Nordic Ecolabelling for

Laundry detergents for professional use

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Nordic Ecolabelling

Content

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

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:

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Ecolabelling Denmark
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www.svanemaerket.dk

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What is a Nordic Swan Ecolabelled laundry detergent for professional use?

Laundry detergents for professional use are a large product group on the Nordic market. Nordic Swan Ecolabelled laundry detergents for professional use are some of the least environmentally harmful products in the detergent area, because they meet stringent requirements concerning the environmental and health properties of the constituent substances and requirements relating quality and performance.

Laundry detergents for professional use are primarily used in commercial laundries, hotels and hospitals, but also in study centres, restaurants and communal laundries.

Professional laundering generally takes place at higher temperatures with more effective, highly alkaline detergents, and using larger and more efficient washing machines than consumer laundering. High wash temperatures require a lot of energy, and thereby have greater environmental impact. The manufacturer must document the effectiveness of the products at 60 °C for heavy degree of soiling and 40 °C for medium and light degree of soiling (O20), and wash effectiveness must be shown at the same dosage recommended for the different degrees of soiling. Alternatively, wash effectiveness can be documented at the temperatures of 40 °C for heavily soiled laundry and 30 °C for lightly soiled laundry, but with more lenient chemical requirements.

When laundry detergents are used, chemicals are discharged to the wastewater, which after treatment is returned to the environment. There is also a risk that detergent residues remain in the washed fabrics, and so substances that are allergenic and harmful to health should be limited as far as possible.

It is therefore important that Nordic Swan Ecolabelled laundry detergents for professional use have properties that meet the following requirements:

- limit the content of substances that are harmful to the environment and health
- prohibit substances that are not readily degraded in the environment or that are bioaccumulative or toxic
- prohibit fragrances and restrict the content of preservatives
- ensure similar effective laundering to that of comparable products with the same function
- ensure effective laundering at low wash temperature where possible, without compromising the chemistry or wash time of the product
- have an optimal dosage that is checked through regular customer visits by the supplier of chemicals to the laundries

Why choose the Nordic Swan Ecolabel?

- Enterprises that manufacture laundry detergents for professional use may use the Nordic Swan Ecolabel trademark, the Swan, in their marketing of the product. The Nordic Swan Ecolabel is well-reputed and well-known in the Nordic region.
- The Nordic Swan Ecolabel is a cost-effective and simple way of communicating, to customers and suppliers, environmental work and environmental commitment.
- Business activities that are adapted to the environment often provide scope for reducing costs by, for example, reducing the use of environmentally harmful chemicals, energy, and water, and reducing the quantity of waste.
- Environmental issues are complex, and it can take a long time to gain an understanding of specific issues. Nordic Ecolabelling can be seen as a guide to this work.
- The Nordic Swan Ecolabel not only sets requirements relating to the environment and health, but also in relation to quality, as environment and quality often go hand-in-hand. This means that a Nordic Swan Ecolabel licence can also been seen as a mark of quality.

What can carry the Nordic Swan Ecolabel?

The phrase "laundry detergents for professional use" refers to products intended for washing fabrics in water, and that are intended for use by large-scale consumers and professional users. The criteria apply to both complete powders and complete liquid laundry detergents, and multi-component systems (where rinsing agent and stain remover may also be included). Fabric softeners and stain removing agents may also be Nordic Swan Ecolabelled when they are constituents of a multi-component system.

Only products that are primarily intended for washing in soft water (0-6 °dH) may be awarded the Nordic Swan Ecolabel.

Multi-component systems are detergent systems based on the use of various components to form a complete detergent, a stock solution, or a wash programme for automatic dosing. This type of system may include several products, such as pre-wash agent, main detergent, wash booster, bleaching agent, fabric conditioner disinfectants, neutralizing agents and detergent for delicate fabrics.

In cases where the ingredients/raw materials are mixed in an automated process in direct connection to the washing machine, the ingredients/raw materials are considered as sub-components in a multi-component system.

The criteria apply to all products that come into contact with the laundry during washing, but do not apply to special impregnating agents that have, for example, a water-repelling or flame-retardant function. Dyes for colouring textiles are not covered by this product group. Products with specifically added microorganisms are also not included in the product group definition.

Products that are intended, wholly or partly, for consumers, and that are wholly or partly sold in retail outlets, cannot be awarded the Nordic Swan Ecolabel in accordance with these criteria. For these types of products, the criteria document "Nordic Swan Ecolabelling of laundry detergents and stain removers", Version 6.0 or later, applies.

How to apply

Application and costs

For information about the application process and fees for this product group, please refer to the respective national web site. For contact information see page 3.

What is required?

The application must consist of an application form/web form and documentation showing that the requirements are fulfilled.

Each requirement is marked with the letter O (obligatory requirement) and a number. All requirements must be fulfilled to be awarded a licence.

The text describes how the applicant shall demonstrate fulfilment of each requirement. There are also icons in the text to make this clearer. These icons are:

✉ Enclose

🔑 The requirement checked on site.

All information submitted to Nordic Ecolabelling is treated confidentially. Suppliers can send documentation directly to Nordic Ecolabelling, and this will also be treated confidentially.

License validity

The ecolabel licence is valid providing the criteria are fulfilled and until the criteria expire. The validity period of the criteria may be extended or adjusted, in which case the licence is automatically extended and the licensee informed.

Revised criteria shall be published at least one year prior to the expiry of the present criteria. The licensee is then offered the opportunity to renew their licence.

On-site inspection

In connection with handling of the application, Nordic Ecolabelling normally performs an on-site inspection to ensure adherence to the requirements. For such an inspection, data used for calculations, original copies of submitted certificates, test records, purchase statistics, and similar documents that support the application must be available for examination.

Queries

Please contact Nordic Ecolabelling if you have any queries or require further information. See page 3 for contact information. Further information and assistance (such as calculation sheets or electronic application help) may be available. Visit the relevant national website for further information.

1 Environmental requirements

Environmental requirements are divided into two parts - general requirements and total content of substances harmful to the environment.

Chapter 1.1, 'General Requirements', contains requirements that must be fulfilled by all products and all components in a multi-component system, and apply to all constituent substances unless stated otherwise.

Chapter 1.2, 'Total content of environmentally hazardous substances', contains requirements that apply to the total environmental impact in a complete laundry detergent or in a multi-component system.

Unless otherwise specified, the term 'constituent substances' refers to all substances in products, including additives in the raw materials (e.g. preservatives and stabilisers), but not impurities from primary production. Impurities comprise residues from primary production that may be found in the laundry detergent at concentrations below 100 ppm (0.0100% by weight, 100 mg/kg) Substances that are added to an ingredient, deliberately or for a purpose, are not regarded as impurities, regardless of concentration. Impurities at concentrations greater than 1.0% in the ingredient are regarded as constituent substances. Substances/products known to be liberated by a constituent substance are also regarded as constituent substances.

Nordic Ecolabelling wishes to promote products that can wash effectively at as low a temperature as possible without jeopardising the products' chemical composition, wash times or customer requirements for hygiene.

The manufacturer must specify the recommended wash temperature in the temperature range 30-40°C (Alternative A) or 40-60°C (Alternative B).

In addition, the requirements concerning CDV (O13) and phosphonate content (O17) must be documented for the given wash temperature (Alternative A or B) and dosing.

The products may be used in washing processes with higher wash temperatures, but the manufacturer must document, with the help of a user test (requirement O19 Effectiveness of industrial washing processes), that the product is effective for "Light", "Medium" or "Heavy" soiling for the temperature range 30-40°C (Alternative A) or 40-60°C (Alternative B). This makes the customer (the laundry) aware that the product provides the option of washing effectively at lower temperatures. Wash effectiveness is to be shown in relation to dosing for the different degrees of soiling.

The highest dosing for each degree of soiling will form the basis for assessment of the requirements in section 1.2 Total content of environmentally harmful substances.

All products are to document wash effectiveness at the stated wash temperature in accordance with O19 Effectiveness of industrial washing processes.

For products/multi-component systems marketed as having a disinfecting function (chemothermal), the effectiveness of the disinfection is to be documented under requirement O20 (Effectiveness of chemothermal disinfection) in the temperature range 30-40°C, i.e. max 40°C (Alternative A) or 40-60°C, i.e. max 60°C, (Alternative B).

1.1 General requirements (apply to all products and all components in a multi-component system)

O1 Description of product

In the application for the Nordic Swan Ecolabel licence, the applicant must provide detailed information/user manual about the product/multi-component system and the packaging of the individual product. The following information must be provided:

- Information about the manufacturer's name and address (manufacturer of the product)
- Technical description of the product/products:
  - type of detergent
  - description of components in a multi-component system
- Technical data sheet/product data sheet and label giving the following information:
  - Recommended dosing* for light, medium and heavy soiling in ml or grams per kg laundry.
  - Confirmation that the product can wash effectively at (Alternative A: 30-40°C or Alternative B: 40-60°C) for the different degrees of soiling.

** If the dosing is given in intervals for each degree of soiling, the worst-case dosing is to be used in the assessment of the requirements in section 1.2.*

- Description of the product's packaging (type of material, weight).

If the product or multi-component system is also marketed as having a disinfecting function (chemothermal), this is also to be declared. In this case, the product/multi-component system is to document effectiveness in accordance with requirement O20 and in relation to the temperature interval (Alternative A or B) and stated dosing for the wash temperature.

✉ Complete descriptions in accordance with the requirement, plus technical data sheet/product data sheet and label giving the dosing instructions as per the requirement.

O2 Formulation

A complete formulation for the product / all components in a multi-component system must be sent to Nordic Ecolabelling. For each ingredient, the formulation must contain:

- trade name
- chemical name
- quantity (% by weight), inclusive and exclusive water
- CAS number
- DID number
- function

Water content and function of the ingredient/raw material must be shown.

The DID number is the number of the ingredient on the DID List, which is used in calculation of chemical requirements. The DID List can be obtained from the Nordic Ecolabelling home page, see contact information on page 3 See appendix 3 for more information about the DID-list.

✉ Complete formulation in accordance with the requirement.

☒ Safety data sheet/product data sheet in line with applicable legislation in the country of application, e.g. Annex II to REACH (Regulation 1907/2006/EC) for each product and each ingredient.

O3 Classification of the product

The product must not be classified in accordance with hazard classes and risk phrases in Table 1.

Table 1 - Classification

Hazard class	Hazard category and code / hazard symbols and R phrases	
	CLP Regulation 1272/2008	EU Dangerous Substances Directive 67/548/EEC[1]
Dangerous for aquatic environments***	Aquatic acute 1 H400 Aquatic chronic 1-4: H410, H411, H412****, H413	N with R50, R50/53 or R51/53. R52, R53 or R52/53 without N.
Acute toxicity Specific target organ toxicity - single exposure	Acute toxicity 1, 2: H330, H300 STOT SE 1: H370	T+ with R26, R27, R28 and/or R39
Acute toxicity Specific target organ toxicity - single and repeated exposure	Acute toxicity 2, 3: H301, H330, H331 STOT SE 1: H370 STOT RE 1: H372	T with R23, R24, R25, R39 and/or R48
Harmful to health*	Acute toxicity 4: H332, H312 STOT RE 2: H373 STOT SE 2: H371 Asp. Tox. 1: H304 (R65)	Xn with R20, R21, R48, R65 and/or R68
Sensitising on inhalation or skin contact**	Resp. Sens. 1 H334 Skin Sens. 1 H317	Xn with r42 and/or Xi with r43
Carcinogenic properties	Carc. 1A, 1B, 2A, 2B, 2: H350, H350i, H351	T with R45 and/or R49 (Carc1 or Carc2) or Xn with R40 (Carc3)
Mutagenic	Muta. 1B, 2 H340, H341	T with R46 (Mut1 or Mut2) or Xn with R68 (Mut3)
Toxic for reproduction	Repr. 1A, 1B: H360FD Repr. 2: H361fd Lact.: H362	T with R60, R61, R64 and/or R33 (Rep1 or Rep2) or Xn with R62, R63, R64 and/or R33 (Rep3)

[1] *Applicable in the transition period to Regulation no. 1272/2008 from December 2010 until June 2015.*

** An exemption applies to products where the classification is the result of the content of oxalic acid (CAS 144-62-7), peracetic acid (CAS 79-21-0) or hydrogen peroxid (CAS 7722-84-1).*

*** Exemptions are products that are classified Resp.Sens. 1 H334 og/eller Skin Sens. 1 H317 / Xn with R42 and/or R43 because of enzyme content. However, this assumes that the enzymes are encapsulated or in a slurry.*

**** Products containing peracetic acid and hydrogen peroxide used as bleaching agent may be classified and labelled as hazardous to the aquatic environment [Chronic Category 1 (H410), Chronic Category 2 (H411) or Chronic Category 3 (H412)], if the classification and labelling are triggered by the presence of these substances. Products marketed as disinfectants cannot be excluded because of the EU Biocidal Products Regulation (EU) no 528/2012. See also requirement O12.*

***** Sub-components that are mixed in an automated process in direct connection to the washing machine that are classified as hazardous to the aquatic environment Chronic Category 3 (H412) because of enzyme content are exempted.*

The classification applies under the Directives 67/548/EEC and 1999/45/EU as amended and adapted, and the CLP Regulation (EC) No 1272/2008 in a transition period until 1 June 2015.

✉ Safety data sheet/product data sheet in line with applicable legislation in the country of application, e.g. Annex II to REACH (Regulation 1907/2006/EC) for each product.

O4 Classification of constituent substances in the product

Constituent substances in the products must not be classified according to hazard classes and risk phrases in Table 4.

Table 2 – Classification of constituent substances

Hazard class	CLP Regulation 1272/2008	EU Dangerous Substances Directive 67/548/EEC [1]
Allergenic*	Resp. Sens. 1 H334 Skin Sens. 1 H317	Xn; R42 and/or Xi; R43
Mutagenic	Muta 1B, 2; H340 H341	T; R46 (Mut1 or Mut2) or Xn; R68 (Mut3)
Carcinogenic properties**	Carc. 1A, 1B; H350, H350i Carc. 2; H351	T; R45 and/or R49 (Carc1 or Carc2) or Xn; R40 (Carc3)
Toxic for reproduction	Repr. 1A, 1B; H360FD Repr. 2; H361fd Lact.: H362	T; R60, R61, R64 and/or R33 (Rep1 or Rep2) or Xn; R62, R63, R64 and/or R33 (Rep3)

[1] *Applicable in the transition period to Regulation no. 1272/2008 from December 2010 until June 2015.*

** Enzymes are exempt. Preservatives included in liquid products in concentrations ≤0.02% are exempt. See also O6 and O8 concerning requirements for enzymes and preservatives.*

*** An exemption is made for NTA as an impurity. Complexing agents of the type MGDA and GLDA may contain NTA as an impurity in the raw material in concentrations below 1.0%, as long as the concentration in the product remains below 0.1%. See also requirement O7.*

Note that titanium dioxide in solid mixtures (e.g. in enzymes) is prohibited by this requirement, in effect from 2021-10-01. A transition period until 31 August 2025 applies.

✉ Safety data sheet/product data sheet for all constituent raw materials (in all products) according to applicable legislation in the country of application, e.g. Annex II to REACH (Regulation 1907/2006/EC).

✉ Completed and signed declaration from the manufacturer (Appendix 1).

✉ Completed and signed declaration from the raw material supplier (Appendix 2).

O5 Surfactants, ready degradability, aerobic and anaerobic

All surfactants must be readily degraded aerobically in accordance with Test Method No. 301 A-F in the OECD Guidelines for Testing of Chemicals or other equivalent test methods.

All surfactants must be anaerobically degradable, which means at least 60% degradability under anaerobic conditions, in accordance with ISO 11734, ECETOC no. 28 or equivalent test methods. Documentation must primarily refer to the DID List dated 2014 or later. For surfactants that are not covered by the list, other documentation, such as test reports or literature references, may be used.

✉ Documentation must primarily refer to the DID List dated 2014 or later. For surfactants that are not covered by the list, other documentation, such as test reports or literature references, may be used (Appendix 3).

O6 Enzymes

Enzymes must be in liquid form or in the form of non-dusting granulate.

Manufacturers of laundry detergents for professional use must have health and safety measures in place that prevent employees from being exposed to enzymes. In particular, there must be protection from high exposure.

In cases where enzymes are sub-components in a multi-component system and are mixed in direct connection to the washing machine, the process must be automated and there must be safety measures in place that prevent employees from being exposed to enzymes.

✉ Declaration from the manufacturer of enzymes, or information on safety data sheets/product information sheets.

✉ Description of measures and methods for protecting personnel.

O7 Substances that must not be present in the product

The following substances must not be present in the product:

- Reactive chlorine compounds (for example, sodium hypochlorite) and/or organic chlorine compounds
- APEO and APD (alkylphenolethoxylates and alkylphenol derivatives)
- LAS (linear alkylsulphonates)
- DADMAC (diallyl dimethyl ammonium chloride)
- PFAS (perfluorinated and polyfluorinated alkylated compounds)
- Phthalates. Also excluded through requirements relating to endocrine disrupting substances.
- Boric acid, borates, and perborates
- Optical brighteners
- Fragrances
- Triclosan
- EDTA (Ethylenediaminetetraacetate and its salts) and DTPA (diethylenetriamine pentaacetate)
- Quaternary ammonium compounds which are not readily degradable***
- Siloxanes D4, D5 and HMDS
- Substances on the Candidate List*
- Substances that are judged by the EU as being PBT substances (persistent, bioaccumulative and toxic) or vPvB-substances (very persistent and very bioaccumulable) in accordance with the criteria in Annex XIII in REACH [Regulation (EC)1907/2006]).
- Substances assessed for potential endocrine-disrupting effects Cat I or Cat II within the EU list of substances with documentation for potential endocrine-disrupting effects. See following link:
  http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf
- Halogenated flame retardants
- Nanomaterials/- particles**

** The Candidate List can be found on ECHAs homepage http://echa.europa.eu/candidate-list-table*

***Nanomaterials/-particles are defined according to the EU Commission definition of nanomaterials dated 18 October 2011, except that the limit for particle size distribution is reduced to 1%: "A nanomaterial is a natural, incidental or manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for at least 1% of the particles in the number size distribution, one or more external*

dimensions is in the size range 1-100 nm." Examples are ZnO, TiO_2, SiO_2, Ag and laponite with particles of nanosize in concentrations exceeding 1%. Polymer emulsions are not regarded as nanomaterials.

**** According to test method 301 (A-F) or 310 in OECD guidelines for testing of chemicals or other equivalent test methods.*

✉ Completed and signed declaration from the manufacturer (Appendix 1).

✉ Completed and signed declaration from the raw material supplier (Appendix 2).

O8 Preservatives

Preservatives may be added in liquid products if the preservative is not bioaccumulative. Compounds are regarded as not being bioaccumulative if BCF < 500 or log Kow < 4.0. If there is data about both BCF and log Kow, the values for BCF are to be used.

The concentration of preservative must be optimised in relation to the product's volume, and a Challenge Test (appendix 4) or equivalent should be carried out to prove this.

✉ Documentation of BCF or log Kow.

✉ Test report of implemented Challenge Test or equivalent showing that an optimal concentration of the preservative is used in the product. See Appendix 4 for requirements concerning the test laboratory and for information about the Challenge Test.

O9 Colouring agents

Colour substances in a product or an ingoing ingredient must not be bioaccumulative or must be approved for use in foodstuffs. Colour substances are not regarded as bioaccumulative if BCF < 500 or log Kow < 4.0. Colouring agents that are approved for use in food are accepted.

✉ Documentation of BCF or log Kow. Alternatively E-number can be stated. If there is data about both BCF and estimated log Kow, the values for BCF are to be used.

O10 Marking of plastic packaging

Plastic material must be marked in accordance with DIN 6120, Part 2, or equivalent.

✉ Documentation of the primary packaging that shows the marking is in accordance with DIN 6120 or equivalent marking devices.

O11 Plastic packaging

PVC or other halogenated plastics must not be present in packaging or in the label.

✉ Declaration that the requirement is fulfilled.

O12 Declaration of contents and user manual

The declaration of contents must be in accordance with the Regulation (EC) 648/2004 on Detergents.

It must be made clear on the safety data sheet, technical product data sheet or label which wash temperature the product or multi-component system has been function tested for, in accordance with requirement O19, for normally soiled laundry, e.g.: "Effective cleaning at 30°C for normally soiled laundry".

If the product or multi-component system is marketed as providing chemothermal disinfection, it must be made clear on the safety data sheet, technical product data sheet or label that the product or multi-component system has a chemothermal disinfection function at the wash temperature stated in O1.

Wash temperature and dosing must be in accordance with the information stated in O1.

If the final product contains peracetic acid and hydrogen peroxide as a bleaching agent and is classified and labelled, a text shall appear on the primary packaging or technical product sheet stating that the classification and labelling is due to peracetic acid and

hydrogen peroxide which degrade into non-classified substances during the washing process, see requirement O3.

✉ Safety data sheets, technical product sheet, or a copy of the label showing the declaration of contents, information on the effective wash temperature and, where applicable, the effective chemothermal disinfection temperature.

1.2 Total content of environmentally harmful substances

The following requirements apply to all complete laundry detergents or the total quantity of wash chemicals in multi-component systems (grams) that are used to wash 1 kg of laundry (g/kg laundry).

Requirement O20 only applies to products marketed as having a disinfecting function.

All components that are to be Nordic Swan Ecolabelled must be included in the calculations. The calculations must be based on the highest recommended dosing in relation to degree of soiling. Note that a complete laundry detergent and all components of the multi-component system must also fulfil all requirements in Chapter 1.1.

Dosage and limit values for the various parameters depend on the degree of soiling of the laundry. All limit values are exclusive of water. Table 3 shows a common division of laundry categories according to degree of soiling.

Table 3 - Examples of laundry categories according to degree of soiling.

Light soiling	Medium soiling	Heavy soiling
Bedlinen and towels from hotels and other overnight accommodation establishments Duvets and pillows Mats and mops Cloth hand towel rolls	Work clothes Institution/trade/service Hospitals/Nursing homes Laundry from hospitals and nursing homes and similar institutions, e.g. bedding, mattress covers, operation sheets, barrier sheets, and patient clothing. Microfibre mops	Work clothes Industry/kitchen/ butchering and equivalent use Kitchen equipment Clothes and towels Industry clothing Restaurant Cloths/napkins and similar for use in restaurants, industrial kitchens, etc.

O13 CDV (critical dilution volume)

The critical dilution volume (CDV) of the laundry detergent or multi-component systems may not exceed the limit values shown below in Table 6 or 7. Either acute values (CDV_{acute}) or chronic values ($CDV_{chronic}$) may be used.

For recommended wash at a maximum of 30-40°C, Alternative A is used (table 4).

For recommended wash at a maximum of 40-60°C, Alternative B is used (table 5).

Recommended wash temperature is documented through the requirement for Effectiveness, O19.

Table 4 - Alternative A) Wash at maximum temperature 30-40°C

Degree of soiling	Maximum temperature	CDV acute	CDV chronic
Light	30°C	140 000	70 000
Medium	30°C	200 000	100 000
Heavy	40°C	300 000	150 000

Table 5 - Alternative A) Wash at maximum temperature 40-60°C

Degree of soiling	Maximum temperature	CDV acute	CDV chronic
Light	40°C	100 000	19 000
Medium	40°C	160 000	35 000
Heavy	60°C	220 000	54 000

CDV is calculated using the following equations:

$CDV_{acute} = \sum CDV_i = \sum(dose_i \times DF_i \times 1000/TF_{acute})$

or

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

where:

$dose_i$ = the input quantity of the individual substance in g/ kg laundry

DF_i = degradation factor for substance in

TF_{acute} = acute toxicity factor

$TF_{chronic}$ = chronic toxicity factor

Because of the degradation of the substances in the wash process, separate rules apply for the following two substances:

- Hydrogen peroxide (H_2O_2) – not to be included in calculation of CDV.
- Peracetic acid (CH_3CO_3H) – to be included in the calculation as acetic acid.

Documentation must primarily refer to the DID List dated 2014 or later. For substances not included in the list, other documentation may be used, such as test reports or literature references.

DID List: Detergents Ingredients Database.

☒ Calculation of CDV for a complete system or multi-component system that shows that the requirement is fulfilled. The parameters and calculation equations that are needed for documentation of the requirement can be found in Annex 3. It must be stated whether CDVacute or CDVchronic are used.

☒ Recommended wash temperature and recommended temperature for disinfection must be documented through an effectiveness test in relation to O20 in addition to the user test in O19.

O14 Limitation of products' content of aerobically non-biodegradable substances (aNBO)

The quantity of organic substances that are aerobically non-biodegradable (aNBO), in complete laundry detergents or multi-component systems in accordance with the DID-list, must not exceed the limit values given in Table 6. For substances not on the DID List, other documentation in accordance with Appendix 3 may be submitted.

Table 6 – Requirements for aNBO

Parameter	Symbol (unit)	Light	Medium	Heavy
Aerobically non-biobiodegradable compounds	aNBO (g/kg laundry)	0.50	0.85	1.50

☒ Calculation of the amount of organic substances that are aerobically degradable (aNBO) in accordance with the DID List. The parameters and formulas needs for documentation of the requirements, see appendix 3.

O15 Limitation of products' content of anaerobically non-biodegradable substances (anNBO)

The quantity of organic substances that are anaerobically non-biodegradable (anNBO), in complete laundry detergents or multi-component systems in accordance with the DID-list, must not exceed the limit values given in Table 7. For substances not on the DID List, other documentation in accordance with Appendix 3 may be submitted.

Iminodisuccinate (DID 2555) may be omitted from the calculation of anNBO.

For cumene sulphonates (DID 2540), the manufacturer's own data may be used (i.e. on the basis of the manufacturer's own data, this can deviate from the value anNBO=N on the DID List).

Table 7 – Requirements for anNBO

Parameter	Symbol (unit)	Light	Medium	Heavy
Anaerobic non-biodegradable compounds	anNBO (g/kg laundry)	0.50	0.85	1.50

✉ Calculation of the amount of organic substances that are aerobically degradable (anNBO) in accordance with the DID List. The parameters and formulas needs for documentation of the requirements, see appendix 3.

O16 Phosphorus

The total quantity of phosphates and other phosphorus compounds may not exceed the limit values given in Table 8, expressed as grams P/kg laundry.

Table 8 - Limit values for phosphorus

Parameter	Symbol (unit)	Light	Medium	Heavy
Quantity of phosphorus	P (g P/kg laundry)	0.50	1.00	1.50

Products that contain more phosphorus than the amount permitted by Norwegian regulations may not be sold and used in Norway or in areas where there are regulations and prohibitions concerning the use of phosphorus in detergents.

Product Regulation FOR 2004-06-01 no. 922: Regulation on restrictions in using environmentally hazardous chemicals and other products. Chapters 2-12. Detergents - phosphorus content.

✉ Calculation of the total quantity of elementary phosphorus in complete laundry detergents or in multi-component systems.

O17 Phosphonates/phosphonic acid

Total phosphonates/phosphonic acid may not exceed the limit values shown in Table 9, expressed as g/kg laundry.

Table 9 - Phosphonates

	Parameter	Symbol (unit)	Light	Medium	Heavy
A	Phosphonates/phosphonic acids at 30-40 washes	g /kg laundry	0.15	0.20	0.30
B	40-60°C	g /kg laundry	0.075	0.10	0.15

✉ Calculation of total quantity of phosphonates/phosphonic acids, expressed as g/kg laundry.

O18 Environmentally hazardous substances

The quantity of constituent substances with an environmental hazard classification as set out below (in accordance with the CLP Regulation (EC) No 1272/2008 as amended and the EU Dangerous Substances Directive 67/548/EEC as amended) in a single-component product or a multi-component system must not exceed these limits.

No constituent substances with the following environmental hazard classification (in accordance with the CLP Regulation (EC) No 1272/2008 and the EU Dangerous Substances Directive 67/548/EEC) may occur in a complete laundry detergent or multi-component system in quantities that exceed the limits stated in Table 10:

Table 10 - Amount of ingoing substances with an environmental hazard classification

For light degree of soiling:	$100 * A_1 + 10 * A_2 + A_3 \leq 0{,}7$ g/kg textile
For medium degree of soiling:	$100 * A_1 + 10 * A_2 + A_3 \leq 1{,}0$ g/kg textile
For heavy degree of soiling:	$100 * A_1 + 10 * A_2 + A_3 \leq 1{,}3$ g/kg textile

where the calculation is based on the recommended dosing and where:

A_1 = the quantity of substances classified Aquatic Chronic 1 H410 / R50/53 (g per kg laundry)

A_2 = the quantity of substances classified Aquatic Chronic 2 H411 / R51/53 (g per kg laundry)

A_3 = the quantity of substances classified Aquatic Chronic 3 H412 / R52/53 (g per kg laundry)

Proteas/subtilisin classified as Aquatic Chronic 2 (H411) is exempted from the requirement, see further handling of enzymes in requirement O6. Note that the product also must fulfil the requirement O3 regarding classification of the product.

Surfactants that are classified H411 and H412 are exempted from the requirement, assuming they are readily degradable* and anaerobically degradable**.

Peracetic acid, CAS-number 79-21-0, is exempted from the requirement.

** According to the DID List or documentation in accordance with Test Method no. 301 A-F or no. 310 in the OECD guidelines for testing of chemicals, or other equivalent test methods.*

*** According to the DID List or documentation in accordance with ISO 11734, ECETOC no. 28 (June 1988) or equivalent test methods, if at least 60% degradability is attained under anaerobic conditions.*

✉ Presentation of surfactants that will be exempted from the requirement (quantity, classification, degradability).

✉ Compilation of the products' content of H410 / R50/53, H411 / R51/53 and H412 / R52/53 classified compounds per kg laundry.

✉ Calculations that show that the requirement is fulfilled.

✉ Safety data sheet for every constituent raw material, stating the level of environmental hazard of the substance (acute aquatic toxicity), degradability, and/or bioaccumulative property). See O2.

If information about the level of environmental hazard of the substance is not available, the substance is regarded as environmental hazard H410 / R50/53.

1.3 Effectiveness of the laundry detergent

To document effectiveness, the user test in O19 is to be used. This applies both for single-component products (complete products) and multi-component products. The products are to be tested with a light, medium and heavy degree of soiling, and are to be tested using the dosage stated in requirement O1.

If the products are also required to document their disinfection performance (where the products are marketed as having a disinfecting function), the effectiveness test for chemothermal disinfection is also to be carried out.

O19 Effectiveness of industrial washing processes

The laundry detergent must fulfil the requirements for a user test according to Appendix 5 (if the application relates to a multi-component system, all the components must be included in the test). The product must be tested at the manufacturers recommended wash temperature and dosages, or lower in accordance with the degrees of soiling "light", "medium" and "heavy" (as stated in O1).

If the dosing is stated in intervals for each separate degree of soiling, the worst-case dosing, i.e. the lowest dosing or lower, is to be used.

✉ Report of user test according to Appendix 5.

O20 Effectiveness in chemothermal disinfection

Products intended for chemothermal disinfection to be tested using sample fabrics in the washing process checked by using samples of cotton contaminated with indicator bacteria.

The sample fabrics are to be produced in accordance with the DGHM/VAH standard method number 17: Chemothermal washing disinfection – one bath procedure according to DIN 11905 with disinfection before the first dumping of the washing liquid (practical essay).

Each fabric sample must contain the following indicator bacteria:

- Enterococcus faeçium (ATCC 6057)
- Staphylococcus aureus (ATCC 6538)

Disinfection is achieved when all indicator bacteria have been killed.

The wash temperature and dosing stated in O1 are to be used in the washing process.

✉ For chemothermal disinfection, the wash temperature and dosing (stated in O1) are to be given by the manufacturer.

✉ A confirmation/declaration from a quality control carried out by an external and independent party, stating that:

- The washing process has been checked using cotton samples contaminated with the indicator bacteria enterococcus faeçium (ATCC 6057) and staphylococcus aureus (ATCC 6538).
- The sample fabrics are produced according to the DGHM/VAH standard method number 17: Chemothermal washing disinfection – one bath procedure according to DIN 11905 with disinfection before the first dumping of the washing liquid (practical essay).
- Chemothermal disinfection is achieved when all indicator bacteria have been killed.

O21 Customer visit

The licensee must make a plan with each customer for whether and how often customer visits should be performed during the course of the licence validity. For

customers who use automatic dosing devices, customer visits should preferably be part of a normal routine. The minimum outcome of a customer visit is calibration of dosing equipment and process controls, to ensure correct dosing. Customer visits can also be made by a third party.

✉ Written description of how customer visits will normally be implemented, indicating who will carry out the visit, what proportion of customers are visited, and how often they are visited.

2 Quality and regulatory requirements

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

If the company's environmental management system is certified to ISO 14 001 or EMAS, and the following procedures implemented, it is sufficient for the accredited auditor to certify that the requirements are observed.

O22 Legislation and regulations

The licensee must guarantee adherence to safety regulations, working environment legislation, environmental legislation and conditions/concessions specific to the operations at all sites where the Nordic Swan Ecolabelled product is manufactured.

No documentation is required, but Nordic Ecolabelling may revoke the licence if the requirement is not fulfilled.

O23 Responsibility for the Nordic Swan Ecolabel

The company shall appoint a person responsible for ensuring the fulfilment of Nordic Ecolabelling requirements, and a contact person for communications with Nordic Ecolabelling.

✉ A chart of the company's organizational structure detailing who is responsible for the above.

O24 Documentation

The licensee must be able to present a copy of the application, and factual and calculation data supporting the documents submitted on application (including test reports, documents from suppliers and suchlike).

🔑 Checked on site.

O25 Quality of the laundry detergent

The licence holder must guarantee that the quality in the production of the Nordic Swan Ecolabelled laundry detergent for professional use is maintained throughout the period of validity of the licence.

✉ Procedures for collating and, where necessary, dealing with claims and complaints regarding the quality of the Nordic Swan Ecolabelled laundry detergents for professional use.

O26 Planned changes

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

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

O27 Unplanned nonconformities

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

✉ Procedures detailing how unplanned nonconformities are handled.

O28 Traceability

The licensee must have a traceability system for the production of the Nordic Swan Ecolabelled product.

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

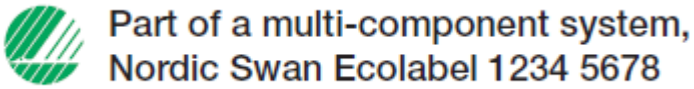
O29 Take-back system

The Nordic Ecolabelling's Criteria Group decided on the 9 October 2017 to remove this requirement.

Regulations for the Nordic Ecolabelling of products

When the Nordic Swan Ecolabel is used on 093 Laundry detergents for professional use the licence number and a descriptive subtext shall be included as follows:

- For laundry detergents: **Laundry detergent for professional use**
- For sub-components in a multi-component system: **Part of a multi-component system**



Note!
Sub-components which – due to legislation – are classified as hazardous to the aquatic environment and subject to show a warning symbol / CLP Pictogram is not allowed to show the Nordic Swan Ecolabel on the packaging – but only use the following text: **Part of an ecolabelled multi-component system**

National translations of subtext

EN: Laundry detergent for professional use / Part of a multi-component system / Part of an ecolabelled multi-component system

DK: Tekstilvaskemiddel til professionel brug / Del af et flerkomponent system / Del af et miljømærket fler-komponent system

FI: Ammattikäytön tekstiilien pesuaine / Osa monikomponenttijärjestelmää / Osa Joutsenmerkittyä monikomponenttijärjestelmää

IS: Þvottaefni til iðnaðarnota / Hluti af fjölþætta kerfi / Hluti af umhverfismerktu fjölþætta kerfi

NO: Tekstilvaskemiddel profesjonell / Del av flerkomponentsystem / Del av miljømerket flerkomponentsystem

SE: Tvättmedel för professionellt bruk / Del av flerkomponentsystem / Del av miljömärkt flerkomponentsystem

More information on graphical guidelines, regulations and fees can be found at www.nordic-swan-ecolabel.org/regulations

Follow-up inspections

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

The licence may be revoked if it is evident that product does not meet the requirements.

Random samples may also be taken in-store and analysed by an independent laboratory. If the requirements are not met, Nordic Ecolabelling may charge the analysis costs to the licensee.

Criteria version history

Nordic Ecolabelling adopted version 3 of the criteria for Laundry detergents for professional use on 19 March 2014. The criteria are valid until 31 March 2019.

On 17 November 2014 Board of Directors adopted a change in O18 Environmentally hazardous substances, where enzyme/subtilisin classified H411 is exempted from the requirement. The Board of Directors also decided to remove O30 Marketing. On December 5th, 2014 the Board of Directors adopted a change in O7 Substances that must not be present in the product, that quaternary ammonium compounds which are readily degradable can be present in laundry detergents for professional use. The new version is called 3.1.

On 11 May 2015 Nordic Ecolabelling's Criteria Group decided to make a change in O7 Substances that must not be present in the product. This change was also made in Appendix 1 and 2. There were also made an addition for microfibre textiles in the user test in Appendix 5. The new version is called 3.2.

On the 9 October 2017 Nordic Ecolabelling's Criteria Group decided to remove O29 Take-back system. Furthermore, the Nordic Ecolabelling's Criteria Group decided on 14 December 2017 to prolong the criteria to 30 June 2020. The new version is called 3.3.

On the 18 April 2018 Nordic Ecolabelling decided to adjust O3 and O12. On the 15 May 2018 Nordic Ecolabelling decided to adjust O18. The new version is called 3.4.

On the 19 January 2019 Nordic Ecolabelling decided to prolong the criteria for 18 months to the 31 December 2021. The new version is called 3.5.

On the 16 December 2019 Nordic Ecolabelling decided to prolong the criteria to the 30 June 2022. The new version is called 3.6.

On the 14 January 2020 Nordic Ecolabelling decided to adjust O21. The new version is called 3.7.

On the 8 December 2020 Nordic Ecolabelling decided to prolong the criteria to the 31 December 2023. The new version is called 3.8.

On the 6 April 2021 Nordic Ecolabelling decided to adjust requirement O4 with a transition period for titanium dioxide. The new version is called 3.9.

On the 29 March 2022 Nordic Ecolabelling decided to adjust requirement O18 by also exempting H411 classified surfactants from the requirement. The new version is called 3.10.

On the 29 November 2022 Nordic Ecolabelling decided to prolong the validity of the criteria to the 30 June 2024. The new version is called 3.11.

On the 20 December 2022 Nordic Ecolabelling decided about an exemption for sub-components that are mixed in an automated process in direct connection to the washing machine that are classified as hazardous to the aquatic environment Chronic Category 3 (H412) because of enzyme in requirement O3. Further, on the 10 January 2023 Nordic Ecolabelling decided to prolong the transition period for titanium dioxide in requirement O4. The new version is called 3.12.

On the 31 March 2023 Nordic Ecolabelling decided to prolong the transition period for titanium dioxide in solid mixtures, e.g. in enzymes (O4) until 30 June 2024. The new version is called 3.13.

On the 20 June 2023 Nordic Ecolabelling decided to prolong the validity of the criteria to the 31 March 2025. The new version is called 3.14.

Nordic Ecolabelling decided on April 16, 2024, to extend the transition period for TiO_2 in requirements for classification of constituent substances (O4). The new version is called 3.15.

Nordic Ecolabelling decided on March 4, 2025, to prolong the validity of the criteria until August 31, 2025. The new version is called 3.16.

Nordic Ecolabelling decided on April 8, 2025, to extend the transition period for TiO_2 in requirements for classification of constituent substances (O4) until 31 August 2025. The new version is called 3.17.

New criteria

- Assess relevance and possibility of setting requirements on raw material production and origin.
- Consider setting requirements concerning degradability in relation to wash temperature.
- Consider alternative test methods to document the product's disinfection performance.

Terms and definitions

Term	Explanation or definition
aNBO	Aerobically non biodegradable substances
anNBO	Anaerobically non biodegradable substances
BCF	Bioconcentration factors
CDV	Critical Dilution Volume (l/kg wash)
CMR	Substances classified as either carconigenic, mutagetic or toxic to reproduction
DF	Degradation Factor (used in CDV calculation)
dH	German degrees of hardness. 1ºdH equivalent to 7.1 mg/l calcium and 4.3 mg/l magnesium.
DID-list	Detergents Ingredients Database list published 2014
PBT / vPvB	Persistant, Bioaccumulative, Toxic/very Persistant and very Bioaccumulative
TF	Toxicity Factor (used in CDV calculation)

Appendix 1 Declaration by the laundry detergent manufacturer/ supplier on the contents of the product

This declaration is based on knowledge we have available about the product, based on tests and/or declarations from the raw material producer, at the time of application.

Name of product: _____

Type of product: _____

The product is intended for: ☐ automatic dosing

☐ manual dosing

Unless stated otherwise, constituent substances are regarded as all substances in the product, including additives (e.g. preservatives and stabilisers) in the raw materials, but not impurities from primary production. Impurities are regarded as residue from primary production present in the finished product in concentrations of less than 100 ppm, (0.0100% by weight, 100 mg/kg). Substances that have been added to a raw material or a product, deliberately and with a purpose, are not regarded as impurities, regardless of quantity. Impurities at concentrations exceeding 1.0% in the raw material are regarded as constituent substances. Products known to be liberated by a constituent substance are also regarded as constituent substances.

Does the product contain substances classified with any of the hazard phrases below?

Incl. all classification variants. For example, H350 also covers classification H350i.

Carc. 1A or 1B H350	Yes ☐	No ☐
Carc. 2 H351	Yes ☐	No ☐
Muta. 1A or 1B H340	Yes ☐	No ☐
Muta. 2 H341	Yes ☐	No ☐
Repr. 1A or 1B H360	Yes ☐	No ☐
Repr 2 H361	Yes ☐	No ☐
H362 (Toxic for reproduction, effects on or via lactation. Additional category)	Yes ☐	No ☐
Resp. Sens. 1, 1A eller 1B H334	Yes ☐	No ☐
Skin Sens. 1, 1A eller 1B H317	Yes ☐	No ☐

Does the product contain anyone of the following substances?

	Not present	Present
Reactive chlorine compounds (e.g. sodium hypochlorite) and/or organic chlorine compounds|	☐	☐
Alkylphenol ethoxylates (APEO) and/or alkylphenol derivatives (APD)	☐	☐
LAS (linear alkyl benzene sulphonates)	☐	☐

DADMAC (diallyldimethyl ammonium chloride)	☐	☐
PFAS (per and poly fluorinated alkylated compounds)	☐	☐
Phthalates (also excluded through requirement relating to endocrine-disrupting substances)	☐	☐
Boric acid, borates and perborates	☐	☐
Optical brightener	☐	☐
Fragrance	☐	☐
Triclosan	☐	☐
EDTA (ethylene diaminetetraacetic acid and its salts) and DTPA (diethylenetriamine pentaacetate)	☐	☐
Quaternary ammonium compounds which are not readily degradable* ** According to test method 301 (A-F) or 310 in OECD guidelines for testing of chemicals or other equivalent test methods*.	☐	☐
	Not present	**Present**
Siloxanes D4, D5 and HMDS	☐	☐
Substances that are judged by the EU as being PBT substances (persistent, bioaccumulative and toxic) or vPvB-substances (very persistent and very bioaccumulable) in accordance with the criteria in Annex XIII in REACH [Regulation (EC)1907/2006])	☐	☐
Substances assessed for potential endocrine-disrupting effects Cat I or Cat II within the EU list of substances with documentation for potential endocrine-disrupting effects. *See following link:* *http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf*	☐	☐
Substances on the Candidate List** *** The Candidate List can be found on ECHAs homepage:* *http://echa.europa.eu/candidate-list-table*	☐	☐
Halogenated flame retardants	☐	☐
Nanomaterials/- particles***	☐	☐

**** Nanomaterials/-particles are defined according to the EU Commission definition of nanomaterials, dated 18 October 2011, except that the limit for particle size distribution is reduced to 1%: "A nanomaterial is a natural, incidental or manufactured material containing particles, in an unbound state or as an aggregate or agglomerate and where, for at least 1% of the particles in the number size distribution, one or more external dimensions is in the size range 1-100 nm." Examples are ZnO, TiO_2, SiO_2, Ag and laponite with particles of nanosize in concentrations exceeding 1%. Polymer emulsions are not regarded as nanomaterials.*

Signature of manufacturer/supplier

Place and date	Company
Signature of contact person	
Name of contact person (block capitals)	Telephone

Appendix 2 Declaration by the manufacturer /supplier on the contents of the raw material

This declaration is based on knowledge we have available about the product, based on tests and/or declarations from the raw material producer, at the time of application.

Name of raw material: _____

Manufacturer/supplier: _____

Unless stated otherwise, constituent substances are regarded as all substances in the product, including additives (e.g. preservatives and stabilisers) in the raw materials, but not impurities from primary production. Impurities are regarded as residue from primary production present in the finished product in concentrations of less than 100 ppm, (0.0100% by weight, 100 mg/kg). Substances that have been added to a raw material or a product, deliberately and with a purpose, are not regarded as impurities, regardless of quantity. Impurities at concentrations exceeding 1.0% in the raw material are regarded as constituent substances. Products known to be liberated by a constituent substance are also regarded as constituent substances.

Does the product contain substances classified with any of the hazard phrases below?

Incl. all classification variants. For example, H350 also covers classification H350i.

Carc. 1A or 1B H350	Yes ☐	No ☐
Carc. 2 H351	Yes ☐	No ☐
Muta. 1A or 1B H340	Yes ☐	No ☐
Muta. 2 H341	Yes ☐	No ☐
Repr. 1A or 1B H360	Yes ☐	No ☐
Repr. 2 H361	Yes ☐	No ☐
H362 (Toxic for reproduction, effects on or via lactation. Additional category)	Yes ☐	No ☐
Resp. Sens. 1, 1A eller 1B H334	Yes ☐	No ☐
Skin Sens. 1, 1A eller 1B H317	Yes ☐	No ☐

Does the product contain anyone of the following substances?

	Not present	**Present**
Reactive chlorine compounds (e.g. sodium hypochlorite) and/or organic chlorine compounds|	☐	☐
Alkylphenol ethoxylates (APEO) and/or alkylphenol derivatives (APD)	☐	☐
LAS (linear alkyl benzene sulphonates)	☐	☐
DADMAC (diallyldimethyl ammonium chloride)	☐	☐

PFAS (per and poly fluorinated alkylated compounds)	☐	☐
Phthalates (also excluded through requirement relating to endocrine-disrupting substances)	☐	☐
Boric acid, borates and perborates	☐	☐
Optical brightener	☐	☐
Fragrance	☐	☐
Triclosan	☐	☐
EDTA (ethylene diaminetetraacetic acid and its salts) and DTPA (diethylenetriamine pentaacetate)	☐	☐
Quaternary ammonium compounds which are not readily degradable* ** According to test method 301 (A-F) or 310 in OECD guidelines for testing of chemicals or other equivalent test methods.*	☐	☐
	Not present	**Present**
Siloxanes D4, D5 and HMDS	☐	☐
Substances that are judged by the EU as being PBT substances (persistent, bioaccumulative and toxic) or vPvB-substances (very persistent and very bioaccumulable) in accordance with the criteria in Annex XIII in REACH [Regulation (EC)1907/2006])	☐	☐
Substances assessed for potential endocrine-disrupting effects Cat I or Cat II within the EU list of substances with documentation for potential endocrine-disrupting effects. *See following link: http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf*	☐	☐
Substances on the Candidate List** *** The Candidate List can be found on ECHAs homepage: http://echa.europa.eu/candidate-list-table*	☐	☐
Halogenated flame retardants	☐	☐
Nanomaterials/- particles***	☐	☐

**** Nanomaterials/-particles are defined according to the EU Commission definition of nanomaterials, dated 18 October 2011, except that the limit for particle size distribution is reduced to 1%: "A nanomaterial is a natural, incidental or manufactured material containing particles, in an unbound state or as an aggregate or agglomerate and where, for at least 1% of the particles in the number size distribution, one or more external dimensions is in the size range 1-100 nm." Examples are ZnO, TiO_2, SiO_2, Ag and laponite with particles of nanosize in concentrations exceeding 1%. Polymer emulsions are not regarded as nanomaterials.*

Signature of manufacturer/supplier

Place and date	Company
Signature of contact person	
Name of contact person (block capitals)	Telephone

Appendix 3 Parameters and formulae

In the calculation of CDV (O14), a number of parameters and formulae are needed to document that the requirement is fulfilled.

1. Critical dilution volume (CDV)

The critical dilution volume (CDV) is calculated in accordance with the following formula:

(a) CDV= 1000 * Σdose (i) * DF(i)/TF(i)

Dosage (i) = Dosage of component i, expressed in g/kg laundry

DF(i) = Degradation factor for component i.

TF(i) = Toxicity factor for component i.

1.1 Method for determining parameter values for components not on the DID List

The specified parameter values must be used for all components on the 'Detergent Ingredients Database' (version 30 June 2004, Part A) chemicals list, i.e. the DID List and reference to the list should be specified. However, an exception is made for colouring agents, where additional test results are approved (see the footnote in Part A). If the substance is not on the DID List the parameters are to be calculated based on section B of the DID List, and documentation of the background to the calculations is to be submitted with the application.

The following method must be used for components not on the DID List:

Toxicity in aquatic environment
In Nordic Ecolabelling, CDV is calculated on the basis of the acute or chronic toxicity factor and the safety factor.

Acute toxicity factor (TF_{acute})

- Calculate the median value for each trophic level (fish, crustaceans or algae) on the basis of validated test results concerning acute toxicity If there are a number of test results for the same species at a certain trophic level, the median value for the species must be calculated first. These median values are then used to calculate the median level for the trophic level.
- The acute toxicity factor (TF_{acute}) is the lowest calculated acute median value for the trophic levels divided by the acute safety factor (SF_{acute}).
- TF_{acute} must be used to calculate the critical dilution volume.

Chronic toxicitity factor ($TF_{chroniic}$)
Calculate the median value for each trophic level (fish, crustaceans or algae) on the basis of validated test results concerning chronic toxicity. If there are a number of test results for the same species at a certain trophic level, the median value for the species must be calculated first. These median values are then used to calculate the median level for the trophic level.

The chronic toxicity factor ($TF_{chronic}$) is the lowest calculated chronic median value for the trophic levels divided by acute safety factor SF_{acute}.

$TF_{chronic}$ is used to calculate the critical dilution volume.

Safety factor
The safety factor (SF_{acute}) depends on how many trophic levels are tested and whether or not there are test results for chronic toxicity. The acute safety factor (SF_{acute}) and the acute toxicity factor (TF_{acute}) are determined as follows:

Data	**Safety factor (SF_{acute})**	**Toxicity factor (TF_{acute})**
A short-term LC50 (or LE50)	10 000	Toxicity / 10 000
Two short-term LC50 (or LE50) from species representing two trophic levels (fish and/or crustaceans and/or algae)	5 000	Toxicity / 5 000
At least one short-term LC50 (or LE50) from each of the trophic levels	1 000	Toxicity / 1 000
One long-term NOEC (fish or crustaceans)	100	Toxicity / 100
Two long-term NOEC from species representing two trophic levels (fish and/or crustaceans and/or algae)	50	Toxicity / 50
Long-term NOEC from at least three species (fish, crustaceans and algae) representing three trophic levels	10	10

Degradation factor
The degradation factor is defined as follows:

Degradation factor (DF)

	DF
Readily biodegradable (*)	0.05
Readily biodegradable (**)	0.15
Potentially degradable	0.5
Persistent	1.0

(*) All surface-active substances or other components that consist of a series of homologues and that meet the requirement for ready degradation in the test must be included in this class regardless of whether they meet the criterion of a 10-day window.

(**) The criterion of a 10-day window is not met.

In the case of inorganic components, DF is determined on the basis of the observed degradation rate. If the component is degraded within 5 days: DF = 0.05; within 15 days: DF = 0.15; or within 50 days: DF = 0.5.

- For every substance in the product, it must be clearly apparent which substance from the list has been used.
- Presentation of the calculations of the CDV formula for every ingredient and CDV for complete laundry detergent or multi-component system.
- For substances not on the DID List, it must be clearly apparent which values are used in the CDV formula.

2. Aerobic non-biodegradable substances, aNBO

Aerobic non-biodegradable substances, aNBO, are organic substances that do not meet the criteria for ready degradability. The aNBO value is expressed as the total quantity of non-readily degradable substances per kg laundry.

In the chemicals list (the DID List), the substances are divided into the following classes:

Category	**Code**
Readily biodegradable	R
Potentially biodegradable, but not readily biodegradable	I
Persistent	P
Not tested for biodegradability under aerobic conditions.	O

Organic substances that are classified as I and P or O are regarded as aNBO, unless the result of degradation tests for untested substances is presented.

The limit values for whether a substance is to be classified as readily or potentially degradable are shown below:

Classified	***Test method**	**BOD or CO_2**	**COD**
Readily degradable	301 A-F	≥ 60%	≥ 70%
Potentially degradable	302 A-C		≥ 70%

BOD (Biological oxygen demand)

COD (Chemical oxygen demand)

3. Anaerobic non-biodegradable substances, anNBO

Anaerobic non-biodegradable substances, anNBO, are organic compounds that are not degraded under oxygen-deficient conditions. The anNBO value is expressed as the total quantity of anaerobic non-degradable organics in g/kg of laundry.

In the DID List, substances are divided into the following classes:

Category	**Code**
Non-biodegradable under anaerobic conditions, i.e. tested and found not to be degradable	N
Biodegradable under anaerobic conditions, i.e. tested and found to be degradable, or degradability established via analogy comparisons.	Y
Not tested for biodegradability under anaerobic conditions	O

All organic substances with a classification of N and O on the DID list are regarded as anNBO unless otherwise shown by the results of anaerobic degradation tests for untested substances.

If the substance is not on the DID List, anaerobic degradation of the substance must be documented. All substances that are not anaerobically degradable in accordance with ISO 11734, ECETOC no. 28 June 1988 or some other scientifically accepted method are classed as anNBO. The requirement is a minimum of 60% degradability under anaerobic conditions.

In the absence of documentation in accordance with the above requirements, a substance other than a surfactant may be exempted from the requirement for anaerobic degradability if one of the following three alternatives is fulfilled:

1. Readily degradable and has low adsorption (A < 25%) or

2. Readily degradable and has high desorption (D > 75%) or

3. Readily degradable and non-bioaccumulating.

Testing for adsorption/desorption may be conducted in accordance with OECD Guidelines no. 106.

4. The DID-list

The DID List is a joint list for the EU Ecolabel and Nordic Ecolabelling. The list is drawn up in collaboration with interested parties from industry and from consumer and environmental organisations. The list contains information on toxicity and degradability for a number of different substances that might be used in products within the field of chemical technology. The DID List does not show which substances are found in ecolabelled products.

The DID List cannot be used as documentation for the toxicity of individual substances in relation to the classification rules. In this case, information from safety data sheets, literature or the raw material manufacturers is to be used.

The DID List is available from the central Nordic Ecolabelling organisation or from each country's own website.

The DID List dated May 2014 is to be used for the purposes of these criteria.

Appendix 4 Analysis, test methods and calculations

Requirements concerning the analysis laboratory

The following requirements apply tests regarding eco-toxicological effects and Challenge-tests.

The analysis laboratory must meet the general requirements in accordance with standard EN ISO 17025 or be an officially GLP-approved analysis laboratory.

The applicant's analysis or measurement laboratory may be approved to conduct analyses and measurements (including Challenge test) if:

- the authorities monitor the sampling and analysis process, or
- the manufacturer has a quality system incorporating sampling and analyses, and which is certified in accordance with ISO 9001 or ISO 9002, or
- the manufacturer can show that the manufacturer's own tests are in agreement with those of an impartial test institution, as certified through a parallel test, and that the manufacturer takes samples in accordance with a prescribed sampling plan.

The manufacturer's test laboratory can be approved to conduct testing to document effectiveness if the following additional requirements are met:

- The ecolabelling organisation must be able to monitor the execution of a test.
- The ecolabelling organisation must have access to all data about the product
- The samples must be de-identified for the test laboratory
- Execution of the effectiveness test must be described in the quality control system.

Challenge test (O8)

Challenge-test is a term for mass tests to determine the right/necessary amount of preservatives in products. This is done by adding various concentrations (2%, 1 %, 0,5 % and 0,25 %) preservatives to a series of samples and a sample with no added preservative. The samples are added a mixture of bacterial blood, yeasts and and molds, and are tested for growth of these organisms. The period for which the test is in progress may vary dependent on what you want to test and at which test conditions the test i carried out by, that the organisms being tested on (depends on how the product is used in the final stages), pH, temperature and so on (such parameters are not specified in the Challenge-test).

The lowest concentration of preservatives where there is no growth, is the optimal amount of preservatives for the product. Different manufacturers and distributors of preservatives have different Challenges tests/methods that they use to decide the right content of preservatives, such as Koko Test (Test Method SM 021), USP Challenge Test (US Pharmacopoeia) and CTFA Challenge Test (Cosmetics Toiletries and Fragrance Association).

The length of a test can vary depending on what is being tested for, and under what conditions the test is being conducted, for example which organisms are being tested for (depending on how the product will be used in the end phase), pH, temperature and so on (if the parameters are not specified in Challenge Tests).

Chemothermal disinfection (O20)

"Infection control for laundries that treat textiles for healthcare facilities" March 2011, NVK (Norske Vaskeriers Kvalitetstilsyn).

Samples sent for analysis by an independent party (for instance NVK) confirming that disinfection is achieved.

Appendix 5 Requirements concerning the user test (O19)

The laundry detergent must meet the requirements in the user test as specified in this appendix. The products are to be tested at a wash temperature as specified in this appendix and in line with the recommended wash temperature set out in requirement O1, with the dosing recommended by the manufacturer for the degrees of soiling "Light", "Medium" and "Heavy".

Alternative	Recommended wash temperature in user test	Recommended wash temperature stated in O1 (mark X)
A	30/30/40°C*	
B	40/40/60/85-90°C**	

** 30°C for light and medium degree of soiling, 40°C for heavy degree of soiling.*

***40°C for light and medium degree of soiling, 60°C for heavy degree of soiling, 85-90°C for microfibre textiles.*

- The user test is to be conducted at no fewer than 5 test sites that represent a random sample of customers. Alternatively, the test can be conducted at 3 test sites. Responses from all the test sites that take part are to be submitted to Nordic Ecolabelling.

  - When conducting user tests at 3 test sites, 100% of the test sites must rate the products as showing acceptable or very good effectiveness on all points and be satisfied or highly satisfied with agreements on customer visits.

  alternatively

  - When conducting user tests at no fewer than 5 test sites, at least 80% of the test sites must rate the products as showing acceptable or very good effectiveness on all points and be satisfied or highly satisfied with agreements on customer visits.

- The procedure, dosage and wash temperature must conform to the manufacturer's recommendations
- The test period must continue for at least 4 weeks.
- Every test centre must assess the dosability, rinsability and solubility of the product or multi-component system.
- Every test centre must assess the effectiveness of the product or multi-component system by commenting on the following or equivalent issues:

  1. Ability to wash clean lightly, medium or heavily soiled laundry.
  2. Assessment of primary laundering effects such as dirt removal, stain removal and bleaching.
  3. Assessment of secondary laundering effects such as greying of white washing, colour-fastness and colouring.
  4. Assessment of the effect of the rinsing agent on drying, ironing or mangling of laundry.
  5. How satisfied the test subject is with agreements on customer visits

- The responses must be rated on a scale comprising at least 3 levels; for example, “insufficiently effective”, “sufficiently effective” or “very effective”. Or concerning agreements on visits: “not satisfied”, “satisfied” or “very satisfied”.
- The form in this appendix or some other equivalent form may be used. All forms and appendices are to be fully completed and signed before being sent to Nordic Ecolabelling.
- The test procedure must be described in detail.

Wash effectiveness – form for user test of laundry detergents for professional use (O19)

Name of test product/component in a multi-component system
Name of user test site:

Wash temperature

The product is tested at wash temperature in accordance alternative A or B as stated by the manufacturers recommendation (mark x):

Alternative	Light degree of soiling	Medium degree of soiling	Heavy degree of soiling	Microfibre textiles	Wash temperature when product tested (mark x)
A	30°C	40°C	40°C	-	
B	40°C	40°C	60°C	85-90°C	

Dosage of test product/component is to be stated for the laundry categories in accordance with table below:

	Light soiling	Medium soiling	Heavy soiling
Laundry categories	Bedlinen and towels from hotels and other overnight accommodation establishments Duvets and pillows Mats and mops Cloth hand towel rolls	Work clothes Institution/trade/service Hospitals/Nursing homes Laundry from hospitals and nursing homes and similar institutions, e.g. bedding, mattress covers, operation sheets, barrier sheets, and patient clothing.	Work clothes Industry/kitchen/ butchering and equivalent use Kitchen equipment Clothes and towels Industry clothing Restaurant Cloths/napkins and similar for use in restaurants, industrial kitchens, etc.

Dosage of test product/components:

The product is tested with dosages in accordance with the manufacturers recommendation (submit laundry category and dosage for each of the degrees of soiling in table below):

Laundry category (see above)	Degree of soiling	Dosage, product* (gram/kg laundry)
	Light	
	Medium	
	Heavy	

** For multi-component systems, the equivalent dosage is stated for each component.*

Test period (4 weeks):

Start date:
End date:
How many times has the test product been used in the test period stated?

Assessment of the product/ multi-component system:
At the end of the test period, the product/multi-component system must be assessed, using the form below.

	Very effective / Very satisfactory	**Sufficiently effective / Sufficiently satisfactory**	**Not effective / Not sufficiently satisfactory**
Dosability			
Chemical wear			
Ability to be rinsed out			
Solubility			
Ability to wash clean lightly-soiled laundry with light soiling			
Ability to wash clean medium-soiled laundry with medium soiling			
Ability to wash clean heavily-soiled laundry			
Ability to remove stains			
Ability to bleach (if relevant)			
Greying of white laundry (if relevant)			
Colour-fastness			
Colouring			
Effect of fabric conditioner on drying, ironing and mangling			
Customer visits by supplier			

As an alternative to visual assessment, approved fabric samples can be used in the individual Nordic countries, for example from the National Institute of Technology or NVK in Norway. Some parameters can be assessed on site, while others must be analysed by the supplier. Customers and suppliers of professional laundry detergents set up an agreement for the process, and the customer signs off on the assessment of the product/multi-component system.

Comments: _____

_____

Information about test site:
The user test was performed at/Person responsible for execution of the user test

Address:
Telephone:

Brief description of the test site where the washing test was carried out (type of machine, wash temperature, other information of relevance for the wash result):

_____

_____

Signature of person responsible for execution of the test:
Place and date:

If there are any questions about the test, please contact the manufacturer of the test product.