirement as in generation 5 of the criteria.

Phthalates

Phthalates continue to be problematic in terms of health and the environment. It therefore remains relevant to retain a requirement concerning phthalates, if there is potential for them to be replaced by other less problematic substances.

The requirement is new compared with generation 5 of the criteria.

Halogenated and / or aromatic solvents

Halogenated organic compounds include many substances that are very toxic to aquatic organisms, carcinogenic or otherwise harmful to health and the environment. Halogenated organic compounds are not readily biodegradable, which increases the risk of harmful effects from the substances. Volatile organic solvents may have detrimental effects on the ozone layer.

Cold degreasing is needed to dissolve the toughest dirt such as oils, asphalt and tar. Solvents in Nordic Ecolabelled cold degreasing products may contain ≤ 5000 ppm aromatic hydrocarbons as a result of the purification / refining process. In this way, Nordic Ecolabelling distinguishes the cold degreasing with the lowest aromatic content on the market.The requirement is the same as in generation 5 of the criteria.

Fluorine surfactants and other per- and polyfluorinated compounds (PFC)

Fluorine surfactants and other per- and polyfluorinated compounds (PFC) are prohibited because, as a group of substances, they are very persistent, accumulate in the food chain and can have various negative effects on health and the environment.

The requirement is new compared with generation 5 of the criteria.

BHT (butylated hydroxytoluene)

BHT (butylated hydroxytoluene, CAS no. 128-37-0) is classified by some[3] as muta, carc and repr, and is thus excluded from use via its hazard classification. Since the classification is not harmonised, BHT is included on the list of prohibited substances. Fragrances contain small quantities of BHT as an antioxidant to ensure the stability of the blended fragrance. Fragrances may therefore contain < 100 ppm BHT on condition that the level in the end product does not exceed 1 ppm.

The requirement is new compared with generation 5 of the criteria.

Microplastics

Nordic Ecolabelling has chosen to use the EU Ecolabel's definition of microplastics because the definition used in ECHA's restriction proposal for intentionally added microplastics is under development[4].

Generally speaking, when microplastics are washed into the sewerage system, they mostly end up in the sludge at water treatment plants, but some also pass through. If the plastic particles continue on into lakes and the sea, they are consumed by mussels, fish and other animals and cause damage. Some microplastics are then gradually broken down by sunlight into even smaller particles. The particles can also absorb harmful compounds. Car and boat care products in particular are often used outdoors, so the chemicals end up directly in nature. It is therefore important to be extra careful about what is permitted.

The requirement is new compared with generation 5 of the criteria.

Substances considered to be potential 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.

[3] (ECHA, ei pvm), http: / / mst.dk / virksomhed-myndighed / kemikalier / stoflister-og-databaser / vejledende-liste-til-selvklassificering-af-farlige-stoffer /
[4] 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.[5]

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"[6] and later studies.[7]

The European Commission has established criteria for endocrine disrupting properties in relation to the biocidal[8] and plant protection[9] products regulations (BPR and PPPR). Nordic Ecolabelling prohibits active 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 substances 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, it can be exempted.

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

The reference to BPR and PPPR, CeHoS and ED Expert group is new for this generation of the criteria.

Substances that have been judged in the EU to be PBT (Persistent, Bioaccumulative and Toxic) or vPvB (very Persistent and very Bioaccumulative)

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). Nordic Ecolabelling generally does not want such substances to be included in the products.

[5] Miljøstatus i Norge (2008): Endocrine disrupters: http: / / www.miljostatus.no / Tema / Kjemikalier / Noenfarlige-kjemikalier / Hormonforstyrrende-stoffer / #D (dated February 26 2009)
[6] 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
[7] 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
[8] Commission Delegated Regulation (EU) 2017 / 2100
[9] Commission Regulation (EU) 2018 / 605

Most PBT / vPvB substances are automatically excluded in requirement O12 (Long-term environmental effects). Since some of them, primarily vPvB, may possibly not be excluded in accordance with requirement O12, they are prohibited by Nordic Ecolabelling.

The requirement states that substances that have not yet been investigated but which fulfil the criteria for PBT and vPvB are also prohibited. The prohibition also applies to PBT and vPvB substances on the SIN list that are not yet on the SVHC list.

The requirement is the same as in generation 5 of the criteria.

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. These are 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 with a view to subsequent inclusion in the Approval List. This means that the substance is subject to regulation (prohibition, phasing-out or other type of restriction). Due to these undesirable properties, substances on the Candidate List cannot be Nordic Swan Ecolabelled. Other SVHC substances are addressed via bans on the use of PBT and vPvB substances, and requirements for classification of and ban of endocrine disruptors.

The requirement is the same as in generation 5 of the criteria.

Nanomaterials / particles

Nanoparticles are also prohibited. The greatest cause for concern is the use of nanoparticles that 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.

The definition of nanomaterials / particles has been updated compared with generation 5 of the criteria.

O8 Siloxanes

D4 (octamethylcyclotetrasiloxane, CAS no. 556-67-2), D5 (decamethylcyclopentasiloxane, CAS no. 541-02-6) and D6 (dodecamethylcyclohexasiloxane, CAS no. 540-97-6) may only be included as residues from raw material production and are permitted in the Nordic Swan Ecolabelled product in concentrations <1000 ppm (<0.1000 w-%, <1000 mg / kg) per substance.

✉ Appendix 2 for the product and Appendix 3 for all raw materials or equivalent certification duly completed and signed.

Background to requirement O8

The siloxanes D4, D5 and D6 are listed on the Candidate List of Substances of Very High Concern (SVHC).

D4, D5 and D6 occur as impurities in certain essential silicone oils for waxes. A lot of these can be removed via distillation, but due to a polymerization process that continues in the finished silicone oil, the content of D4, D5 and D6 can increase again. These substances may therefore be included as residues from raw material production in amounts up to 1000 ppm in the finished Nordic Swan Ecolabelled product per substance.

The requirement is new compared with generation 5 of the criteria.

O9 Fragrances

Fragrances must not be present in consumer products* and professional pre-wash products.

The requirement also includes fragrance substances in plant extracts.

Pre-wash products include alkaline degreasers, cold degreasers, microemulsions, insect removers and wheel rim cleaners.

The following applies for other products for professional use:

a) Fragrances must be added in line with IFRA's guidelines.

The guidelines of the International Fragrance Association (IFRA) can be found at www.ifraorg.org/

b) Fragrance substances that are judged to be sensitising with hazard code H317 and / or H334 may only be present to a maximum of 0.0100% (100 ppm) per substance in the product**.

c) Fragrance substances that are subject to declaration according to EC No 648/2004 and subsequent amendments must not exceed 0.0100% (100 ppm) per substance in the product**.

d) Fragrance substances in Table 4 must not exceed 0.0100% (100 ppm) per substance in the product.

Table 4 **Other fragrance substances may be present to a maximum of 100 ppm**

INCI name (or fragrance name in accordance with CosIng)	CAS no.
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	02/12/8024
Cinnamomum cassia leaf oil / Cinnamomum zeylanicum, ext.	8007-80-5 / 84649-98-9

e) HICC, chloroatranol, atranol and Lilial are not permitted in the product.

* *Windscreen washer fluid may contain fragrances.*

** *Products for professional use are exempted from the requirement if the packaging is designed so that the user is at no risk of coming into contact with the product.*

☒ Appendix 2 for the product and Appendix 3 for all raw materials or equivalent certification duly completed and signed.

☒ Fragrance specifications.

☒ Calculation of the amount of substances classified as H334 and / or H317, the 26 allergens and substances listed in Table 4 that are present in the end product.

☒ For products for professional use that are exempted from requirements b) and c): Documentation showing the packaging is designed so that the user is at no risk of coming into contact with the product.

Background to requirement O9

Fragrances are a substance group with no cleaning or polishing effect. At the same time, they comprise a number of ingoing substances with negative effects on health and the environment. Most fragrances contain substances that are classified as H334 and / or H317 and many contain substances that are classified as H411, H412 or H413. According to the Videnscenter for Allergi (the Danish centre for research into allergies) there is in principle no limit for when an allergy causes problems[10]. The user is exposed to the product during manual car, boat and train care, and Nordic Ecolabelling has therefore chosen to prohibit fragrances in consumer products.

When it comes to wash installations, consumers often require scent as part of the wash experience. Fragrances can also mask the smell of stagnant wastewater that can occur in wash installations (both automated and DIY). A complete ban on sensitising fragrance substances in professional products would be likely to result in significantly smaller market penetration for Nordic Swan Ecolabelled products. The overall health and environmental benefits of ecolabelled products in the professional segment would thus be reduced. Nordic Ecolabelling therefore does not prohibit fragrances in all professional products but does prohibit fragrances in pre-wash products. Pre-wash products include alkaline degreasers, cold degreasers, microemulsions, insect removers and wheel rim cleaners. In this

[10] Personal contact with Jeanne Duus, Videncenter for Allergi, 2009.

way, Nordic Ecolabelling encourages lower use of fragrances while still enabling scent to be part of the experience.

a) Compliance with the 73 guidelines of the International Fragrance Association (IFRA) ensures that the manufacture, handling and use of fragrances in the products meets specific standards in terms of prohibited substances, restricted use and purity.

b and c) The aim of restricting sensitising fragrance substances and those that are subject to declaration is to reduce the risk of allergies from the use of Nordic Swan Ecolabelled car, boat and car care products. Products for professional use are exempted from the requirement if the packaging is designed so that the user is at no risk of coming into contact with the product.

d) The requirement covers substances that have recently been judged to be sensitising. In June 2012 a new opinion was issued by the EU's Scientific Committee, SCCS, stating that 127 substances should be declared on products instead of the current 26, "Scientific Committee on Consumer Safety SCCS OPINION on Fragrance allergens in cosmetic products (SCCS/1459/11)"[11]. In this report, SCCS recommends that all the fragrance substances for which they have evidence of potential allergenic effects must be declared by name on cosmetics. Among the 127 fragrance substances, 26 are already restricted under the Detergent Regulation, and a total of 20 carry the hazard classification H317.

Nordic Ecolabelling has chosen to tighten up the requirement on fragrances by adding a requirement to restrict the seven substances with the greatest risk of sensitisation, according to the SCCS report (SCCS/1459/11)[12]. Most of these seven substances do not have a harmonised classification in line with ECHA's Summary of Classification[13], but some are classified as H317. More fragrance substances will gradually be banned according to SCCS recommendations, but this will be done at a speed that keeps pace with test methods and the capacity to document that fragrance substances are not present in the fragrance mix.

e) SCCS recommends that the three substances hydroxyisohexyl 3-cyclohexene carboxaldehyde (HICC), chloroatranol and atranol are not included in cosmetic products. Nordic Ecolabelling therefore considers it relevant to also prohibit them in car, boat and train care products. Chloratranol and atranol occur in Oak moss (Evernia Prunastri) and Tree moss (Evernia Furfuracea) extract. Nordic Ecolabelling also wishes to prohibit these.

Lilial has been self-classified as Repr2 H361 and is therefore included on the list of prohibited fragrances.

[11] SCCS (Scientific Committee on Consumer Safety), opinion on fragrance allergens in cosmetic products, 13-14 December 2011 http: / / ec.europa.eu / health / scientific_committees / consumer_safety / docs / sccs_o_073.pdf
[12] SCCS (Scientific Committee on Consumer Safety), opinion on fragrance allergens in cosmetic products, 13-14 December 2011 http: / / ec.europa.eu / health / scientific_committees / consumer_safety / docs / sccs_o_073.pdf
[13] ECHA, Summary of Classification and Labelling, https: / / echa.europa.eu / sv / information-onchemicals / cl-inventory-database (2017-05-08)

The requirement has been tightened up compared with version 5 of the criteria, in that fragrances must not be present in consumer products and professional pre-wash products.

O10 Phosphorus

Phosphates, phosphonates, phosphonic acid and phosphoric acid must not be present in products for boats and ships.

In other products, phosphates, phosphonates, phosphonic acid and phosphoric acid may not be present in quantities such that the total amount of phosphorus (P) exceeds 2.5 grams / litre of working solution. If the dosing is stated as an interval, the highest recommended dosage is to be used for the calculation.

Observe national legislation on phosphorus in the country in which the product is sold / marketed. In Norway, use of phosphorus is subject to the "Regulation limiting the use of chemicals and other products that are harmful to health and the environment (The Product Regulation)", Sections 2-12. This means that the amount of phosphate in liquid cleaning agents must not exceed 0.2 wt% P.

✉ Calculation of the amount of phosphate, phosphonate, phosphonic acid and phosphoric acid (calculated as phosphorus (P)) in grams / litre of working solution. Nordic Ecolabelling's calculation sheet may be used. It is available from Nordic Ecolabelling's websites.

✉ Documentation of the amount of phosphate (wt% P in the product) showing that the product to be sold on the Norwegian market complies with Norwegian legislation.

Background to requirement O10

Eutrophication is one of today's greatest challenges for lakes in general, and the Baltic Sea in particular. Algal blooms, oxygen deficiency and dead zones are some of the problems for which eutrophication is a contributory factor. Eutrophication occurs when too much of the plant nutrients nitrogen and phosphorus enters the water. Nordic Ecolabelling prohibits phosphates, phosphonates, phosphonic acid and phosphoric acid in products for boats and ships, since they make their way directly into the recipient watercourse after use. In other products, phosphates, phosphonates, phosphonic acid and phosphoric acid may not be present in quantities such that the total amount of phosphorus (P) exceeds 2.5 grams / litre of working solution.

Products sold / marketed in Norway must comply with Norwegian legislation on phosphorus.

The requirement is unchanged compared with version 5 of the criteria.

O11 VOC (volatile organic compounds)

The product may only contain a limited amount of volatile organic compounds (VOC) that can contribute to the formation of photochemical smog, measured as POCP*.

a) The product's content of VOC must be calculated. If a product has a VOC content < 1.2%, the POCP calculation in

requirement b) does not have to be performed, since the requirement will be met even in a worst-case scenario.

b) The maximum content of VOC that can contribute to the formation of photochemical smog in products is 12 g ethylene equivalents / kg product.

$$\frac{\sum m_1 \cdot POCP_1 + m_2 \cdot POCP_2 + ..}{m_{product}} \leq 12\ g\ C_2H_2\ equivalents\ /\ kg$$

m_i = mass in grams of VOC_i in the product

$POCP_i$ = VOC_i substance's POCP factor in Appendix 5

$m_{product}$ = the product's mass in kg

* *Windscreen washer fluid is exempted from this requirement.*

Organic substances are defined as VOC if the vapour pressure is > 0.01 kPa at 20°C.

If information about the vapour pressure of an organic substance that has a boiling point of < 250°C at 101.3 kPa (1 atm) is not available, the organic substance is to be included in the POCP calculation.

POCP: Photochemical Ozone Creation Potential (photochemical ozone is a main ingoing of smog).

For solvents not included in Appendix 5, the calculation may be based on the POCP values derived from completed tests. Alternatively, the worst case for the VOC group in Appendix 5 may be used.

☒ Appendix 3 for all raw materials or equivalent certification duly completed and signed.

☒ Calculation of the product's VOC content.

☒ POCP calculation in line with the requirement. Nordic Ecolabelling's calculation sheet may be used. It is available from our websites.

Background to requirement O11

In chemical terms, volatile organic compounds (VOC) form a very broad group of substances that are so volatile they appear in the outdoor environment, the work environment and indoor air. Since undesirable health and environmental properties can be found within this group of substances, the products must only contain a limited amount of VOC.

Some of the VOC compounds have the capacity to form photochemical smog. This property is called Photochemical Ozone Creation Potential (POCP). An upper limit has also been set for these compounds. The calculation is made with the help of the Danish EDIP method (Environmental Design of Industrial Products, Da: UMIP – Udvikling af Miljøvenlige IndustriProdukter), which is the official Danish method for life cycle analysis.

Windscreen washer fluid is exempt from the requirement since alcohol (ethanol) is an important ingoing.

The requirement is unchanged from generation 5 of the criteria – except that it has been divided into two for the sake of clarity.

5 Ecotoxicity and biodegradability

O12 Long-term environmental effects

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

$100*C_{H410} + 10*C_{H411} + C_{H412} < LV_{H410\,/\,H411\,/\,H412}$, where

C_{H410} = Concentration of substances with H410 in grams / litre of working solution

C_{H411} = Concentration of substances with H411 in grams / litre of working solution

C_{H412} = Concentration of substances with H412 in grams / litre of working solution

$LV_{H410\,/\,H411\,/\,H412}$ = Limit value for ingoing substances which are classified with H410, H411 or H412 in grams / litre of working solution. Limit values per product type are given in Table 5.

Table 5 **$LV_{H410\,/\,H411\,/\,H412}$ in grams / litre of working solution per product type**

Product type	$LV_{H410\,/\,H411\,/\,H412}$
Alkaline degreaser	1,5
Cold degreaser	1,5
Microemulsion (degreaser)	1,5
Shampoo	1,0
Drying aid	1,0
Wax	1,5
Wheel / rim cleaner	1,5
Insect cleaner	1,5
Other products	0,5

b) The use of ingoing substances which are classified* with hazard code H400 is limited as follows:

$C_{H400} < LV_{H400}$, where

C_{H400} = Concentration of substances with H400 in grams / litre of working solution

LV_{H400} = Limit value for ingoing substances which are classified with H400 in grams / litre of working solution. Limit values per product type are given in Table 6.

Table 6 **LV_{H400} in grams / litre of working solution per product type**

Product type	LV_{H400}
Alkaline degreaser	1,2
Cold degreaser	1,2
Microemulsion (degreaser)	1,2
Shampoo	0,8
Drying aid	0,8
Wax	1,2
Wheel / rim cleaner	1,2
Insect cleaner	1,2
Other products	0,4

*Surfactants classified as H412 are exempted from the requirement on the condition that they are readily biodegradable** and anaerobically biodegradable***.*

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.

** Note that in order to assess the classification, all the available data must have been evaluated, including data in ECHA databases.*

*** In accordance with the DID list, version 2016 or later. If the substance is not on the DID list, or data on the DID list is lacking, document in accordance with test method no. 301 A–F, no. 310 in OECD guidelines for testing of chemicals or other scientifically accepted test methods if the test results are evaluated by an independent body and controlled by Nordic Ecolabelling.*

**** In accordance with the DID list, version 2016 or later. If the substance is not on the DID list, or data on the DID list is lacking, document in accordance with ISO 11734, ECETOC no. 28, OECD 311 or other scientifically accepted test methods if the test results are evaluated by an independent body and controlled by Nordic Ecolabelling, where a minimum of 60% degradability under anaerobic conditions is achieved.*

✉ Summary of the product's content in % by weight of substances classified as H400, H410, H411 and H412.

✉ Appendix 2 for the product and Appendix 3 for all raw materials or equivalent certification duly completed and signed.

✉ Calculation to show that requirement a) is fulfilled. Nordic Ecolabelling's calculation sheet may be used. It is available from our websites.

✉ Report on surfactants that are to be exempted from the requirement (quantity, classification, biodegradability).

✉ Calculation to show that requirement b) is fulfilled. Nordic Ecolabelling's calculation sheet may be used. It is available from our websites.

Background to requirement O12

Substances that do not break down readily may cause problems now and in the future. The effects can be particularly serious if the substance is also acutely toxic. For this reason, requirements have been set concerning the concentration of substances with hazard statements H410 (very toxic to aquatic life with long-lasting effects), H411 (toxic to aquatic life with long-lasting effects, H412 (harmful to aquatic life with long-lasting effects), and H400 (very toxic to aquatic life). Since some of the products in this product group are sometimes used outdoors, and residues of these products may thus directly enter nature, it is important to restrict the content of substances with classification H400.

Under the requirement, the manufacturers themselves must document that the ingoing substances are not classified as set out in the requirement.

Having a weighting for the parameters places the greatest restriction on substances classified as H410. The weighting in the formula is linked to classification limits for each classification. It has been indicated that there is a need to improve the summary of the different environmental hazard classes and, with the help of weighting, to better reflect the real impact in the environment. The limit values are set so that they are as harmonized as possible with the levels of the CDV values.

See Table 7 for definitions of product types.

Table 7 **Definition of product types**

Product type	Definition
Alkaline degreaser	Water-based degreaser with 5-10% surfactant and 5-20% alkali, e.g. Meta silicate, potassium, or sodium hydroxide.
Cold degreaser	Contains mainly hydrocarbons, and/or residual fatty acids and 2-4% surfactants.
Microemulsion (degreaser)	Degreaser with 5-30% hydrocarbons emulsified in water using 5-20% surfactants.
Shampoo	Shampoo: Mainly composed of water and surfactants, and usually diluted before use. Wax shampoo: Shampoo with emulsified wax. Wax usually has a feature as a layer on top of the lacquer, but it can also act as a solvent.
Drying aid	Used in combination with automatic car wash cleaning products to facilitate drying. These materials often contain cation surfactants with a high attraction to the painted surfaces and thus give a water-repellent film. Silicone and polyethylene wax is also used.
Wax	Used to give the paint/surface a protective layer and is found in pure form (hard wax), semi-liquid form (liquid hard wax) or in emulsified form (polish).
Wheel / rim cleaner	Used to clean wheel/rim.
Insect cleaner	Used to clean spots from insect.
Other products	

The requirement has been amended in relation to generation 5 of the criteria, as follows:

- The total limit value for substances classified with H410, H411 or H412 was previously 1.5 grams / litre of working solution for all product types. It is now differentiated for each product type and lowered for some. This is because there will be different types of ingredients included in the different product types, and thus different long-term effects on the environment.
- Surfactants classified with H411 can no longer be exempted from the requirement.
- The limit value for substances classified with H400 was previously 1.2 grams / litre of working solution for all product types. It is the same as for substances with long-term effects on the environment, differentiated by product type and in some cases lowered.

O13 CDV (product's critical dilution volume)

The product's critical dilution volume (CDV) must not exceed the maximum values stated in Table 8*.

Table 8 **Max values for $CDV_{chronic}$ / litre working solution per product type**

Product type	Max value for $CDV_{chronic}$ / litre working solution
Alkaline degreaser	100,000
Cold degreaser	175,000
Microemulsion (degreaser)	175,000
Shampoo	50,000
Drying aid	30,000
Wax	125,000
Wheel / rim cleaner	250,000
Insect cleaner	250,000
Other products	25,000

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

$CDV_{chronic} = \sum CDV_i = \sum (dose_i \times DF_i \times 1000 / TF_{i\ chronic})$, where

$dose_i$ = The ingoing volume of each individual substance "i", in grams / litre of working solution

DF_i = Biodegradation 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.

CDV is calculated based on the highest stated working solution (grams / litre of working solution) on the label.

**Windscreen washer fluid is exempted from this requirement.*

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

☒ Calculation of $CDV_{chronic}$ for the product. Nordic Ecolabelling's calculation sheet may be used. It is available from our websites.

☒ Appendix 3 for all raw materials or equivalent certification duly completed and signed.

Background to requirement O13

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. Setting a maximum limit for CDV ensures that the Nordic Swan Ecolabelled products have a minimal impact on the recipient watercourse. CDV is calculated for all ingoing substances in the product.

The CDV limit is only stated with chronic values in generation 6. 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.

See Table 7 in background to requirement O12 for definitions of product types.

The product types are slightly different compared with generation 5 of the criteria.

- Engine wash has been deleted, as these products are degreasers.
- Window wash has been deleted, with these products instead belonging to other product types.
- Degreasers are split into alkaline degreasers, cold degreasers and microemulsions.
- Wheel and rim cleaners and insect cleaners have been separated out from other products.

The requirement limits for CDV have been tightened for all product types compared with generation 5 of the criteria in terms of numerical values. A switch from acute to chronic data means, however, that the tightening is slightly smaller than the figures suggest. The new thresholds are based on data which Nordic Ecolabelling has for products that hold ecolabelling licences.

6 Requirements for windscreen washer fluid

The requirements in this section apply only to windscreen washer fluid.

O14 Ethanol

Concentrated windscreen washer fluid (<10 vol % water)

a) The ethanol must be produced from renewable raw material.

A renewable raw material is defined as a raw material originating from biological material which is renewed continuously in nature within the immediate future, such as cereals and wood (European standard EN 16575:2014).

b) On an annual basis at least 50% must be produced from a residual product in line with the Renewable Energy Directive (EU) 2018/2001[14].

Residue: a substance that is not the end product(s) that a production process directly seeks to produce; it is not a primary aim of the production process and the process has not been deliberately modified to produce it.

Agricultural, aquaculture, fisheries and forestry residues: residues that are directly generated by agriculture, aquaculture, fisheries and forestry and that do not include residues from related industries or processing.

c) Ethanol that is produced from sugar cane is prohibited.

The requirement does not cover by-products, residues and waste products from the sugar cane industry itself. The requirement also does not cover residues and waste products generated by households or commercial, industrial or institutional facilities in their role as end-users of a product that can no longer be used for its intended purpose.

d) Ethanol that is produced from genetically modified organisms (GMOs), e.g. genetically modified maize or sugar beet, is prohibited.

Genetically modified organisms are defined in EU Directive 2001/18. Enzymes and other substances produced by the use of genetically modified microorganisms are not defined as GMOs or material derived from GMOs.

Pre-mixed windscreen washer fluid (>10 vol % water)

a) The ethanol must be produced from renewable raw material.

A renewable raw material is defined as a raw material originating from biological material which is renewed continuously in nature within the immediate future, such as cereals and wood (European standard EN 16575:2014).

b) On an annual basis at least 90% must be produced from a residual product in line with the Renewable Energy Directive (EU) 2018/2001[15].

Residue: a substance that is not the end product(s) that a production process directly seeks to produce; it is not a primary aim of the production process and the process has not been deliberately modified to produce it.

[14] DIRECTIVE (EU) 2018 / 2001 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 on the promotion of the use of energy from renewable sources, Article 2, points 43 and 44.
[15] DIRECTIVE (EU) 2018 / 2001 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 on the promotion of the use of energy from renewable sources, Article 2, points 43 and 44.

Agricultural, aquaculture, fisheries and forestry residues: residues that are directly generated by agriculture, aquaculture, fisheries and forestry and that do not include residues from related industries or processing.

c) Ethanol that is produced from sugar cane is prohibited.

The requirement does not cover by-products, residues and waste products from the sugar cane industry itself. The requirement also does not cover residues and waste products generated by households or commercial, industrial or institutional facilities in their role as end-users of a product that can no longer be used for its intended purpose.

d) Ethanol that is produced from genetically modified organisms (GMOs), e.g. genetically modified maize or sugar beet, is prohibited.

Genetically modified organisms are defined in EU Directive 2001/18. Enzymes and other substances produced by the use of genetically modified microorganisms are not defined as GMOs or material derived from GMOs.

✉ Declaration of the type of renewable raw material used.

✉ Documentation showing that the residual product meets the definition in the Renewable Energy Directive (EU) 2018/2001.

✉ Calculation to show the proportion of ethanol produced from a residual product on an annual basis.

✉ Appendix 6 or equivalent certification duly completed and signed.

Background to requirement O14

Each year, between 30-35 million liters of windscreen washer fluid is used in Denmark, Norway and Sweden[16].

The use of pre-mixed windscreen washer fluid entails transporting water and produces larger quantities of packaging material. Nordic Ecolabelling is well aware of the environmental benefits of concentrated windscreen washer fluid over the pre-mixed option. By only allowing the Nordic Swan Ecolabelling of concentrated windscreen washer fluid in earlier generations of the criteria, Nordic Ecolabelling has tried to promote the use of concentrated products. The market has instead developed in exactly the opposite direction and the majority of the windscreen washer fluid used in the Nordic region today is pre-mixed.

Windscreen washer fluid is released into the aquatic environment directly after use. The amount of surfactants that end up in the recipient watercourse is the same, whether a concentrated or pre-mixed windscreen washer fluid has been used, as the concentrated version is diluted before use. It is therefore equally relevant to have environmental requirements for surfactants in pre-mixed and concentrated windscreen washer fluid.

[16] Holmberg, Fred; Business Development Swed Handling AB. E-mail. 2019-12-03.

In the case of concentrated windscreen washer fluid, there is a risk of incorrect dosing – and thus overdosing – when consumers have to dilute the concentrated product themselves. During the dilution process, there is also a risk that the consumer will come into contact with the concentrated product. These risks are limited when using pre-mixed windscreen washer fluid.

By including pre-mixed windscreen washer fluid in the criteria, Nordic Ecolabelling is enable to separate out the best products in the pre-mixed segment from an environmental perspective.

a) Ethanol is produced petrochemically through the hydration of ethylene. Ethanol can also be produced from vegetable raw materials, primarily cereals, sugar and maize. In order to encourage a move away from fossil materials, Nordic Ecolabelling sets a requirement that all ethanol used in Nordic Swan Ecolabelled windscreen washer fluid must be based on vegetable raw material.

b) The table below shows greenhouse gas emissions (gCO_2eq / MJ) for cultivation, processing, transport and distribution for ethanol from common production methods used in Europe[17]. The values refer to biofuels, but windscreen washer fluid is assumed to follow the same pattern, even for distribution. The values show that ethanol from wheat straw, which is a residual product, gives a greenhouse gas reduction of at least 50% compared to ethanol from sugar cane. Compared to conventional wheat ethanol (natural gas as process fuel in cogeneration plants), the greenhouse gas reduction is at least 70%. Nordic Ecolabelling leaves open to later approve ethanol which reduces greenhouse gas emissions by x% compared with fossil alternatives in accordance with the Renewable Energy Directive (EU) 2018/2001.

Table 9 **Greenhouse gas emissions for ethanol**

Ethanol from different production methods	**Typical value for greenhouse gas emissions (gCO_2eq / MJ)***	**Default value for greenhouse gas emissions (gCO_2eq / MJ)***
Wheat straw ethanol	11	13
Waste wood ethanol	17	22
Farmed wood ethanol	20	25
Sugar beet ethanol	33	40
Wheat ethanol (process fuel not specified)	57	70
Wheat ethanol (lignite as process fuel in CHP plant)	57	70
Wheat ethanol (natural gas as process fuel in conventional boiler)	46	55
Wheat ethanol (natural gas as process fuel in CHP plant)	39	44
Wheat ethanol (straw as process fuel in CHP plant)	26	26
Corn (maize) ethanol, Community produced (natural gas as process fuel in CHP plant)	37	43
Sugar cane ethanol	24	24

* *Totally for cultivation, processing, transport and distribution for biofuels.*

c) Sugar cane is not currently associated as strongly with the problems of rainforest destruction mentioned above as palm oil and soy oil are, but there can also be challenges linked to its production. Over the period 1960–2008, the land

[17] DIRECTIVE 2009 / 28 / EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2009 on the promotion of the use of energy from renewable sources.

used for sugar cane cultivation rose from 1.4 to 9 Mha. Around 65% of newly planted sugar cane is grown on plains (grasslands and savannahs) and the remainder comprises areas previously used for other types of farming. However, as demand for sugar cane as a raw material rises, opportunities to expand the production areas are being explored. A loss of biodiversity in the rainforest may therefore become a problem associated with sugar cane in the future. At this point in time, the Cerrado is under the greatest pressure from the sugar cane industry. The Cerrado is a tropical savannah in Brazil that has unique biodiversity and specific ecosystems that are under threat.[18] Nordic Ecolabelling therefore does not allow ethanol based on sugar cane in Nordic Swan Ecolabelled windscreen washer fluid.

d) GMO is a highly debated topic, and several countries have banned cultivation of GMOs. Topics discussed are food security, land use, lack of scientific knowledge about effects under local agricultural / forest conditions and risk of adverse effects on health and the environment.

Nordic Ecolabelling emphasises the precautionary principle and bases its position on regulations that have a holistic approach to GMOs. This means that sustainability, ethics and benefit to society must be emphasised together with health and the environment. We are not in principle against genetic engineering and GMOs per se but are concerned about the consequences when genetically modified plants, animals and microorganisms are propagated in nature. Nordic Ecolabelling believes that GMOs should be assessed on a case-by-case basis.

Research has not clearly shown that today's GMOs contribute towards sustainable agriculture with less use of pesticides, and there is a lack of research into long-term consequences of GMOs, both environmental, social and economic consequences. There are potential adverse effects of GMOs along the entire value chain from crop research and development, through cultivation, storage, use and waste management.[19]

In several of these stages, there is a lack of scientific studies, and there is a lack of holistic assessment.[20,21,22,23] Today's GMOs are also adapted to industrial agriculture with companies that have obtained a monopoly-like position, and Nordic Ecolabelling wishes to contribute to limiting the negative consequences of this.

GMOs (genetically modified organisms) that can be relevant for ethanol production are maize, sugar beet and sugarcane. About 30 percent of the world's

[18] http: / / www.wwf.dk / wwfs_arbejde / skov / soja / skovomrader / cerrado / (besøgt 10. december 2017)
[19] Catacora-Vargas G (2011): "Genetically Modified Organisms – A Summary of Potential Adverse Effects Relevant to Sustainable Development. Biosafety Report 2011 / 02, GenØk – Centre for Biosafety.
[20] Catacora-Vargas G (2011): Genetically Modified Organisms – A Summary of Potential Adverse Effects Relevant to Sustainable Development. Biosafety Report 2011 / 02, GenØk – Centre for Biosafety.
[21] Kolseth et al (2015) Influence of genetically modified organisms on agro-ecosystem processes. Agriculture, Ecosystems and Environment. 214 (2015) 96–106.
[22] Fischer et al. (2015) Fischer et al. (2015): Social impacts of GM crops in agriculture: a systematic literature review. Sustainability 7:7.
[23] Catacora-Vargas G et al. (2018): Socio-economic research on genetically modified crops: a study of the literature. Agriculture and Human Values 35:2.

commercially available maize is genetically modified.[24] Most GM (genetically modified) maize varieties, like other GMOs, are resistant to certain herbicides and / or insects. But there is also a GM maize variety that is modified to produce an enzyme that helps breaking down the starch to sugar more efficiently at the ethanol factory.[25] This may cause problems if it cross- pollinates other maize crops or contaminates the food chain.[26] GM sugar beet is widely grown in North America.[27] In 2018 genetically modified sugarcane was cultivated in Brazil for the first time.[28]

Enzymes used as catalysts in industrial processes may sometimes be produced by genetically modified microorganisms in closed systems. Such enzymes are not themselves defined as GMOs or material derived from GMOs and are thus allowed to use in the ethanol production.

The requirement has been tightened up compared with version 5 of the criteria. The earlier criteria only contained a requirement that at least 80% by volume of the product must be based on vegetable raw material.

O15 Performance and frost protection

The product must perform at least as effectively as equivalent products on the market. The product's performance must be documented with a user test as set out in Appendices 7 and 8.

The product's frost protection is to be documented in accordance with standard ASTM D1177-17 "Standard Test Method for Freezing Point of Aqueous Engine Coolants", ASTM D2386-19 "Standard Test Method for Freezing Point of Aviation Fuels" or equivalent.

✉ User test in line with Appendices 7 and 8.

✉ Test report in accordance with standard ASTM D1177-17 "Standard Test Method for Freezing Point of Aqueous Engine Coolants", ASTM D2386-19 "Standard Test Method for Freezing Point of Aviation Fuels" or equivalent.

Background to requirement O15

The windscreen washer fluids that are available on the market vary in their performance and there may be major differences between the freezing point stated on the packaging and the actual freezing point. Nordic Ecolabelling therefore sets a requirement concerning the product's performance and frost protection.

[24] ISAAA (2019) Brief 54: Global Status of Commercialized Biotech / GM Crops: 2018. http: / / isaaa.org / resources / publications / briefs / 54 / default.asp (2020-04-21)
[25] www.syngenta-us.com / corn / enogen (2020-04-21)
[26] Waltz E (2011) Amylase corn sparks worries. Nature Biotechnology 29:294. https: / / doi.org / 10.1038 / nbt0411-294
(2020-04-21)
[27] Fernandez-Cornejo J, Wechsler S, Milkove D (2016) The Adoption of Genetically Engineered Alfalfa, Canola, and Sugarbeets in the United States. EIB-163, USDA, Economic Research Service November 2016.
[28] www.reuters.com / article / brazil-sugarcane-ctc / brazil-sugar-mills-start-genetically-modified-cane-plantation-idUSL8N1QK5VD (2020-04-21)

The requirement has been clarified compared with version 5 of the criteria. For example, it is made clear that at least 80% of the users who test a product in a user test must find it acceptably effective or very effective in order for the requirement to be met.

7 Packaging and user information

This chapter contains requirements concerning plastic packaging and user information. If the product is packaged in a material other than plastic, please contact Nordic Ecolabelling to establish requirements.

O16 Recycling design of plastic packaging (excluding flexible bags / pouches)

Plastic packaging smaller than 200 liters and associated closures must have a design that facilitates material recovery*.

Packaging refers to bottles, cans, pots or similar.

Closure refers to caps, lids, oblates, seals, and integral dosing devices / pumps.

- Packaging and closures must be made from either PE (polyethylene), PP (polypropylene) or PET (polyethylene terephthalate).
- Oblate and seals must be made of PE (polyethylene), PP (polypropylene), PET (polyethylene terephthalate), aluminium or paper. They must be separable from packaging or cap / lid.
- It is not allowed to add pigments to PET used for packaging.

  Exception:

  - Recycled PET-granulate where the pigment originates from the recycled material.
  - *Pigments that are added to UV blockers and that do not make up more than 10 ppm of the packaging (without closure).*
- Packaging and closures must not be dyed with carbon black.

  Exception: Small amounts of carbon black used in other colours than black if it can be documented that the NIR sensor reads and sorts the packaging or the closure to the correct plastic fraction.
- Silicone must not be used in closures.

  Exception: Lubricant in spray bottle triggers.
- Barriers are not permitted in packaging.
- Fillers such as $CaCO_3$ must not be added to PE and PP packaging and closures to a level that takes the density of the plastic beyond 0.995 g / cm^3.
- There must be no metal components in packaging, closures or labels.

  Exception:

- *Metal springs in pump bottles.*

- PS, (polystyrene), PET (polyethylene terephthalate), PVC (polyvinyl chloride) and other halogenated plastics may not be used in labels.
- PET-G (polyethylene terephthalate glycol-modified) must not be used in labels / shrink sleeve labels.
- Labels / shrink sleeve labels must not cover more than more than 60% of the packaging surface.

  The calculation of the percentage is to be based on the two-dimensional profile of the packaging. If the label is of a different size on the front and the back of the packaging, the 60% requirement must be met for each side separately. Only the areas that are visible to the NIR detector when the packaging is placed on the sorting conveyor need to be included in the calculation. This means that the sides of the packaging as well as the top and bottom should not be included in the calculation. For a cylindrical bottle, the calculation can be based on the three-dimensional profile exclusive the top and bottom.

  Exception: Labels / shrink sleeve labels that are the same plastic as the packaging.

Note that Nordic Ecolabelling will be conducting a project on labels to see whether more label-related requirements should be included in the criteria. A decision will be taken, and an implementation plan presented in March 2021.

***** *If the product is packaged in a material other than plastic, please contact Nordic Ecolabelling to establish requirements.*

✉ Packaging specification (including bottle / can / pot or similar, labels and closure) or certification showing which plastic has been used and the colour of the packaging and closure.

✉ Appendix 9 or equivalent certification duly and signed.

✉ Documentation showing that the NIR sensor reads and sorts the packaging or closure to the correct plastic fraction if small amounts of carbon black have been used in other colours than black.

✉ Calculation showing that the density limit has not been exceeded.

✉ Calculation of the size of the label in relation to the packaging.

Background to requirement O16

The Nordic recycling manuals[29] are the base for the requirement stating that plastic packaging must be made from PE, PP or PET. These are the best plastics

[29] "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 / 442070829017fd4aa7d7e00bf9609 78b (besökt 2019-04-30) https: / / plast.dk / wp-content / uploads / 2018 / 11 / Design-manual-ENG-Forum-for-Circular-PlasticPackaging-NOVEMBER-2018.pdf, https: / / plast.dk / wp-content / uploads / 2018 / 06 / Bilag-Adesignmanual.pdf

from the recycling perspective. Biodegradable plastics are not suitable in today's recycling systems and can cause problems in the material recovery process.

Oblate and seals are used because closures must be guaranteed to be tight in all handling, even when transporting large quantities. Many conveyors use automatic machine sorting where packages are handled very harshly. Then ordinary corks are not enough, but a oblate is required if the packaging is to be tight. Wafers and seals are a small part of the packaging and they are also allowed to be made of aluminium and paper if they are separable from the packaging or cap / lid.

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 virgin PET, pigments are not accepted since there is no market for coloured packaging and coloured packaging are currently burned in Nordic recycling systems. 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 colours, 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.

Fillers are restricted so that the HDPE or PP density does not exceed 0.995g / cm^3. 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[30] [31].

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

From a recycling point of view, labels should preferably be of the same material as the bottle[32]. 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. 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.

At present, almost all car, boat and train care products are packaged in plastic packaging, which is why the requirements focus on these. The future may bring new materials into play for packaging, in the desire to reduce the use of plastic in general, switch to an increased share of renewable materials or ensure a higher share of recycled material. This ongoing development of the packaging market

[30] Plastkretsen and FTI, Bättre förutsättningar för återvinning av plastförpackningar.
[31] http: / / www.plasticsrecycling.org / hdpe hämtad 2017-08-08
[32] 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.

can happen quickly and can be difficult to predict. Therefore, Nordic Ecolabelling reserves the right to assess alternative packaging materials for car, boat and train care products and their environmental performance in specific inquiries. Future requirements for other packaging materials will be published in future versions of the criteria if these are developed.

The requirement is new compared with generation 5 of the criteria.

O17 Recycling design of flexible bags / pouches

Pouches must have a design that facilitates material recovery.

Packaging means flexible bags / pouches.

Closure means caps and lids.

- Packaging and closures must be made from either PE (polyethylene), PP (polypropylene) or PET (polyethylene terephthalate).
- The packaging must be made of monomaterial, i.e. not laminated with layers of different materials. Barrier coatings must only use EVOH (ethylene vinyl alcohol) and make up max 2% of the total weight.
- Packaging and closures must not be dyed with carbon black.

  Exception:

  - *Small amounts of carbon black used in other colours than black if it can be documented that the NIR sensor reads and sorts the packaging or the closure to the correct plastic fraction.*
  - *Text and pictograms.*
- Silicone must not be used in closures.
- Fillers such as $CaCO_3$ must not be added to PE and PP packaging or closures to a level that takes the density of the plastic beyond 0.995 g / cm^3.
- PS, (polystyrene), PET (polyethylene terephthalate), PVC (polyvinyl chloride) and other halogenated plastics may not be used in labels.

✉ Packaging specification (including pouch, any labels and closure) or certification showing which plastic has been used and the colour of the packaging and closure.

✉ Appendix 9 or equivalent certification duly and signed.

✉ Documentation showing that the NIR sensor reads and sorts the packaging or closure to the correct plastic fraction if small amounts of carbon black have been used in other colours than black.

✉ Calculation showing that the density limit has not been exceeded.

Background to requirement O17

The requirement for pouches is the same as for plastic packaging and closures, with the addition that barrier coatings must only use EVOH (ethylene vinyl alcohol) and make up max 2% of the total weight. This is in line with what recycling companies recommend in order to avoid negative effects on the recycling process.[33]

Nordic Ecolabelling is aware that it is currently not possible to produce flexible bags / pouches from monomaterial if they are to meet the requirements for UN labelling. In practice, therefore, the requirement means that we steer towards cans or bottles in, for example, polyethylene (PE). Such packaging requires more packaging material per litre of liquid, but can in turn be recycled, which Nordic Ecolabelling considers to be superior.

The requirement is new compared with generation 5 of the criteria.

O18 Packaging for spray products

a) Sprays that contain propellants are not allowed.

b) Spray products for interior cleaning must have a permanent aerosol-reducing nozzle (foaming nozzle).

Alternatively, spray products must have some other aerosol-reducing system, such as an aerosol-reducing formulation that gives a viscous product. This alternative is acceptable if a test is carried out showing that the amount of inhalable, thoracic and respirable aerosol is at least as low for the test product in its ordinary packaging as it is for a reference product with a foaming nozzle. The reference product must be a Nordic Swan Ecolabelled product with a foaming nozzle.

The chemical composition and physical properties of the reference product must be equivalent to the product being tested. This test is to be carried out in line with the "determination of inhalable, thoracic and respirable aerosol fractions", as described in Olsen et al. (2017)[34]. The test is to be performed in a laboratory that is competent and independent. It must meet the general requirements of standard EN ISO 17025 or have official GLP laboratory status.

✉ Documentation showing that no propellant is used, for example a description of the packaging.

✉ Certification / documentation from the manufacturer of the trigger / spray bottle showing that it has a permanent foaming nozzle.

✉ Description of the alternative aerosol-reducing system and test report on the comparison between the test and reference products.

✉ Documentation showing that the test was performed at a laboratory that is competent and independent – and that meets the general

[33] Grönt Punkt: Basic Facts Report on Design for Plastic Packaging Recyclability, 2017 https: / / www.grontpunkt.no / media / 2777 / report-gpn-design-for-recycling-0704174.pdf
[34] Rengjøringsmidler i sprayform – Frigir de helseskadelige stoffer til arbeidsatmosfæren som kan inhaleres til lungene? Olsen, R., et al. (2017). STAMI report No. 2. ISSN no. 1502-0932.

requirements of standard EN ISO 17025 or has official GLP laboratory status.

Background to requirement O18

a) Cleaning sprays with a propellant differ from trigger sprays in that the container is metal and the products contain propellants that are usually flammable. Car, boat and train care products with propellants have a low market share, making the potential low. In this revision of the criteria, Nordic Ecolabelling has therefore decided to exclude this product format, without investigating in detail the environmental effects compared with trigger spray products.

b) Products sold in spray bottles have a different exposure scenario compared with products that are diluted in water before use. Using a spray forms a mist that the user could breathe in. This increases the risk of the user being exposed to allergens, especially when used inside the car..

Several studies have indicated a correlation between cleaning sprays and asthma in adults[35]. The amount of the health-related aerosol fractions (inhalable, thoracic and respirable aerosols) in spray mists can be significantly reduced by using a foaming nozzle[36] [37].

Spray products for interior cleaning without a foaming nozzle or an equivalent aerosol-reducing system will now no longer be eligible for Nordic Swan Ecolabelling.

The second alternative involves the manufacturer of the product reducing aerosols in some other way, such as having a viscous product. This may be acceptable if a test can show that, in its ordinary packaging, the test product has at least as low a level of inhalable, thoracic and respirable aerosol as a reference product with a mesh foamer. The reference product must be a Nordic Swan Ecolabelled product with a mesh foamer. This test is to be carried out in line with the "determination of inhalable, thoracic and respirable aerosol fractions", as described in Olsen et al. (2017)[38]. The test is to be performed in a laboratory that is competent and independent. It must meet the general requirements of standard EN ISO 17025 or have official GLP laboratory status.

Requirement b is new compared with version 5 of the criteria.

O19 User information

The product's label must include the information below. In the case of products for professional use, the information may be provided on an accompanying product sheet.

[35] Siracusa A, De Blay F, Folletti I, Moscato G, Olivieri M, Quirce S, Raulf-Heimsoth M, Sastre J, Tarlo SM, Walusiak-Skorupa J, Zock J-P. Asthma and exposure to cleaning products – a European Academy of Allergy and Clinical Immunology task force consensus statement. Allergy 2013; 68: 1532-1545
[36] Rengjøringsmidler i sprejform – Frigir de helseskadelige stoffer til arbeidsatmosfæren som kan inhaleres til lungene? Olsen, R., et al. (2017). STAMI-rapport nr 2. ISSN nr 1502-0932. https: / / stami.no / wp-content / uploads / 2017 / 02 / STAMI-rapport20nr202202017.pdf
[37] Personal contact with Raymond Olsen, STAMI, 2017
[38] Rengjøringsmidler i sprejform – Frigir de helseskadelige stoffer til arbeidsatmosfæren som kan inhaleres til lungene? Olsen, R., et al. (2017). STAMI report No. 2. ISSN no. 1502-0932.

- The product's area of use.
- Dosing instructions for products that need to be diluted before use.
- Freezing point at the recommended dosing for windscreen washer fluid.
- How the packaging should be sorted / recycled in each Nordic country in which it is sold. Text or symbols may be used.
- For consumer products: Encouragement to wash in a place where the water drains into a sewerage system connected to a water treatment plant. Suggested text: *To protect the environment when washing – choose a place where the water drains into a sewerage system connected to a water treatment plant.*

  Windscreen washer fluids are excempted.

✉ Copy of label and / or product sheet.

Background to requirement O19

A significant environmental parameter is that the product is used for the correct purpose and that the correct dosage is used. Incorrect use and overdosing lead to an increased and unnecessary environmental impact. Nordic Ecolabelling therefore sets a requirement that the product's label must carry clear information on the area of use and the dosing. It is also important that users of consumer products are encouraged to choose a washing location where the water is drained into a sewerage system connected to a water treatment plant, in order to avoid products being released directly into the aquatic environment. To encourage recycling, information must be provided on how the packaging should be sorted / recycled in each Nordic country in which it is sold.

The requirement has been updated from generation 5 of the criteria with regard to information on how the packaging should be sorted / recycled in each Nordic country in which it is sold.

8 Performance

Windscreen washer fluid is not subject to requirement O20.

O20 Performance

The product must perform at least as effectively as equivalent products on the market. The product's performance must be documented as stated below:

- In the case of consumer cleaning products, their performance must be documented with a function test as set out in Appendix 10.
- With cleaning products for professional use, performance is to be documented with either:

a) a function test in line with Appendix 10 or

b) a user test in line with Appendices 11 and 12.

- The performance of polishing products for manual use is to be documented in line with standard ASTM D4955-89 “Standard Practice for Field Evaluation of Automotive Polish”.
- The performance of polishing products for non-manual use is to be documented with either:

  a) a function test in line with Appendix 10 or

  b) a user test in line with Appendices 11 and 12.
- For drying aids, rinsing aids, spray waxes and combi waxes that form part of a system together with other Nordic Swan Ecolabelled cleaning or polishing products for automated wash installations, performance is to be documented with either:

  a) a function test in line with Appendix 10 or

  b) a user test in line with Appendices 11 and 12.

✉ For consumer cleaning products: Function test in line with Appendix 10.

✉ For cleaning products for professional use: Function test in accordance with Appendix 10 or user test in accordance with Appendices 11 and 12.

✉ For polishing products for manual use: Test report in line with the standard ASTM D4955-89 “Standard Practice for Field Evaluation of Automotive Polish”.

✉ For polishing products for non-manual use: Function test in accordance with Appendix 10 or user test in accordance with Appendices 11 and 12.

✉ For drying aids, rinsing aids, spray waxes and combi waxes that form part of a system together with other Nordic Swan Ecolabelled cleaning or polishing products for automated wash installations: Function test in accordance with Appendix 10 or user test in accordance with Appendices 11 and 12.

Background to requirement O20

It is important that Nordic Swan Ecolabelled products perform at least as effectively as equivalent products on the market. The product’s performance must therefore be documented with a function test or user test, or in line with the standard ASTM D4955-89 “Standard Practice for Field Evaluation of Automotive Polish”, depending on the product’s function and area of use. As part of the revision for generation 6 of the criteria, Nordic Ecolabelling has investigated whether there are standardised performance tests for more product types than polishing products for manual use. Since this does not seem to be the case, Nordic Ecolabelling has chosen to retain the requirement regarding function tests and user tests. The requirement has however been clarified compared with generation 5 of the criteria. For example, it is made clear that at least 80% of the professional users who test a product in a user test must find the product / product system acceptably effective or very effective in order for the requirement to be met.

9 Quality and regulatory requirements

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

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

O21 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.

O22 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.

O23 Quality of the car, boat or train care product

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

🔑 The claims archive is checked on site.

O24 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.

O25 Unplanned nonconformities

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

✉ Procedures detailing how unplanned nonconformities are handled.

O26 Traceability

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

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

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

O27 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.

10 Areas without requirements

There is no requirement concerning a weight-to-benefit ratio (WBR) for packaging. The background is that there does not appear to be any significant difference in the packaging from the different manufacturers. There also does not appear to be any demand for specially designed packaging in the way that there is in other product groups such as cleaning products and cosmetics. The crucial factors are the packaging's resistance to chemicals, physical stresses and leakage, and where necessary, that the packaging meets the requirements for UN labelling. There is little interest in unnecessary packaging material, among both manufacturers and customers. Professional products are usually supplied in large volumes (10, 25 or 200 litres), which makes the environmental impact of the packaging small in relation to the product's other impacts.

11 Changes compared to previous generation

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

Table 10 **Overview of changes to criteria for car, boat and train care products generation 6 compared with previous generation 5.**

Proposed requirement generation 6	Requirement generation 5	Same requirement	Change	New requirement	Comment
O1 Description of the product	O1		X		A statement is required on how the product's dosing in grams / litre of working solution has been arrived at, based on the recommended dosing on the label / product sheet.
O2 Formulation	O2	X			
O3 Sustainable raw materials				X	
O4 Classification of the product	O3		X		CRM substances are prohibited at product level in addition to raw material level.
O5 Classification of ingoing substances	O6 and O7		X		The requirement is a merger of two previous requirements on allergenic substances and CMR substances respectively. The requirement has been tightened in reference to sensitising substances and in setting a limit for how much NTA is permitted in the raw material.

O6 Organic substances, degradability	O9	X			
O7 Substances prohibited from products	O10 and O12		X		The requirement has been tightened in terms of the following: - Phthalates are prohibited - MG (methyldibromo glutaronitrile, CAS no. 35691-65-7) is prohibited - MI (methylisothiazolinone, CAS no. 2682-20-4) is prohibited - Fluorine surfactants and other per- and polyfluorinated compounds (PFC) are prohibited - BHT (butylated hydroxytoluene, CAS no. 128-37-0) is prohibited - Microplastics are permitted - Endocrine disruptors are prohibited
O8 Silicons	Partly O10			X	
O9 Fragrances	O11 and O3		X		The requirement has been tightened in that fragrances must not be present in consumer products and professional pre-wash products.
O10 Phosphorus	O17	X			
O11 VOC (volatile organic compounds)	O16	X			
O12 Long-term environmental effects	O5		X		The requirement is differentiated by product type and tightened for certain types.
O13 CDV (product's critical dilution volume)	O14		X		Switch from acute to chronic data. The product types are slightly different compared with generation 5 of the criteria. - Engine wash has been deleted, as these products are degreasers. - Window wash has been deleted, with these products instead belonging to other product types. - Degreasers are split into alkaline degreasers, cold degreasers and microemulsions. - Wheel and rim cleaners and insect cleaners have been separated out from other products. The requirement limits for CDV have been tightened for all product types in terms of numerical values. A switch from acute to chronic data means, however, that the tightening is slightly smaller than the figures suggest.
O14 Ethanol	O20		X		The requirement has been tightened. The previous criteria only had a requirement for vegetable raw material.
O15 Performance and frost protection	O21		X		The requirement has been clarified. For example, it is made clear that at least 80% of the users who test a product in a user test must find it acceptably effective or very effective in order for the requirement to be met.

O16 Recycling design of plastic packaging and closures (excluding pouches)				X	
O17 Recycling design of pouches				X	
O18 User information	O23		X		The requirement has been updated with regard to information on how the packaging should be sorted / recycled in each Nordic country in which it is sold.
O19 Packaging for foam products	O26		X		Sub-requirement b, which states that all spray products must have a permanent aerosol-reducing nozzle (foam nozzle).
O20 Performance	O27		X		The requirement has been clarified. For example, it is made clear that at least 80% of the professional users who test a product in a user test must find the product / product system acceptably effective or very effective in order for the requirement to be met.
O21 Responsible person and organisation	O29	X			
O22 Documentation	O30	X			
O23 Product quality	O31	X			
O24 Planned changes	O32	X			
O25 Unforeseen non-conformities	O33	X			
O26 Traceability	O34	X			
O27 Laws and regulations	O28	X			