About Nordic Ecolabelling for

Hand dishwashing detergents

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Nordic Ecolabelling

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Contact information

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

Denmark

Ecolabelling Denmark

www.svanemaerket.dk

Iceland

Ecolabelling Iceland

www.svanurinn.is

Finland

Ecolabelling Finland

https://joutsenmerkki.fi

Norway

Ecolabelling Norway

www.svanemerket.no

Sweden

Ecolabelling Sweden

www.svanen.se

1 Summary

Liquid hand dishwashing detergents for consumer use and for professional use, including super concentrated products that are to be diluted at least 10 times by the user, are eligible for the Nordic Swan Ecolabel. The primary function of the product must be as a hand dishwashing detergent.

The relevant environmental impacts found in the life cycle of hand dishwashing detergents are the following: Degradability and toxicity to aquatic organisms, exposure of chemicals harmful to health, eutrophication from phosphorous compounds, user information, dosing, efficacy and packaging. The criteria contain requirements in those areas.

The most significant changes to the requirements from the previous generation of the criteria are:

- The new EUH hazard classes for endocrine disruptors, PBT/vPvB, and PMT/vPvM, and also STOT RE 1 and ozone are added to the prohibited classifications for ingoing substances
- The list of excluded substances is expanded with new substances/substance groups, and the definitions for potential or identified endocrine disruptors, microplastics and nanomaterials/-particles are updated
- In products for consumer use, the restricted fragrance substances, which are subject to declaration now includes the expanded list from the Cosmetics Regulation
- Protease/subtilisin and surfactants are no longer exempted from the long-term environmental effects requirement, and M-factor is included in the calculation, but to accommodate for this the limit value has been increased significantly
- CDV and biodegradability calculations must be based on the DID-list version 2023 or later
- For rigid plastic packaging of PE and PP, the label must be made of the same plastic material as the container, and paper labels are no longer permitted at all

1.1 Justification of the product group definition

For a description of the product group definition, see “What can carry the Nordic Swan Ecolabel”.

Background for the product group definition

The criteria for hand dishwashing detergents includes liquid hand dishwashing detergents for both professionals and consumers. Some requirements vary depending on whether the product is intended for professional or consumer use.

Mix-it-yourself hand dishwashing products (such as tablets) that are to be diluted at least 10 times by the user to form the final product is included in the product group definition. This product type is relatively new on the market and saves transportation of water as the

consumers dilute the product themselves. Further, the amount of packaging is reduced, as several tabs are usually sold along with a single spray bottle.

Products for professional use are defined here as products that are marketed for use in professional contexts such as institutions, catering kitchens, restaurants and within the public sector. Products sold for break rooms in the workplace are thus not automatically considered to be professional products under this definition. The product is not considered to be professional if it is exclusively marketed towards retailers.

Products that are primarily marketed to consumers, but that are also sold via wholesalers for professional use exist. Products that are sold to both consumers and professionals, are considered for the professional market if more than 80% of sales are to professional users. A threshold of 80% makes it clear that the majority of the products are sold to that market. If there is any confusion about whether a product is for professionals or consumers, Nordic Ecolabelling may require documentation explaining where the product is intended to be sold.

Ready-to-use products are not included in the product group definition. Such products currently have a limited market share, so the potential is low. The environmental gain from ready-to-use products is less use of chemicals due to a lower risk of over-dosing and potentially also reduced use of heated water because these products can be used directly without adding additional water. However, ready-to-use products involve excessive transportation and packaging compared to other hand dishwashing products, and this outweighs the potential environmental gain.

Products that are marketed as being antibacterial, antimicrobial, antiseptic and/or disinfectant or claim to have ingredients that have these properties cannot be Nordic Swan Ecolabelled, as this does not comply with the Biocides Regulation 528/2012.

Pre-soaks for professional use may be Nordic Swan Ecolabelled under the Nordic Ecolabelling criteria for dishwasher detergents for professional use.

1.2 Changes compared to previous generation

Changes to the requirements for hand dishwashing detergents generation 7 compared with the previous criteria generation 6.

Table 1 Overview of changes to criteria for hand dishwashing detergents generation 7 compared with previous generation 6.

Requirement generation 7	Requirement generation 6	Same	Change	New	Comments
O1 Description of the product	O1 Description of the product	X			
O2 Classification of the product	O2 Classification of the product		X		New EUH hazard classes are added.
O3 Supply chain policy and code of conduct	O3 Sustainable raw materials		X		Changed to be up to date with new EU legislation. A supply chain policy and supplier code of conduct is now required.

O4 Certified raw materials from oil palms	O4 Certified raw materials from oil palms	X			Not revised, but minor updates are made to the required documentation.
O5 Classification of ingoing substances	O5 Classification of ingoing substances		X		New EUH hazard classes, STOT RE 1 and ozone hazards are added. Exemption for enzymes have been removed.
O6 Microplastics				X	Updated with REACH definition (microplastics was previously a part of O6 Prohibited substances).
O7 Excluded substances	O6 Prohibited substances		X		The definitions for nanoparticles and endocrine disruptors are updated, and the following new substances are added: Amphoacetates, benzalkonium chloride, bisphenols, linear alkylbenzene sulphonates (LAS) and nitrilo triacetic acid (NTA) and its salts.
O8 Fragrance allergens	O7 Fragrances		X		Expanded list of fragrance allergens from the Cosmetics Regulation.
O9 Preservatives	O8 Preservatives		X		The threshold levels are changed, and now substances are considered bioaccumulative when BCF ≥ 100 and if no BCF is available, when logKow ≥ 3.0.
O10 Maximum dosing	O9 Maximum dosing	X			Not revised, but it is specified in the background text how dosing is calculated for mix-it-yourself products.
O11 Long-term environmental effects	O10 Long-term environmental effects		X		M-factor is included in the calculations. Protease/subtilisin and surfactants are no longer exempted. To accommodate for this the limit value has been increased significantly. Reference to how UVCB substances are handled has been added.
O12 Critical dilution volume (CDV)	O11 Critical dilution volume (CDV)		X		Limit unchanged but DID 2023 is required. Reference to how UVCB substances are handled has been added.
O13 Surfactants – aerobically and anaerobically biodegradable	O12 Surfactants – aerobically and anaerobically biodegradable		X		Limit unchanged but DID 2023 is required. Reference to how UVCB substances are handled has been added.
O14 Performance test	O13 Performance test	X			Not revised, but the requirement is restructured for the purpose of making it easier to understand. All information about test, dosage, references and test conditions are moved to the appendix for all information to be in the same place.
O15	O14A	X			Not revised, but specified purity levels for PE, PP and PET and specified that for packaging made

Rigid plastic packaging: Design for recycling	Recycling design of packaging (except pouches)				from PE or PP, the remaining material must be non-biodegradable PE or PP. The requirement is restructured for the purpose of making it easier to understand. The requirement is divided by: PE & PP container, PET container, closures and compatibility between closure and container.
O16 Labels and print for rigid plastic packaging: Design for recycling of packaging	O14B Labels for rigid plastic packaging: Design for recycling of packaging		X		For packaging of PE and PP, the label must be made of the same plastic material as the container, and paper labels are no longer permitted at all. Purity levels of labels on PE and PP packaging are specified.
O17 Flexible plastic pouches: Design for recycling	O15 Recycling design of pouches	X			Not revised, but specified purity levels for PE, PP and PET.
O18 Cardboard packaging for liquid products: Sustainable material and design for recycling				X	New requirement for cardboard packaging for liquid products.
O19 Weight-Utility Ratio (WUR)	O16 Weight-Utility Ratio (WUR)	X			
O20 Customer complaints	O19 Quality of hand dishwashing detergent	X			
O21 Traceability	O22 Traceability	X			

2 Requirements and justification of these

2.1 General requirements

Background to O1 Description of the product

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

Dosing of the hand dishwashing detergent is an important parameter for preventing over-dosing. Over-dosing has a major impact in the form of unnecessary quantities of chemicals being discharged into the environment. All phases of the life cycle are affected by over-dosing, since it causes unnecessary raw material production, manufacturing and transport. Products must have a label and/or product data sheet explaining how to dilute the product, see also requirement O10 Maximum dosing.

Nordic Ecolabelling need to know the complete recipe, with all ingoing substances and impurities. This is necessary in order to check the individual requirements below and make the calculations necessary in respect of each requirement. The safety data sheets must be updated in line with prevailing legislation in the country of application, e.g., Annex II to REACH (Regulation 1907/2006/E2EC).

This requirement has not been revised from generation 6.

Background to O2 Classification of the hand dishwashing detergent

Nordic Ecolabelling aims to minimize the health and environmental impact of the Nordic Swan Ecolabel. Therefore, products with the following classifications cannot be certified: Hazardous to the aquatic environment, hazardous to the ozone layer, acutely toxic, causes damage to organs, causes skin corrosion, aspiration toxic, sensitizing, carcinogenic, mutagenic, toxic for reproduction, endocrine disruptive, and persistent, bioaccumulative/mobile and toxic.

The updated CLP classifications now include endocrine disruptors, PBT/vPvB and PMT/vPvM substances, covering environmental toxicity, persistence, mobility and bioaccumulation. Including PMT and vPvM substances is essential due to their persistence, mobility and potential impact on water quality. The new rules entered into force 20 April 2023. From this date, the Member States may propose harmonized classification and labelling (CLH) with the new hazard classes and manufacturers, importers, downstream users and distributors may also self-classify their substances and mixtures accordingly.

There are transitional periods following the Delegated Regulation's into force. During these periods classification under the new hazard classes is voluntary and manufacturers, importers, downstream users and distributors are not yet required to classify their substances or mixtures according to the new hazard classes. During these periods, the new hazard classes can be applied on a voluntary basis. However, any products classified according to these new hazard classes and used in a product, it will be excluded under these criteria.

This is a standard requirement, based on the precautionary principle and is only partially tailored to the specific product group. The requirement is intended to exclude problematic substances that are not necessarily found in products on the market today.

Background to O3 Supply chain policy and code of conduct

Supply chain management is the handling of the entire process of turning raw materials into a final product. Supply chain policy reflects the companies' requirements and responsibilities for sourcing raw materials along the whole supply chain. This applies both to renewable raw materials and minerals like for instance MICA. The policy must describe how the company sees to respect human rights, compliance with local and international laws and regulations (deforestation risks (EUDR[1]), environmental, health and safety) along the whole supply chain. The policy must also describe the governance processes in place for Due Diligence especially for assessing biodiversity and deforestation risk in the supply chain.

[1] https://green-business.ec.europa.eu/deforestation-regulation-implementation_en (visited August 2024)

The licensee must in addition also present its supplier Code of Conduct that defines and describes what is expected and required of suppliers in the supply chain. The supply chain policy and code of conduct must be both public and communicated to the supply chain.

The requirement for supply chain management reflects new EU legislation, e.g., due diligence directive (draft proposal) and new forest deforestation legislation, and how commodity companies work today. The EU due diligence directive applies at first hand to companies with +250 employees. Nordic Ecolabelling supports the new legislation but recognizes that this can be a huge workload for small businesses. Companies with less than 10 employees are therefore exempted from the requirement.

Background to O4 Certified raw materials from oil palms

Palm oil plantations are often established at the expense of tropical rainforest and other protected areas. This is one of the biggest threats to biodiversity in Southeast Asia, leading to the loss of valuable species, habitats, ecosystems, and landscapes. Hence, palm oil is part of EU´s Regulation on deforestation-free products.

Palm oil is widely used as an ingredient or feedstock for chemical substances and therefore difficult to exclude in NSE products. Therefore, if palm oil is used in the product the palm oil/palm kernel oil, including by-products or residues, must be RSPO certified. Traceability must be ensured by Mass Balance, Segregated, or Identity Preserved. Book and claim are not accepted as there is no link between the claim for certified palm oil and the product itself.

The manufacturer or supplier of palm oil must present a valid RSPO Supply chain certificate (RSPO SCC certificate). The certificate/RSPO schemes ensures and controls the flow of certified claims throughout the supply chain. The manufacturer of the Nordic Swan Ecolabelled product must by request present invoices/delivery notes/order confirmation that the palm oil purchased is RSPO certified. The type of traceability (Mass Balance, Segregated or Identity Preserved) must be apparent from the documentation.

In cases where the Manufacturer of the Nordic Swan Ecolabelled product is RSPO Chain of Custody certified, the applicant must by request present a third party-controlled balance sheet showing RSPO certified raw materials being accounted/recorded to the Nordic Swan Ecolabelled product(s). This to ensure that RPSO raw materials (credits) are used in the Nordic Swan Ecolabelled product(s).

Background to requirement O5 Classification of ingoing substances

Nordic Ecolabelling aims to minimize the health and environmental impact of chemical products. Therefore, products with the following classifications cannot be used in the Nordic Swan ecolabelled product: Hazardous to the aquatic environment, hazardous to the ozone layer, very toxic, toxic, causes damage to organs, sensitizing, carcinogenic, mutagenic, toxic for reproduction, endocrine disruptive, and persistent, bioaccumulative/mobile and toxic.

The updated CLP classifications now include endocrine disruptors, PBT/vPvB and PMT/vPvM substances, covering environmental toxicity, persistency, mobility and bioaccumulation. Including PMT and vPvM substances is essential due to their persistence, mobility and potential impact on water quality. The new rules entered into force as of 20 April 2023. From this date, the Member States may propose harmonised classification and

labelling (CLH) with the new hazard classes and manufacturers, importers, downstream users and distributors may also self-classify their substances and mixtures accordingly.

There are transitional periods from the entry into force of the Delegated Regulation, during which manufacturers, importers, downstream users and distributors are not yet required to classify their substances or mixtures according to the new hazard classes. During these periods, the new hazard classes can be applied on a voluntary basis. If applied to an ingoing substance it is excluded in these criteria.

This is a standard requirement, that is set by the precautionary principle and is only partially adapted to the product group. The requirement is intended to exclude problematic substances that are not necessarily found in products on the market today.

The substances that are most often classified as sensitising are fragrance substances, preservatives and enzymes. The requirement thereby excludes MI and several other sensitizing isothiazolinone. An exemption is made for sensitising fragrances in consumer products, and they are restricted under requirement O8 Fragrance allergens.

Amidoamines up to 1% of the betaine active content is allowed in betaine raw materials, as it is technically unavoidable and without risk in this concentration according to Asthma Allergy Nordic.

Enzymes are no longer exempt from the requirement, since the use of enzymes for hand dishwasher detergents are very limited. Enzymes need time to work effectively, and hand dishwashing is often done too quickly for them to be effective. Also, production of enzymes requires many resources, so they should not be exempted unless there is a need.

Background to O6 Microplastics

Microplastics[2] are very small fragments of plastic material, less than 5 mm. They can be harmful to health and the environment due to their size, surface properties, resistance to degradation and because they can carry harmful chemicals. In nature, microplastics come from pellets, paint, tires, textiles, personal care products and various plastic items. They have been found all over the world, at sea, in freshwater, sediments, sludge from wastewater treatment plants and agricultural soil. Microplastics have been detected in various aquatic organisms across the food chain, from zooplankton to vertebrates and in human tissues and organs such as blood and placenta. Nordic Ecolabelling uses the precautionary principle and strives to limit the use and release of microplastics wherever possible.

Nordic Ecolabelling is concerned about consequences when microplastics are released into the environment. Thus, we do not apply the derogations in paragraphs 4 and 5 of Annex XVII to the REACH Regulation (EC) No 1907/2006 when excluding microplastics.

Background to O7 Excluded substances

Certain problematic substances and substance groups are difficult to exclude through general chemical requirements. To address this, Nordic Ecolabelling has compiled a list of

[2] https://www.nordic-swan-ecolabel.org/nordic-ecolabelling/environmental-aspects/chemicals-nano-and-microplastics/microplastics/

the substances that must not be present as ingoing substances in the hand dishwasher detergent.

The purpose of this list is to prohibit substances that are not excluded by other requirements but are associated with environmental and health hazards. Some substances are included for clarity, even if they are already prohibited under other requirements.

This is a standard requirement, based on the precautionary principle and is only partially tailored to the specific product group. The requirement is intended to exclude problematic substances that are not necessarily found in products on the market today.

Alkylphenols (AP) (e.g. butylated hydroxy anisole (BHA, CAS No. 25013-16-5), butylated hydroxytoluene (BHT, CAS No. 128-37-0), alkylphenol ethoxylates (APEO) and other alkylphenol derivates (APD)

The non-ionic APEO group of surfactants are produced in large volumes and their uses lead to widespread release to the aquatic environment. APEOs are highly toxic to aquatic organisms and degrade to more environmentally persistent compounds (APDs). Ethoxylated nonylphenol and several other alkylphenols are included in the Candidate List due to endocrine disrupting properties. BHT is an antioxidant, that has potential endocrine disrupting properties. However, an exemption applies for BHT in fragrances in quantities of ≤100 ppm, on condition that the concentration is ≤ 1 ppm in the hand dishwasher detergent. This is because substitution is problematic.

Amphoacetate derivatives of N-hydroxyethyl imidazolines (EC No. 271-792-5, 271-794-6, 931-291-0, 938-645-3, 942-589-5, 943-154-2, 944-415-3, 946-565-5, 947-998-2)

The group consists of 9 amphoacetates, that are used as surfactants in consumer products like detergents and cosmetic products. Based on the potential for widespread use and available information on potential reproductive toxicity (Repro. 1B), these amphoacetates were identified in need for further regulatory risk management in EU[3].

Benzalkonium chloride, such as CAS No. 8001-54-5 and CAS No. 63449-41-2

Benzalkonium chlorides are a group of chemicals with wide applications due to their antimicrobial properties against bacteria, fungi and viruses. There is a risk that frequent and widespread use of benzalkonium chlorides in commercial products can generate selective environments for microbes and contribute to resistance to antibiotics. Furthermore, there is a risk to consumer exposure due to their toxicity and allergenic properties.

Bisphenols and bisphenol derivatives

Several bisphenols with the general bisphenol structure and 'bisphenol derivatives' which have constituents with structural properties common to bisphenols are now prohibited.

[3] Assessment of regulatory needs: Amphoacetate and amphopropionate derivatives of N-hydroxyethyl imidazolines, ECHA, 11 May 2022: Section 3: Amphoacetates for which further EU RRM is proposed https://echa.europa.eu/documents/10162/bfd90551-19c6-41ab-b608-a00147d7db8a

Based on the potential for widespread use and available information on potential endocrine disruptors, reproductive toxicity and PBT/vPvB properties, 34 substances were identified in need for further regulatory risk management in EU[4].

Ethylenediamine tetraacetate (EDTA, CAS No. 60-00-4) and its salts and Diethylenetriamine pentaacetate (DTPA, CAS No. 67-43-6) and its salts

Ethylenediaminetetraacetic acid (EDTA) and diethylenetriamine pentaacetate (DTPA) and their salts are not readily degradable. Furthermore, DTPA is classified toxic for reproduction and may potentially pose a risk to consumers. For EDTA, the EU's risk assessment states that under the conditions at municipal water treatment plants EDTA is either not broken down or only breaks down to a slight degree. To-date in Europe, EDTA has been replaced in virtually all consumer products by readily biodegradable alternatives such as MGDA (methylglycine diacetic acid) and GLDA (glutamic acid diacetic acid).

Linear alkylbenzene sulphonates (LAS)

LAS is a major anionic surfactant with important applications within household detergents and industrial cleaning agents. LAS is relatively rapidly aerobically degraded, but only very slowly or not at all degraded under anaerobic conditions. Therefore, LAS is mostly found in very high concentrations in sewage sludge and enters the soil compartment as a result of sludge application.

Methyldibromo glutaronitrile (MG, CAS No. 35691-65-7)

Methyldibromo glutaronitrile (MDBGN) has applications within detergents and industrial products and is a bromine-containing preservative. MDBGN has been shown to be a sensitizer and cause for allergic contact dermatitis.

Nanomaterials/-particles

Nanomaterials[5] are a diverse group of materials under the size of 100 nm. Due to their small size and large surface area nanoparticles are often more reactive and may have other properties compared to larger particles of the same material. Further, different sizes, shapes, surface modifications and coatings can also change their physical and chemical properties. Nanoparticles can cross biological membranes and thus be taken up by cells and organs. One of the main concerns are linked to free nanoparticles, as some of these – when inhaled – can reach deep into the lungs, where the uptake into the blood is more likely.

There is concern among public authorities, scientists, environmental organisations, and others about the insufficient knowledge regarding the potential detrimental effects on health

[4] Assessment of regulatory needs: Bisphenols. ECHA, 16 December 2021: Section 2.1: Bisphenols for which further EU RRM is proposed https://echa.europa.eu/documents/10162/5e60f2fe-12d0-7f6b-5868-f199cfd7f984
[5] Nordic Swan Ecolabel webtext: https://www.nordic-swan-ecolabel.org/nordic-ecolabelling/environmental-aspects/chemicals-nano-and-microplastics/nanomaterials/

and the environment[6],[7],[8]. Nordic Ecolabelling takes these concerns seriously and applies the precautionary principle to exclude potentially hazardous nanomaterials from products.

Nitro musks and polycyclic musk compounds

Nitro musks and polycyclic musk generally have undesirable properties regarding both health and the environment. Some such compounds are already excluded from use via the requirement concerning CMR substances.

Nitrilo triacetic acid (NTA, CAS No. 139-13-9) and its salts

NTA is an anthropogenic substance and does not naturally occur in the environment and is present in the environment as a result of its release in sewage from processing. NTA and NTA salts are suspected carcinogenic.

Organic chlorine compounds, hypochlorites and hypochlorous acid

Organic chlorine compounds, hypochlorites and hypochlorous acid are sometimes used as disinfecting and antibacterial substances and as bleaching agents. Organic chlorine compounds can be, or lead to the formation of, toxic and bioaccumulative substances that are difficult to break down. Chlorine-based bleaching agents generally have undesirable health and environmental properties. Hypochlorous acid is not classified, and hypochlorites have the classification Acute toxicity (H400) and thus, they are not covered by the general requirement concerning environmentally hazardous substances. However, both pose an environmental risk due to the possibility of organic chlorine compounds forming.

PBT and vPvB substances as defined in REACH Annex XIII, including those under ECHA PBT assessment

PBT and vPvB are abbreviations for substances that are persistent, bioaccumulative and toxic, and very persistent and very bioaccumulative, respectively, in accordance with REACH Annex XIII. This means that they are not biodegradable and that they accumulate in living organisms. Based on these adverse characteristics they pose a threat to the environment and human health.

Per- and polyfluoroalkyl substances (PFAS)

[6] UNEP (2017) Frontiers 2017 Emerging Issues of Environmental Concern. United Nations Environment Programme, Nairobi. https://wedocs.unep.org/bitstream/handle/20.500.11822/22255/Frontiers_2017_EN.pdf
[7] Parliamentary Assembly of the Council of Europe (2013) Nanotechnology: balancing benefits and risks to public health and the environment.
http://assembly.coe.int/CommitteeDocs/2013/Asocdocinf03_2013.pdf
[8] SCCS (Scientific Committee on Consumer Safety) (2019) Guidance on the Safety Assessment of Nanomaterials in Cosmetics. SCCS/1611/19.
https://ec.europa.eu/health/sites/health/files/scientific_committees/consumer_safety/docs/sccs_o_233.pdf

Per- and polyfluoroalkyl substances (PFAS) are used in many types of products due to their water and dirt repellent properties. These compounds constitute a group of substances that have highly problematic intrinsic hazardous properties. They are extremely persistent and accumulate in the body. They are spread all over the globe, from the large oceans to the Arctic, and are found in e.g. wild birds and fish and their eggs. Also, shorter chain compounds (2–6 carbon atoms) have been discovered in nature. The substances in this group are suspected to be endocrine disruptors, carcinogenic and to have a negative impact on the human immune system.

Phosphate, phosphonate, phosphonic acid and phosphoric acid

Plants, animals, and people all depend on phosphorus to grow. Phosphorus (a constituent element of phosphate, phosphonate, phosphonic acid and phosphoric acid) is a non-renewable resource, facing ever-increasing demand, that can only be extracted from phosphorite, and this is only found in a few countries, several of which have unstable regimes. Since there are alternatives available, Nordic Ecolabelling prohibit the use of both phosphate, phosphonate, phosphonic acid and phosphoric acid.

Potential or identified endocrine disruptors, listed in any of the following "Endocrine Disruptor Lists" List I, II and III

Endocrine disruptors (EDs) are chemicals that alter the functioning of the endocrine (hormone) system and consequently cause adverse health effects. The term potential EDs is used for chemicals with properties that make them suspected to be EDs. The hormone system regulates many vital processes in living organisms and when normal signalling is disturbed, adverse effects may result. EDs raise high concern for their risk of causing serious negative impact on the environment as well as on human health specifically. Special concern is raised for effects on reproduction and development and about possible links to increases in public health diseases. While effects in wildlife populations have been confirmed, evidence is pointing to effects also in humans.

Quaternary ammonium compounds, which are not readily aerobic biodegradable, such as DTDMAC (CAS No. 68783-78-8), DSDMAC (CAS No. 107-64-7), DHTDMAC (CAS No. 61789-80-8) and DADMAC (CAS No. 7398-69-8)

Quaternary ammonium compounds (QACs) are usually surface-active agents where some of them precipitate or denature proteins and destroy microorganisms. QACs are toxic to a lot of aquatic organisms including fish, daphnids, algae, rotifer and microorganisms employed in wastewater treatment systems.

Substances on the REACH Candidate List of SVHC substances

The Candidate List identifies substances of very high concern which fulfil the criteria in article 57 of the REACH Regulation (EC 1907/2006). The list includes carcinogenic; mutagenic; and reprotoxic substances (CMR, categories 1A and 1B in accordance with the CLP Regulation); and PBT (persistent, bioaccumulative and toxic) and vPvB (very persistent

and very bioaccumulative) substances (as defined in REACH Annex XIII). In addition, two more substance groups are included if they are of equivalent level of concern (ELoC) as the ones previously mentioned. These are endocrine disruptors and substances which are environmentally hazardous without fulfilling the requirements for PBT or vPvB. Based on these adverse characteristics, Nordic Ecolabelling prohibits substances on the Candidate List. This means that we act ahead of the legislation and ban the substances before they are subject to authorisation and restriction in accordance with REACH.

Background to O8 Fragrance allergens

Fragrances are not permitted in professional products. Professional dishwashing personnel use hand dishwashing products in their working environment but are unable to control which products are purchased. Dishwashing staff typically do not have the opportunity to choose whether the products they use are fragrance-free and are therefore likely to be involuntary exposed to fragrances. This also applies to public procurement, where central purchasers select products for municipalities, county councils and institutions without involving dishwashing personnel. Unlike consumers, professional dishwashing personnel are exposed to these products throughout the workday.

Since both retailers and manufacturers state that fragrances are relevant for a large number of customers, fragrances are permitted in hand dishwashing detergents for the consumer market. Also, consumers can choose between fragranced and fragrance-free products, as content of fragrance must always be declared on the packaging. The aim of the requirements is to provide as much protection against the development of new allergies in society as possible.

IFRA stands for the “International Fragrance Association” and represents the fragrance industry. The association conducts safety assessments of fragrance substances and provide public standards/guidelines for the use of these. The requirement for compliance with IFRA’s guidelines[9] ensures that the manufacture, handling, and use of fragrances in the products meets specific standards in terms of prohibited substances, restricted use, and purity. IFRA’s guidelines support the industry in offering products that are safe for consumers and for the environment. The guidelines apply to the manufacture and handling of all fragrance materials for all applications and contain the complete IFRA standards.

In 2023, the Cosmetic Regulation included 56 new fragrance substances that must be declared on the packaging of cosmetic products, leading to a total of 80 substances that are subjected to declaration[10]. These substances are adopted from the EU Scientific Committee on Consumer Safety (SCCS) opinion on fragrance allergens in cosmetic products from June 2012[11]. SCCS refrains from recommending maximum limits for the content of the fragrance substances in cosmetic products but however states that the general limit of 100 ppm is tolerated by most consumers and wishes to guard against the development of new allergies both within generally tolerant and sensitive people. This limit is therefore also set in the requirement for fragrance allergens in hand dishwasher detergents.

[9] Guidance for the use of IFRA Standards, The International Fragrance Association, 2023
[10] Regulation (EC) No 1223/2009, 2009.
[11] SCCS (Scientific Committee on Consumer Safety), opinion on fragrance allergens in cosmetic products, 26-27 June 2012

Nordic Ecolabelling do not distinguish between fragrance substances that are subject to declaration and fragrance substances that meet the classification H317 (may cause sensitisation by skin contact) or H334 (may cause allergy or asthma symptoms or breathing difficulties if inhaled), therefor the requirement includes all these substances.

SCCS also recommends that chloroatranol and atranol are not included in cosmetic products. Nordic Ecolabelling therefore consider it relevant to also prohibit their presence in hand dishwasher detergents. Chloroatranol and atranol are the main components of oak moss extract (Evernia prunastri, CAS No. 90028-68-5) and tree moss extract (Evernia furfuracea, CAS No. 90028-67-4).

HICC (CAS No. 51414-25-6/31906-04-4) has been added to Annex II of the Cosmetic Regulation due to its allergenic properties, and since 2021, cosmetic products containing HICC cannot be made available on the EU market. Nordic Ecolabelling therefore consider it relevant to also prohibit their presence in hand dishwasher detergents.

Background to O9 Preservatives

Note that MI (methyl isothiazolinone, CAS No. 2682-20-4) and other sensitizing preservatives are prohibited according to requirement O5 Classification of ingoing substances and O7 Excluded substances.

Preservatives are added to liquid products to prevent bacterial growth in the products. Hand dishwashing detergents usually need to be preserved and do not have self-preserving properties to the same extent as liquid laundry detergents, for example, so there is a need to add preservatives to hand dishwashing detergents. Nevertheless, since preservatives are generally toxic to aquatic organisms and can cause hypersensitivity and allergies, Nordic Ecolabelling wishes to limit preservatives via a requirement that they must not be bioaccumulative and that the levels must be optimised.

Nordic Ecolabelling’s requirements concerning preservatives are strict. Preservatives used in hand dishwashing detergents must according to Biocidal Products Regulation ((EU) 528/2012) be approved to PT6 (product type 6: Preservatives for products during storage) in line with the Biocidal Products Regulation. Several of these preservatives are sensitising or formaldehyde donors. The different preservatives are not necessarily interchangeable. They have different levels of effect on different types of microorganisms (gram positive and gram-negative bacteria and fungi). Some organic acids, such as lactic acid and sorbic acid, also have relatively little effect when the pH sits around the neutral area, while peroxides and DBNPA are not used very widely as they break down relatively quickly.

There are several other requirements, in addition to the requirement on preservatives, which also restrict the range of preservatives. Requirement O5 Classification of ingoing substances excludes formaldehyde and formaldehyde-releasing products, the latter of which have been widespread. Requirement O7 Excluded substances has organic chlorine compounds on the list, which excludes CMIT (CAS No. 26172-55-4) that is also a common preservative. Endocrine disruptors exclude 2-Phenylphenol (CAS No. 90-43-7) among others.

Preservatives may be used in the products and in ingoing substances only if they are not bioaccumulative. Bioaccumulative substances build up in the fatty tissue of living organisms and can cause long-lasting damage to the environment.

Unless otherwise proven, substances are considered to be bioaccumulative if logKow ≥ 3.0. If the substance has a biological concentration factor (BCF) ≥ 100 the substance is considered to be bioaccumulative, and if the BCF < 100 the substance is considered not to be bioaccumulative. If there is a measured BCF value, the highest measured BCF is always the determining factor in the assessment of a substance's bioaccumulative potential.

2.2 Dosing, ecotoxicity and biodegradability

Background to O10 Maximum dosing

The conclusion of a survey conducted in 2012 was that people use their hand dishwashing detergent without fully following the instructions on the recommended dose. In short, over-dosing occurs and dosing without measuring occurs. Many people now have dishwashers and they only hand wash a small proportion of their dishes, and so they may not always fill up the whole sink with water, which tends to result in dishwashing with a higher concentration than is stated on the product.

There can be a correlation between viscosity and active content, i.e. products with high active content usually have a higher viscosity, but it is not always the case. A product with higher viscosity might conceivably be dispensed in smaller quantities, since when squeezing it out of the bottle it is thicker/less fluid, compared with one that contains a lot of water. Nordic Ecolabelling thus believes that consumers/users are, to a certain extent, most likely to dispense small quantities of a concentrated/viscous product than of a non-concentrated/less viscous product. However, this correlation between consumer dosing and concentration is not linear. At a certain point, the concentration of the product does not lead to the same low dosing, with a higher concentration simply leading to greater over-dosing.

As far as we can tell, consumers do not dose entirely in line with the manufacturer's recommendations, and we also do not have grounds to claim that products with lower recommended dosing levels are dosed in smaller amounts than those with higher recommended dosing levels.

Since the situation concerning the use of hand dishwashing detergents, dosing instructions and viscosity is complex, we developed a requirement which Nordic Ecolabelling believes takes account of both over-dosing and the desire to avoid too much transport of water (in the form of products with relatively high water content).

In order to promote the high-viscosity products to some extent, the limit has been set such that products with a dose less than or equal to 0.6 g/l working solution (the average value for the ecolabelled hand dishwashing detergents scrutinised in the revision for generation 5) are to use a figure of 0.60 g/l when calculating CDV, while those that have a higher dose (i.e. 0.61 g/l – 1.0 g/l) are to use the stated dose.

It is not entirely accurate for all varieties of use, but it is judged to be the most accurate in the context, considering the products overall. Nordic Ecolabelling does not wish to promote the most concentrated products, since patterns of use suggest that consumers do not use the products as instructed, but at the same time Nordic Ecolabelling does not wish to encourage the highly diluted products.

For mix-it-yourself products, the dosage is calculated for in-use solution prepared according to the manufacturer's instructions on the label of how many sprays is required when the detergent is used for a full kitchen sink. This must be calculated by measuring the volume of the required number of sprays and multiplying that volume with the density of the in-use solution.

This requirement has not been revised from generation 6.

Background to O11 Long-term environmental effects

A Nordic Swan Ecolabelled hand dishwashing detergent must never be classified as environmentally hazardous, see requirement O2 Classification of the product. Substances that are classified as environmentally hazardous may be present in hand dishwashing detergents in limited quantities. Substances that are toxic to the environment and are also not readily biodegradable or substances that are chronically toxic (H410, H411 and H412) constitute a potential problem for the aquatic environment. Limitation of these adverse characteristics will reduce the risk of negative environmental impacts.

The environmental properties of hand dishwashing detergents are important, because hand dishwashing detergents are discharged via the treatment plant into the recipient watercourse. Consequently, a requirement has been set concerning the maximum content of environmentally hazardous substances in a product. By weighting the parameters, substances classified as H410 are subject to the greatest limitation. The weighting in the formula below is connected to CLP classification limits for environmentally hazardous substances.

From 1 December 2012 CLP Regulation (EC) No 1272/2008 changed the criteria used as basis for classification as environmentally hazardous. This meant that many surfactants which were not previously classified as environmentally hazardous now needed to be, and they were therefore at that time exempted from the requirement, as surfactants have an important and irreplaceable function in hand dishwashing detergents. Surfactants are no longer exempted in this criteria version, and the multiplying factor M for H410 classifications is included in the calculation. To accommodate for this a significantly higher limit value is introduced. If data is missing on a substance, it is assessed according to a worst-case scenario with H410 and M factor of 10, since M factors above 10 rarely occurs.

Background to O12 Critical dilution volume (CDV)

The critical dilution volume (CDV) is a theoretical value which considers the toxicity and aquatic degradability of each substance. A maximum limit for CDV ensures that the Nordic Swan Ecolabelled products have a very small impact on the recipient watercourse. The limit value is based on data from existing Nordic Swan Ecolabel licences.

CDV is calculated for all ingoing substances included in the hand dishwashing detergent. Chronic data must be used because it better describes the environmental impact. When chronic data is unavailable, acute data can be used combined with higher safety factors.

For products with a recommended dosage less than or equal to 0.6 g/l working solution, a fixed value of 0.60 g/l must be used when calculating CDV. For products with a higher recommended dosage, i.e. 0.61 g/l – 1.0 g/l, the actual stated dose must be used (see the

justification for this in the background for requirement O10 Maximum dosing). This approach differs from other ecolabels, for example EU Ecolabel, which do not impose such constraints on the dose used in CDV calculations. As a result, the CDV limits cannot be directly compared.

Background to O13 Surfactants – aerobically and anaerobically biodegradable

Surfactants are commonly used in hand dishwashing detergents and make up a significant proportion of the chemical composition of these products. Since hand dishwashing detergents are also used in places without connection to wastewater treatment, where they are released directly into nature, it is important to set requirements for the biodegradability of surfactants.

Compounds that accumulate in the environment can pose a risk both now and, in the future, if they are acutely toxic. Knowledge of the long-term effects of non-readily biodegradable substances is often in short supply. Rapid biodegradability under oxygen-rich (aerobic) and oxygen-poor (anaerobic) conditions is therefore of major environmental importance. Surfactants are considered to be essential in this context, since they are a group of organic substances that appear in large quantities, and since many surfactants are toxic to aquatic organisms.

The detergent regulation prescribes that surfactants must be aerobically biodegradable, but there are opportunities for exemptions from the detergent regulation for products for professional use. Since the possibility exists, we believe it is appropriate to retain the requirement of aerobic biodegradability of surfactants It is therefore very important to require surfactants (irrespective of function) to be biodegradable in both aerobic and anaerobic conditions for this product group.

2.3 Performance

Background to O14 Performance test

Effectiveness is a key parameter in showing that the product offers the cleaning performance that consumers demand. The performance must be satisfactory at the recommended dose. Dishwashing performance must be demonstrated at the lowest dose stated on the packaging. The reason for not using the fixed dose of 0.6 g/l (as in the requirements concerning CDV and environmentally hazardous substances) is that the stated dose on the bottle is the information that end consumers receive, and thus they will expect the product to perform at that dose.

Nordic Ecolabelling’s framework test is a method that includes the most relevant parameters from the IKW test, while continuing to allow scope to optimise the test. The IKW test is considered to have the advantage of being a more standardised test, but it has its shortcomings with regard to Nordic conditions:

In the Nordic region, we generally have soft water, while the IKW test requires hard water. Nordic Ecolabelling wants the tests to continue being performed at the relevant water hardness for the Nordic region, with no desire to standardise the test at high water hardness. The testing instructions for the IKW test specify which fats and so on must be used for

soiling. The two recipes for soil stated in the test comprise 12 components, which are considered slightly excessive by several of the parties with which Nordic Ecolabelling has been in contact. Nordic Ecolabelling's framework test now specifies that the manufacturer must report the soil composition used in the test and that the soil mix must also contain carbohydrates and protein (such as flour and egg). The test also states that the soil must mainly comprise both animal and vegetable fats. Nordic Ecolabelling has additionally been informed that it can be difficult in the IKW test to demonstrate that an increased dose of the product gives an increased effect. Nordic Ecolabelling's test with only water is therefore included as a parameter for judging the test itself, i.e. demonstrating that the test can show a difference between dishwashing with and without detergent.

Professional products must be compared with another professional product, because products for the professional market face different demands, not least concerning the ability to remove tough burned-on residues and clean very greasy dishes, compared with consumer products. Nordic Ecolabelling therefore considers it relevant for the product to be compared with equivalent products on the market.

The requirements concerning the laboratory are set out in Appendix 3 of the criteria. Nordic Ecolabelling wishes to give applicants greater flexibility by accepting tests from other competent and independent testing institutes. Nordic Ecolabelling wishes to make it even more acceptable for the manufacturers to use their own laboratories for performance testing.

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

- The organisation must be ISO 9001 certified or certified according to the International Features Standards (IFS) standard for Household and Personal Care.
- The test laboratory must be covered by the certification, and the performance test must be included in the quality management system.

Nordic Ecolabelling is to be given access to all the raw data from the performance test.

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

- The organisation must have a quality assurance system, and the performance test must be described in that system.
- Nordic Ecolabelling is to be given access to all the raw data from the performance test.
- The laboratory must document that the test method used is aimed at differentiating between different hand dishwashing detergents, and that the results achieved are reproducible.
- It must be possible for Nordic Ecolabelling to come and observe the performance of a test.

This requirement has not been revised from generation 6.

2.4 Packaging

Background to O15 Rigid plastic packaging: Design for recycling and O16 Labels for rigid plastic packaging: Design for recycling of packaging

The Nordic Ecolabelling has chosen to set requirements on recycling design to increase the possibilities for recycling of the packaging material and thereby be in line with the EU plastic strategy. Exemptions to the requirements are made where other types of materials than specified cannot be dispensed with in specific types of packaging, or where the recyclability of the packaging is not impaired.

Sales packaging (Bottle/container)

“Plastförpackningar – En återvinningsmanual från FTI” (Plastic Packaging – A recycling manual from FTI) lists plastic packaging made from Polyethylene (PE), Polypropylene (PP) and Polyethylene terephthalate (PET) as the plastic types that are best from a recycling perspective. PP and HDPE packaging works for every stage of the recycling process. Since these types of plastic are considered to be the best (from a recycling perspective), Nordic Ecolabelling also set requirements that the plastic bottles must be made from these plastic materials.

Compostable/biodegradable plastics such as PLA are not suitable for recycling in today’s systems and can cause problems in the existing material recovery process. Such compostable/biodegradable plastic therefore does not fit in with the EU’s objective of increasing material recovery and promoting the circular economy in the current Nordic recycling system as it stands today. Nordic Ecolabelling has therefore decided not to include compostable/biodegradable plastic on the list of accepted packaging materials.

Large amounts of inorganic filler affect the ability to recycle plastic, because the filler can change the density of the plastic. If the plastic becomes too heavy, it sinks to the bottom in the water bath and is separated out for incineration instead of material recovery. This is why the criteria for hand dishwashing detergents contain a requirement that filler must not be added to the PE or PP to such a level that its density exceeds 0.995 g/cm^3.

The requirements for bottle/container material have not been revised from generation 6, but the purity levels for PE, PP and PET are specified, and it is also specified that for packaging made from PE or PP, the remaining material must be non-biodegradable PE or PP.

Closure (caps/lids/pumps)

Since Polyethylene (PE), Polypropylene (PP) and Polyethylene terephthalate (PET) are the plastic types that are best from a recycling perspective, PS and PVC or plastics based on other types of halogenated plastics are not allowed in the closure. Silicon closures can contaminate the recycling stream and are therefore not allowed.

An exemption has been introduced for closures on PET upside down squeeze bottles that contain silicone with a density < 0.95 g/cm³, as these are necessary so that the squeeze bottles doesn't leak. Alternative membrane materials exist for squeeze bottles. However, they usually fail to ensure leak-proof closures when the bottle is inverted (upside-down). Furthermore, it is mandatory that the sales packaging is proven fully recyclable according to guidelines established by RecyClass. The packaging must achieve a minimum score of B, as indicated on a Recyclability certificate issued by RecyClass. D4, D5 and D6 can be

residues from polymerisation of silicone and are on the Candidate List and Nordic Ecolabelling wishes to limit the use of materials with higher concentrations of these substances, whereby a limit of 1000 ppm for these three substances combined is set.

The requirements for closures have not been revised compared to generation 6, but the purity levels for PE, PP and PET are specified.

Colourants and printing

Nordic Ecolabelling wishes to encourage the highest possible quality and purity of the products that enter the material recovery systems. The leaflet from Plastkretsen and FTI also mentions the way that colourants and inks affect the recycling potential and the quality of recycled plastic. Reducing the use of chemical colourants is one of the tips given. Colourless plastics have the highest recovery value, making them easier to recycle. Dark colours, and especially the use of carbon black, can cause problems in modern and automated sorting plants. These products can end up in the residual waste fraction and not be recycled.

Packaging that is white or transparent is the best choice when it comes to recycling, since such packaging does not cause problems during scanning/sorting of the bottles and also make the reusage of the plastic more attractive. Therefore, black closures containing carbon black are excluded, and for the packaging the requirements go one step further with only allowing white and clear packaging. In the recycling process the pigments cannot be removed from the recycled materials. Thus, when it comes to packaging made from recycled plastic* they are exempted from this requirement and can be coloured/tinted. The coloration/tint cannot be done with carbon black, since that is the pigment that causes most problems during recycling. When discussing with stakeholders the Nordic Ecolabel has received information that recycled plastics often are tinted to get a more appreciative colour.

*The recycled plastic here refers to Post Consumer Recycled plastic to harmonize with the WUR requirement.

The requirements for colourants and printing have not been revised compared to generation 6.

Label

In development of the requirement on labels, key players within the recycling industry in Sweden (FTI), Finland (Uusiomuovi), Norway (RoAF, Mepex, Norner, Grønt Punkt Norge) and Denmark (Plastindustrien) were consulted in order to ensure relevant requirements with respect to the current Nordic waste streams. Furthermore, major label producers and suppliers, as well as all Nordic Swan Ecolabel licensees were consulted, to ensure achievable requirements.

PE and PP containers must have labels of the same plastic material in order to facilitate correct sorting by the NIR sensor and reducing the risk of contamination of the PE and PP streams. An exemption is made for cross over (fold-out) labels on PE packaging containers as these need to be extra stiff which can only be done successfully with PP material.

PET containers must have labels with density <1.0 g/cm^3. As a consequence, for the time being, cPET labels are not allowed. Nordic Ecolabelling will consider allowing cPET-labels with the appropriate specifications, if cPET labels become endorsed by EPBP (The European PET Bottle Platform) for PET bottles and/or by RecyClass (www.recyclass.eu). PET-G labels/shrink film labels are excluded on PET containers since PET-G is problematic

in recycling in large quantities as it is not compatible with the PET commonly used for containers (A-PET).

If the NIR sensor at the sorting facility hits the label instead of the bottle, the bottle may end up in the rejected fraction. Therefore, labels and shrink film labels of different materials than the container must not cover more than 60% of the container surface.

Direct printing on plastic packaging is not permitted, as ink residues lower the quality of the recycled plastic and it is desirable to keep the recyclate stream as clean as possible. However, direct print of date codes, batch codes and UFI (Unique Formula Identifier) are permitted on all types of packaging.

The requirements mean that PVC and other halogenated plastics are excluded since they lead to adverse environmental impacts in waste handling, and paper labels are excluded since they degrade the recycled material.

Furthermore, it means that metallized labels are not permitted as these can be detected by metal detectors, thus causing the packaging to be sorted to reject. Thin metal layers do not seem to possess major problems for the sorting or recycling, if the labels can be separated from the containers[12]. However, these metal materials will not be recycled, and single use of metal is not supportable from a resource point of view.

The requirements for labels have been revised compared to generation 6.

Metal

Metal residues, for their part, cause plastics to be rejected if there are metal detectors on the sorting line. Metal residues can also break down the plastic and become a problem in later plastic production[13, 14] which is the reason for not allowing metals in the packaging.

Small metal parts in pumps for hand dishwashing bottles are exempted. Recyclers have confirmed that while this metal is not recycled as metal, it does not interfere with plastic recycling. However, pumps help controlled and correct dosing.

The restrictions on metal have not been revised compared to generation 6.

Background to O17 Flexible plastic pouches: Design for recycling

The requirement is similar to requirement O15 Rigid plastic packaging: Design for recycling. Nordic Ecolabelling has had dialogues with FTi regarding pouches. They suggested only accepting pouches of PE since they are the easiest to recycle, but Nordic Ecolabelling has decided to accept monomaterial pouches of both PE, PP, and PET.

Nordic Ecolabelling has decided to only accept EVOH up to maximum 5% (in relation to the maximum weight) as a barrier coating. This is in line with what the recycling companies recommend so that the recycling process is not adversely affected. In the EU Ecolabel there is a requirement on barrier coatings banning polyamide barriers, functional polyolefins, metallised barriers and light-blocking barriers. The requirement of Nordic Ecolabelling mean that these are also excluded.

[12] https://www.epbp.org/design-guidelines/products (Accessed on 2023-11-24)
[13] Plaskretsen and FTI, Bättre förutsättningar för återvinning av plastförpackningar.
[14] http://www.plasticsrecycling.org/hdpe sourced on 08.08.2017

This requirement has not been revised compared to generation 6, but the purity levels for PE, PP and PET are specified.

Background to O18 Cardboard packaging for liquid products: Design for recycling

There is a growing trend towards using cardboard packaging for liquid hand dishwashing detergents. Nordic Ecolabelling supports the shift toward this packaging format but sets strict requirements to ensure that only the most sustainable and resource-efficient solutions are accepted.

At least 90% by weight of the sales packaging must be made of bio-based material or post-consumer/commercial recycled material or a combination of these. This promotes the use of sustainable, renewable raw materials (both paper/paperboard and biobased plastics) or recycled material as an alternative to fossil-based plastics. Recycled material is defined according to ISO 14021, see definitions in chapter 5.1. For cardboard, a minimum of 70% by weight must be post-consumer recycled material or the wood raw material in the packaging must be FSC-/PEFC-certified. The remaining proportion of wood must meet the requirements of FSC controlled wood or PEFC controlled sources. The requirement limit, a minimum of 70% of all wood raw material (virgin or recycled), corresponds to the FSC and PEFCs requirement limits for use of the respective labels on products, such as "FSC Mix" and "PEFC certified". Recycled materials not covered by FSC/PEFC's Chain of Custody certification, can also be used in the packaging. The requirement must be documented as purchased amount annually.

Renewable raw materials can have a potential to give better environmental impact than fossil alternatives, but it depends on many parameters such as type of crop, where it is cultivated, cultivation conditions, land use change, further processing of the renewables and waste. Converting forest to cropland can have a huge impact on climate change and biodiversity. So, the possible benefits of replacing fossil-based raw materials with renewable raw materials will vary much and depend on responsible farming/forestry practices.

The establishment of palm oil and soybean plantations has led to vast areas of deforestation and destruction of natural habitats, thereby driving the loss of biodiversity in some of the world´s most precious places like the amazon and Cerrado in Brazil and Borneo in Indonesia[15]. Voluntary certification schemes for palm and soy are not yet considered good enough (by Nordic Ecolabelling) to protect against deforestation, and palm oil, soybean oil and soy flour are therefore banned as raw materials for bio-based polymers. This also applies to waste or residual product from the palm oil production such as palm Fatty Acid Distillate (PFAD) or Palm Oil Mill Effluent (POME).

Other renewable raw materials must be a) waste or residual products from i.e., agriculture, fishing, forestry or processing residual product defined in accordance with (EU) Renewable Energy Directive 2018/2001 or b) certified according to approved certifications schemes.

Nordic Ecolabelling has so far recognised Bonsucro EU and ISCC EU/Plus as valid certification schemes. The supplier of the bio-based polymer must have a valid chain of custody (CoC) certificate according to the standard by which the raw material is certified.

[15] https://www.worldwildlife.org/stories/deforestation-fronts (May 2024)

Traceability must at least be ensured by mass balance. Book and claim systems are not accepted.

Halogenated plastics, such as polyvinyl chloride (PVC) and polyvinylidene chloride (PVDC) must not be used in the packaging because of emissions of harmful organic chemicals from the entire production chain and challenges with waste management during production and end of life. Read more about Nordic Ecolabelling's position on PVC here: PVC.

Oxo-degradable and biodegradable plastics must not be used since they “contaminate” the other recycled plastics streams in the Nordic region. Read more about Nordic Ecolabelling's position on biodegradable plastics here: Biodegradable plastics. Bio-based plastic in PET, PE and PP can be recycled in the same way as fossil-based plastic in PET, PE, and PP.

Metal must not be used for packaging as metal production is associated with a large climate and environmental impact. While aluminium from cardboard packaging for liquid products can be recycled, it’s excluded due to high energy consumption. Any aluminium use also drives demand for new aluminium, as recycling supply falls short. Direct print rather than the use of labels is preferable in the recycling process[16]. Printing ink must be compliant with EuPIA exclusion policy for printing inks and related products[17]. Surface treatment of the sales packaging with PFAS can occur. PFAS constitute a group of substances that have highly problematic intrinsic hazardous properties. Therefore, such surface treatment is prohibited in packaging of Nordic Swan Ecolabelled products.

Background to O19 Weight-Utility Ratio (WUR)

The purpose of the weight-utility ratio (WUR) is to reduce the amount of packaging and promote the use of recycled materials, thus helping to ensure a reduction in the unnecessary transport of packaging and air, and to lower CO_2 emissions. WUR is a measure of the amount of packaging used to deliver an amount of product with a certain benefit. This restriction promotes the use of concentrated products by relating the amount of packaging to the dose.

Nordic Ecolabelling has chosen to set a requirement for sales packaging in the hand dishwashing detergent criteria for two reasons: There is little steerability of distribution packaging and it punishes small-scale manufacturers unnecessarily harshly. In addition, it is through optimising sales packaging that the greatest environmental gains can be made for products such as hand dishwashing detergents.

Included in the sales packaging is the weight of the packaging in which the hand dishwashing detergent is packaged. This also includes labels, closures and any fitted dosing devices, etc.

The WUR equation consists of three parameters: weight of the sales packaging, weight of recycled material (postconsumer) in the packaging, and the number of functional doses in the packaging. The requirement promotes the usage of recycled materials, as 1.25 times the weight of the recycled materials is subtracted from the weight of the packaging. The aim is to stimulate the choice of packaging that uses recycled raw materials. The factor has been chosen so that if you have 80% recycled material, WUR = 0. Packaging made from more

[16] Personal communication with Cecilia Halling Linder, Fiskeby Board AB (December 2020)
[17] https://www.eupia.org/wp-content/uploads/2024/03/20240313-EuPIA_Exclusion_Policy_for_Printing_Inks_and_Related_Products_-March-2024_6th-Edition-v1-1.pdf

than 80% post-consumer recycled/regrind (PCR) raw materials is thus exempted from the WUR calculation, as in the EU Ecolabel. It appears to be a suitable way to try to encourage a high proportion of recycled packaging material. However, even a small amount (e.g. 5%) of recycled material helps to meet the requirement if you are on the borderline. The availability of packaging made from recycled raw materials is increasing in the Nordic market, and Nordic Ecolabelling believes there is the utmost relevance in trying to stimulate greater recycling.

The requirement level for the WUR calculation has been set based on Nordic Ecolabelling's experiences of the licensing work for both professional products and consumer products.

Take-back system for a packaging is exempted since if packaging is recycled as such (taken back, washed and refilled) reduces the need for virgin materials in the packaging. Take back systems are not the same as packaging materials that are part of a recycling system where the packaging is recycled and used as new plastic materials.

This requirement has not been revised compared to generation 6.

2.5 Licence maintenance

Background to O20 Customer complaints

Nordic Ecolabelling requires that your company has implemented a customer complaint handling system. To document your company's customer complaint handling system, you must upload your company's routine describing these activities. The routine must be dated and signed and will normally be part of your company's quality management system.

If your company does not have a routine for customer complaint handling, it is possible to upload a description of how your company perform these activities. During the on-site visit, Nordic Ecolabelling will check that the customer complaint handling is implemented in your company as described. The customer complaints archive will also be checked during the visit.

This requirement has not been revised compared to generation 6.

Background to O21 Traceability

Nordic Ecolabelling requires that your company has implemented a traceability system. To document your company's product traceability, you must upload your company's routine describing these activities. The routine must be dated and signed and will normally be part of your company's quality management system.

If your company does not have a routine for product traceability, it is possible to upload a description of how your company perform these activities. During the on-site visit, Nordic Ecolabelling will check that the product traceability is implemented in your company as described.

This requirement has not been revised compared to generation 6.

3 Environmental impact of hand dishwashing detergents

RPS scheme

Life cycle stages	Area and assessment of R, P, S (high, medium or low)	Comments
Raw materials		
	Fossil oil and other non-renewable inputs to produce chemical raw materials R: High P: Low S: Low	High Relevance Large consumption of energy and fossil resources that lead to air and water pollution and drive global warming. Degraded and polluted land from extraction of oil, gas, metals, and minerals Low Potential Low potential for minimizing the use of fossil resources for chemical raw materials due to the lack of renewable raw materials. Reducing overdosing reduces raw material needs. Low Steerability Low steerability for fossil fuel raw materials except to limit allowable usage, which would in turn favour palm oil. Requirement for clear dosage instructions. However, it is difficult to steer consumer behaviour related to overdosing.
	Plant materials (palm oil, etc.) for production of chemical raw materials R: High P: Medium S: High	High Relevance Extensive non-sustainable extraction of renewable raw materials, especially palm oil, leading to deforestation, peatland degradation, biodiversity loss, soil erosion, water pollution, and widescale burning leading to air pollution and greenhouse gas releases Medium Potential Low potential for minimizing the use of palm oil for renewable raw materials due to low availability of alternative renewable raw materials. However, high potential for minimizing the negative impacts of extraction of palm oil and other renewables. Reducing overdosing reduces raw material needs. High Steerability Requirements for RSPO certified palm oil, supply chain policy, and code of conduct. Requirement for clear dosage instructions.
	Fossil-based plastic packaging R: High P: High S: High	High Relevance Large consumption of energy and fossil resources that lead to air and water pollution and drive global warming. High Potential Promote design for recycling. High Steerability Requirements on design for recycling
	Bio-based packaging R: Low P: High S. High	Low Relevance Non-sustainable forestry and agriculture lead to deforestation, biodiversity loss, soil erosion, water pollution, and GHG emissions, however the use of paper based and cardboard packaging for hand dishwashing detergents is very limited.

		High Potential Promote recycled packaging and certified bio-based raw materials along with high fill-rates. Design for recycling. Promote refill solutions. High Steerability Requirements on packaging materials, weight-utility ratio, fill ratio, and design for recycling
	Water and electrical consumption for production of raw materials R: High P: Medium S: Low	High Relevance High consumption of water, energy, and fossil resources. Medium Potential Promote water and energy efficiency to lower consumption from production. Low Steerability Production facilities require water and energy to run, and we lack information about reducing this usage.
Production/distribution		
	Energy consumption for production of products and packaging R: Medium P: Low S: Low	Medium Relevance Low to medium consumption of energy relative to other lifecycle phases. Low Potential Promote water and energy efficiency to lower emissions from production. Low Steerability Production facilities require water and energy to run, and we lack information about reducing this usage.
	Transportation from production to retail and to end users R: Medium P: High S: Low	Medium Relevance Medium consumption of energy relative to other lifecycle phases. Particulate matter and emissions from vehicles. High Potential Limit the use of non-renewable energy, improve logistics, and lower emissions from trucks. Low Steerability Distribution is carried out by external companies transporting both Nordic Swan Ecolabelled and non-Nordic Swan Ecolabelled products.
Use phase		
	Exposure of chemicals harmful to health R: High P: High S: High	High Relevance Exposure to allergens and other hazardous chemicals that can impact consumers' and professional users' health High Potential Limit or exclude ingredients with negative impact on health like allergens, endocrine disruptors, and carcinogens. Limit additional exposure from overdosing of product via efficacy and foam qualities. Reduce exposure via inhalation for spray products. High Steerability Requirements to prohibit or strongly limit problematic substances. Clear dosage instructions. Efficacy requirements. Spray nozzles that reduce the formation of inhalable aerosols. However, it is difficult to steer consumer behaviour related to overdosing.
	Energy consumption for heating water R: High	High Relevance

	P: High S: Low	Energy usage for heating water to wash temperature is greater than energy use in all other lifecycle phases of hand dishwashing detergent. High Potential Minimizing hot water use with more efficient hand dishwashing techniques (avoid running the faucet; fill wash basin with soapy water, not whole sink) and reducing the water temperature conserves energy and water. Low Steerability Could add requirement for washing guidance (e.g., AISE icons) in addition to dosage guidance on packaging. Could add requirements for washing efficacy at lower temperatures, but it is difficult to steer consumer behaviour regarding hot water usage.
End of life		
	Product emissions from use (degradability, eutrophication, and toxicity to aquatic organisms) R: High P: High S: High	High Relevance Emissions to water bodies from dishwashing can harm aquatic organisms and/or lead to eutrophication (nutrient-loading). This can affect biodiversity and threaten ecosystems. High Potential Reduce the content of environmentally hazardous ingredients including substances toxic to aquatic organisms, non-degradable substances, microplastics, endocrine disruptors, and substances that can lead to eutrophication (nutrient-loading). Reduce overdosing. Reduce emissions through efficient products. High Steerability Requirements to prohibit or strongly limit problematic substances. Efficacy requirements. Clear dosage instructions. However, it is difficult to steer consumer behaviour related to overdosing.
	Packaging disposal (incineration, reuse or recycling) R: Medium P: High S: Medium	Medium Relevance Loss of the material value if packaging is incinerated (higher impact) vs. recycled (lower impact) vs. reused (lowest impact) High Potential Limit resource use for packaging and to promote design for recycling. Medium Steerability Requirements on packaging materials and design for recycling. However, there is low steerability over consumer recycling behaviours.
	Water and electrical consumption for wastewater treatment R: Medium P: Low S: Low	Medium Relevance Medium consumption of water and energy relative to other lifecycle phases Low Potential No potential for the licensees to limit the use of energy for wastewater treatment. Low Steerability Sewage treatment plants are run by the public sector and hence difficult to affect by the producer of hand dishwashing products.

MECO scheme

	Raw material	Production and transport	Use	End of life
Material	Extraction of oil, gas, metals, and minerals for non-renewable raw materials Agricultural production for renewable raw materials Forestry for paper-based packaging Water consumption in raw material production		Water consumption in use (increases significantly if rinsing under running water)	Loss of the material value if packaging is incinerated (higher impact) vs. recycled (lower impact)
Energy (GWP = Global warming potential, LCA study of home-care products from Koehler 2009)	Energy consumption to extract/cultivate and process raw materials for product and packaging (15-30% GWP in LCA, with higher water content reducing raw chemical contribution but increasing packaging contribution)	Energy consumption to produce product and packaging (ca 5% GWP in LCA for liquids; ca 10% for powder or solid products due to energy for drying) Energy use of transport vehicles (ca 5% in LCA)	Energy for heating water for product use (50-75% GWP in LCA)	Energy from wastewater treatment and solid waste handling (5-20% GWP in LCA)
Chemicals	Agricultural chemicals including pesticides and fertilizers Exposure to hazardous chemicals in the work environment or nearby communities	Exposure to hazardous chemicals in the work environment or nearby communities Air pollution from transport vehicles	Consumer and professional users' exposure to allergens and other hazardous chemicals	Wastewater emissions of chemicals toxic to aquatic organisms Emissions of phosphorous compounds that cause eutrophication
Other	Biodiversity and ecosystem impact from resource extraction, forestry, and agriculture Conflicts arising due to land right disputes and impacts on local and indigenous communities Higher food prices due to raw material production competing with food production	Particulate matter from transport vehicles	Satisfaction influenced by product quality, effectivity, and shelf life Reduced wastage based on dosing instructions and design	Biodiversity and health impacts from hazardous chemicals from sewage sludge leaching to land and water Emissions of microplastics or nanomaterial if in formulation

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