

Nordic Ecolabelling for
Laundry Detergents and Stain Removers



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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:

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Finland

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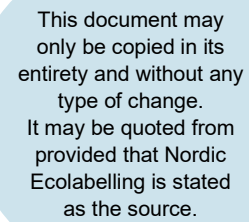
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What is a Nordic Swan Ecolabelled laundry detergent or stain remover?

The Nordic Swan Ecolabel provides a guarantee that the product fulfils strict environmental and health requirements, and that satisfactory performance is documented through standardized testing. Ecolabelled laundry detergent and stain removers are amongst the products with the least impact on the environment within their category. They are effective, the selection of chemicals and the packaging are environmentally adapted, and sustainable sourcing of renewable raw materials is also emphasized in the requirements.

The environmental requirements include restrictions on the quantity of environmentally harmful substances and on the quantity of substances that are not readily degradable in aquatic environments, and on the dosage, ensuring that only concentrated products are eligible for the ecolabel.

Health related requirements are set in areas such as fragrances, preservatives and substances classified as sensitizing, as well as a complete ban on CMR classified substances and various specifically problematic substances such as SVHCs and substances on the EU list of suspected endocrine disruptors.

The performance requirements imply that the products must perform satisfactorily. Coloursafe detergents must be tested at 30 °C, ensuring that the energy consumption in the use stage is minimized if used correctly.

Consumer guidance for sustainable use of the products is mandatory on the packaging of all Nordic Swan Ecolabelled products.

The packaging requirements ensure a high filling degree and contribute to resource efficiency and circular economy by limiting the use of packaging materials and by requiring use of recycled materials. Requirements on packaging design ensure packaging that is recyclable.

Sustainable extraction of renewable raw materials is a vital global issue with a major environmental impact. The Nordic Swan Ecolabel raises awareness of this issue via information and policy requirements, and the requirement for sustainably produced palm oil contributes to the production of more sustainable raw materials.

Laundry detergents and stain removers carrying the Nordic Swan Ecolabel:

- Meet strict requirements concerning environmentally hazardous chemicals, including requirements on ecotoxicity and biodegradability
- Meet strict health related requirements concerning chemicals that pose a health hazard, including complete ban on CMR classified substances and various specifically problematic substances such as suspected endocrine disruptors
- Promote increased use of sustainable renewable raw materials
- Are concentrated

- Are efficient at 30 °C (coloursafe and delicates) and 40 °C (white wash)
- Have a packaging that contains recycled materials and is designed for circular economy

Why choose the Nordic Swan Ecolabel?

- License holder may use the Nordic Swan Ecolabel trademark for marketing. The Nordic Swan Ecolabel is a very well-known and well-reputed trademark in the Nordic region.
- The Nordic Swan Ecolabel is a simple way of communicating environmental work and commitment to customers.
- The Nordic Swan Ecolabel clarifies the most important environmental impacts and thus shows how a company can cut emissions, resource consumption and waste management.
- Environmentally suitable operations prepare the license holder for future environmental legislation.
- Nordic Ecolabelling can be seen as providing a business with guidance on the work of environmental improvements.
- The Nordic Swan Ecolabel not only covers environmental issues but also quality requirements, since the environment and quality often go hand in hand. This means that a Nordic Swan Ecolabel licence can also be seen as a mark of quality.

What can carry the Nordic Swan Ecolabel?

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

The product group does not comprise products that are exclusively used for handwashing or products that are dosed via carriers such as sheets, cloths or other materials. Nor does it comprise fabric softeners or multiple function detergents such as “2 in 1” products with both detergent and fabric softening effects/claims.

Products for professional laundries cannot be ecolabelled according to this criteria document. However, Nordic Ecolabelling has specific criteria for Laundry detergents for professional use.

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 addresses 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
-  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 Nordic Swan 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 addresses. Further information and assistance (such as calculation sheets or electronic application help) may be available. Visit www-nordic-ecolabel.org or the relevant national website for further information.

1 General requirements

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

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

- Ingoing substances: all substances in the Nordic Swan Ecolabelled product, including additives (e.g. preservatives and stabilisers) in the raw materials. Substances known to be released from ingoing substances (e.g. formaldehyde, arylamine, in situ-generated preservatives) are also regarded as ingoing substances.
- Impurities: residuals, pollutants, contaminants etc. from production, incl. production of raw materials that remain in the in the Nordic Swan Ecolabelled product in concentrations less than 100,0 ppm (0,01000 w-%, 100,0 mg/kg) in the Nordic Swan Ecolabelled product.
- Impurities in the raw materials exceeding concentrations of $\geq 10\ 000$ ppm ($\geq 1,000$ w-%, $\geq 10\ 000$ mg/kg) are always regarded as ingoing substances, regardless of the concentration in the Nordic Swan Ecolabelled product.

Examples of impurities are residues of the following: residues or reagents incl. residues of monomers, catalysts, by-products, scavengers, and detergents for production equipment and carry-over from other or previous production lines.

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

O1 Description of the product

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

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

The DID number is an ingredient's number on the DID list, which is used in calculating chemical requirements. The DID list can be obtained from

<http://www.nordic-ecolabel.org/product-groups/group/?productGroupCode=006> or Nordic Ecolabelling's national websites, see addresses on page 2.

- ☒ Description of the product, e.g. label and product data sheet (if available). The information on labels and/or product data sheets must be in the languages in which the product is marketed.
- ☒ A complete formulation of the product with information as set out in the requirement. Nordic Ecolabelling's calculation sheet can be used and can be obtained from <http://www.nordic-ecolabel.org/product-groups/group/?productGroupCode=006> or Nordic Ecolabelling's national websites.
- ☒ Safety data sheets for each raw material in line with prevailing European legislation (Annex II to REACH Regulation, 1907/2006/EC).

O2 Classification of the product

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

Table O2 Classification of the product

CLP Regulation 1272/2008		
Classification	Hazard Class and Category Code	Hazard statement
Hazardous to the aquatic environment	Aquatic Acute 1	H400
	Aquatic Chronic 1	H410
	Aquatic Chronic 2	H411
	Aquatic Chronic 3	H412
	Aquatic Chronic 4	H413
Hazardous to the ozone layer	Ozone	H420
Carcinogenicity*	Carc. 1A or 1B	H350
	Carc. 2	H351
Germ cell mutagenicity*	Muta. 1A or 1B	H340
	Muta. 2	H341
Reproductive toxicity*	Repr. 1A or 1B	H360
	Repr. 2	H361
	Lact.	H362
Acute toxicity	Acute Tox 1 or 2	H300
	Acute Tox 1 or 2	H310
	Acute Tox 1 or 2	H330
	Acute Tox 3	H301
	Acute Tox 3	H311
	Acute Tox 3	H331
	Acute Tox 4	H302
	Acute Tox 4	H312
	Acute Tox 4	H332
		Exemption: Stain removers may be classified as Acute Tox 4 with H302.
Aspiration toxicity	Asp Tox 1	H304
Specific target organ toxicity, single or repeated exposure	STOT SE 1	H370
	STOT SE 2	H371
	STOT RE 1	H372
	STOT RE 2	H373

Skin corrosion/irritation	Skin Corr. 1A, 1B or 1C	H314
Aspiration hazard	Asp. Tox. 1	H304
Respiratory or skin sensitisation**	Resp. Sens. 1, 1A or 1B Skin Sens. 1, 1A or 1B	H334 H317

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

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

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

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

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

2 Sustainable renewable raw materials

03 Sustainable raw materials

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

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

2. The following data is required for each ingoing raw material (ingredient) that is included > 1% in the Nordic Swan Ecolabelled laundry detergent or stain remover:
 - a) The proportion of the raw material/constituent part of the raw material/ingredient that comprises renewable raw material or originates from renewable raw material, calculated on an annual basis.

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

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

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

- b) What does the renewable raw material consist of (e.g. palm oil, coconut oil, grape seed oil, beeswax)?
- c) Does the renewable raw material have any sustainability certification? If yes, state which and at what level of traceability (No Traceability, Identity Preserved, Segregated, Mass Balance, Book & Claim)?

- 1. Policy or equivalent documentation of the licence holders work for renewable and sustainable materials in Nordic Swan Ecolabelled products, including quantitative, time-based targets set by management.
- 2. Appendix 3 from the raw material manufacturer/supplier completed and signed.

04 Certified raw materials from oil palms

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

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

- Information from raw material producer, where palm oil, palm kernel oil or palm oil or palm kernel oil derivatives are included in the raw material, Appendix 3 can be used.
- A valid RSPO Supply Chain certificate from raw material manufacturer/supplier.
- The manufacturer of the Nordic Swan Ecolabelled product must show by raw material supplier's invoices/delivery notes that the palm oil purchased is certified and information about traceability system (Mass Balance, Segregated or Identity Preserved accepted).

3 Requirements for ingoing substances

05 Classification of ingoing substances

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

Table O5 Classification of ingoing substances

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

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

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

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

*** *Enzymes can also be used in spray products if safe use can be documented by a risk assessment. The risk assessment shall be done according to AISE's "Exposure measurements of enzymes for risk assessment of household cleaning spray products (AISE, September 25, 2013).*

https://www.aise.eu/documents/document/20171025092749-offline_1_consumer_safety.pdf

Note that titanium dioxide in solid mixtures (e.g. in enzymes) is prohibited by this requirement, in effect from 2021-10-01. Note: a transition period until 2024-06-30 applies.

- Product formulation.
- Safety data sheet for each raw material in line with European legislation (Annex II to REACH, Regulation (EC) No 1907/2006).
- Appendix 2 and 3 or equivalent certification completed and signed.
- For enzyme-containing spray products: Risk assessment according to AISE's "Exposure measurements of enzymes for risk assessment of household cleaning spray products (AISE, September 25, 2013). Note that a risk assessment must be done on all spray products, even if the product has an aerosol reducing foaming nozzle.

O6 Prohibited substances

The following substances must not be present in the product:

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

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

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

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

- Nanomaterials/-particles

Nanomaterials/-particles are defined according to EU commission recommendation on the definition of nanomaterial (2011/696/EU): "A natural, incidental or manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for 50% or more of the particles in the number size distribution, one or more external dimensions is in the size range 1 nm-100 nm." Examples include ZnO, TiO₂, SiO₂ and Ag. Polymer emulsions are not considered nanomaterials

- Substances judged to be "Substances of very high concern", which are included on the Candidate List: <http://echa.europa.eu/candidate-list-table>.
- Endocrine disruptors according to the following:
 - Substances that are considered to be potential endocrine disruptors according to the EU commission's Endocrine Disruptor priority list, category 1 and 2, or future priority lists of the EU commission.
https://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf (Appendix L, page 238 onwards)
 - Substances that have been identified by the Danish Centre on Endocrine Disruptors (CeHoS) as fulfilling or likely fulfilling the WHO definition of an endocrine disruptor.
http://www.cend.dk/files/DK_ED-list-final_2018.pdf (table 8 and 13), or later publications
 - Substances that have been identified as endocrine disruptors according to the scientific criteria in the Biocidal Products Regulation (EU 2017/2100) or Plant Protection Products Regulation (EU 2018/605), respectively.
 - Substances that have been identified as endocrine disruptors by ECHA's ED Expert Group: <https://echa.europa.eu/fi/ed-assessment>
- Substances evaluated by the EU to be PBT (persistent, bioaccumulative and toxic) or vPvB (very persistent and very bioaccumulative), in accordance with the criteria in Annex XIII of REACH and substances that have not yet been investigated, but which meet these criteria.

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

07 Surfactants

- All surfactants must be readily biodegradable according to test method No 301 A–F or No 310 in OECD guidelines for testing of chemicals or other equivalent test methods evaluated by an independent body and controlled by Nordic Ecolabelling.

- All surfactants must be anaerobically biodegradable in accordance with ISO 11734, ECETOC No 28, OECD 311 or equivalent testing methods evaluated by an independent body and controlled by Nordic Ecolabelling.

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

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

O8 Phosphorous

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

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

Tabell O8 Limit values for phosphorous

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

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

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

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

O9 Fragrances

The requirement also includes fragrances in plant extracts.

- a) Fragrances must be added in line with IFRA's guidelines. The guidelines of IFRA (International Fragrance Association) can be found at www.ifraorg.org/
- b) A fragrance substance which is judged to be sensitising with the hazard statement H317 and/or H334, or which is subject to declaration according to EC No 648/2004 and subsequent amendments, may be present at a maximum of 0.0100% (100 ppm) in the product.

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

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

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

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

- Appendix 2 and 3 or equivalent certification completed and signed.
- Fragrance specifications.
- Calculation of the amount of the 26 allergens, substances classified as H334 and/or H317 and substances listed in table O9 present in the end product.

4 Dosing, ecotoxicity and biodegradability

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

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

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

If the product is dosed as a unit containing a water-soluble foil intended not to be removed before washing, the foil must be part of the product formulation in the

requirements dealing with CDV, environmental hazards and aNBO and anNBO. (O10-O13)

O10 Maximum dosage

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

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

Table O10 Limit values for dosage

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

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

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

Dosage for middle hard and hard water*

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

For tablets/pods/capsules:

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

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

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

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

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

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

For tablets/pods/capsules:

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

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

Prewash and subsequent wash

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

Autodosed systems

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

☒ Product label or artwork including dosage recommendations.

O11 Long-term environmental effects

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

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

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

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

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

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

- Surfactants classified with H411 and H412 are exempted from the requirement, provided that they are readily degradable* and anaerobically degradable**.
- Subtilisin classified with Aquatic Chronic 2 (H411) is exempted from the requirement.
- Hydrogen peroxide classified with Aquatic Chronic 3 (H412) is exempted from the requirement when used in stain removers.

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

methods evaluated by an independent body and controlled by Nordic Ecolabelling.

*** In accordance to the DID-list version 2016 or later or ISO 11734, ECETOC No 28 (June 1988), OECD 311 or other equivalent test methods evaluated by an independent body and controlled by Nordic Ecolabelling.*

If information about the substance being hazardous to the environment (in the form of data concerning toxicity and biodegradability, or toxicity and bioaccumulability) is not available, the substance is treated as a "worst case", i.e. as environmentally hazardous, H410. If data on biodegradability or bioaccumulability is required to decide on the classification and such data is missing, the substance is treated as a "worst case", i.e. as bioaccumulable or not biodegradable.

- Calculation according to the formula above showing that the requirement is fulfilled. Nordic Ecolabelling's calculation sheet can be used and can be obtained from <http://www.nordic-ecolabel.org/product-groups/group/?productGroupCode=006> or Nordic Ecolabelling's national websites.
- Appendices 2 and 3 signed and completed, or alternatively equivalent signed information.
- A report on surfactants that are to be exempted from the requirement (quantity, classification, biodegradability).

O12 Critical dilution volume (CDV)

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

Table O12 CDV limit values

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

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

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

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

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

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

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

- Calculation of CDV_{chronic} for the laundry detergent or stain remover.

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

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

O13 Biodegradability - aerobic and anaerobic (aNBO and anNBO)

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

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

Table O13: Limit values for aNBO and anNBO

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

- ☒ Calculation of the concentration of aNBO and anNBO for the laundry detergent or stain remover. Nordic Ecolabelling's calculation sheet can be used and can be obtained from <http://www.nordic-ecolabel.org/product-groups/group/?productGroupCode=006> or Nordic Ecolabelling's national websites
- ☒ Reference to the DID list, 2016 or later versions. If substances are not on the DID list, or data on the DID list is lacking, the related documentation must be submitted.

5 Consumer guidance

O14 Dosage instructions

- Water hardness for the recommended dosage must be stated (in German degrees °dH). Indications of the most prevalent water hardness in each Nordic country where the product is on sale, or where this information can be found, shall be provided.
- For liquid products contained in a conventional bottle it must be possible to use the closure as a dosing device. (This does not apply for products

that are intended for auto dosing machines only.) A scale on the closure as well as a picture on the label is required.

- c) For products that does not have a cap of sufficient volume to be used as a dosing device (eg a squeeze bottle or a carton for liquids) an alternative method, eg. dosing scale on the bottle/carton is accepted. The bottle/carton should be designed so that the detergent can be dosed conveniently and accurately.
- d) For product formats where neither a cap nor a dosing scale is feasible (eg. liquid product in flexible pouch or powder detergent in box), the label shall contain advice on how correct dosage can be readily achieved. Eg. "Use a table spoon or a kitchen measuring cup in order to dose the correct amount of powder. A normal table spoon equals 15 ml (15 grams) of product". If separate dosage equipment is made available in order to ensure correct dosing (eg measuring scope, measuring ball), the equipment shall fulfil all relevant packaging requirements (see chapter 9 Packaging).

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

O15 Washing guidance on packaging

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

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

**Low-duty laundry detergents for delicate textiles are exempt from this advice.*

- ☒ Product label or artwork including washing guidance.

O16 Recycling guidance on packaging

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

- ☒ Product label or artwork including recycling information

O17 Claims on the packaging

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

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

- Products marketed as universal products must include a recommendation to use a powder detergent containing bleaching agent in order to maintain whiteness.

Text suggestion: Whiteness of white textiles are best maintained by using a powder detergent containing a bleaching agent.

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

- ☒ Product claims on washing temperatures or stain removal must be documented through appropriate test reports.
- ☒ If claims of certified ingredients are made on the package, the certificates for these ingredients must be provided.

6 Performance

O18 Fitness for use

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

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

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

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

The performance test is performed with

- The reference dosage multiplied with 3.5 for 3.5 kg wash loads or
- The reference dosage multiplied by 4.5 for 4.5 kg wash loads.

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

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

Heavy-duty laundry detergents

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

	Heavy-duty, white wash	Heavy-duty, coloured wash
Cleaning effect		
ΔY	$\leq 10^*$ * ΔY for one staintype may be < 20	$\leq 10^*$ * ΔY for one staintype may be < 20
ΔM	≤ 10	≤ 10
Average ΔM	< 5	< 5
Secondary effects		
Greying	< 2.8	Not applicable
Encrustation	$< 0.6 \%$	$< 0.6 \%$
Chemical wear	< 1.0 Rhes	Not applicable

ΔY is defined as follows: $\Delta Y = Y_r - Y_p$; where Y_r is the mean reflectance value for the reference detergent and Y_p is the mean reflectance value for the test product.

ΔM is defined as follows: $\Delta M = M_r - M_p$; where M_r is the mean reflectance value for the soil type (bleachable, enzymatic (protease and amylase) or general) for the reference detergent and M_p is the mean reflectance value for the soil type for the product.

Low-duty laundry detergents

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

The dimension changes in relation to water must not exceed $\pm 2 \%$.

ΔY is defined as follows: $\Delta Y = Y_w - Y_p$; where Y_w is the mean reflectance value for water and Y_p is the mean reflectance value for the product.

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

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

Stain removers

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

Stain removers with subsequent washing

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

Stain removers without subsequent washing

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

- Visual evaluation: the resulting sum of the score must be at least 10 for each textile within each stain type. No result must be lower than a score of 2
 - Mechanical evaluation: The Y value of the cleaned textile must be at least 80 % in relation to the unsoiled textile
- ☒ A test report from a testing institute (as described in appendix 1, part B) describing all the relevant test parameters as given in the appendix 5 Nordic Ecolabelling Performance Test.

7 Packaging

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

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

O19 Recycling and recycled material in packaging

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

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

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

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

- ☒ Documentation showing that the primary packaging is recyclable: List the used materials in Appendix 4 (Declaration from the manufacturer of the packaging) and define how the component should be recycled. For plastic packaging fulfilling requirements O20 and/or O21 is sufficient to document this part of O19 about recyclability.
- ☒ Packaging specifications (box/bottle/container, labels, and closures) or certificate showing the material used and whether it contains PCR material. Appendix 4 Declaration from the manufacturer of the packaging can be used as part of the documentation. Nordic Ecolabelling's calculation sheet can be used to summarize the used materials by license holder.

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

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

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

Exemption is made for spray triggers in stain removers that can contain following plastics in small technical details: polyoxymethylene (POM), expanded polyethylene (EPE), ethylene butyl acrylate copolymer (EBA), synthetic rubber copolymer of acrylonitrile and butadiene (NBR), and up to 6 % Ethylene vinyl acetate (EVA).

Exemptions:

Coloured packaging components made from PP are allowed to have up to 5% PE if it comes from the masterbatch.

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

- It is not allowed to add pigments to PET used for box/bottle/container. Coloured, recycled PET-granulate where the pigment originates from the recycled material is allowed for use.
- Carbon black pigments can not be added to the box/bottle/container of PE or PP or closures. Exemption is made for small amounts of carbon black used in other colours than black. It must then be documented that the NIR sensor reads and sorts the box/bottle/container or the closure to the correct plastic fraction.
- Silicone is not allowed in closures

Exception: Lubricant in spray bottle triggers.

- Barriers are not allowed in plastic packaging
- Fillers (such as CaCO₃) cannot be included in PE or PP box/bottle/container and closures at a level that the density of the plastic exceeds 0.995g / cm³.
- Metal must not be part of the packaging (box/bottle/container or closure).

Exemption is made for pump bottles, where metal spring can be used as well as metal rivets for attaching plastic handles to heavier cardboard packaging (>4.5 kg) for powder detergents

- Polystyrene (PS) and polyvinyl chloride (PVC) or plastics based on other types of halogenated polymers must not be present in the cardboard packaging.

* Recycled plastic, which is bought as one type of polymer, e.g. PP, is considered monomaterial.

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

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

O20 B - Labels for rigid plastic packaging: Design for recycling of packaging

- For containers in polyethylene (PE) and polypropene (PP): The following label materials are permitted:
 - Polyolefin plastic labels (PE and PP) as well as PET or PET-G labels with density > 1.0 g/cm³. For labels of different material than the packaging, the suitability must be substantiated in accordance with Recyclass' Washing quick test procedure. For film labels applied on HDPE & PP containers, version 1.0¹.
 - Paper labels without fibre loss. The suitability must be substantiated in accordance with Recyclass' Washing quick test procedure: For paper labels applied on HDPE & PP containers, standard laboratory practice, version 1.0².
- Containers in polyethylene terephthalate (PET) must have a label of a different plastic material, with a density < 1.0 g/ cm³, or a paper label without fibre loss.
 - Paper labels without fibre loss: The suitability must be substantiated in accordance with Recyclass' Washing quick test procedure: For paper labels applied on HDPE & PP containers, standard laboratory practice, version 1.0³.

Note: PET-G is not allowed in labels on PET containers. For the time being, cPET labels are also not permitted. Nordic Ecolabelling will consider allowing cPET-labels with the appropriate specifications, if cPET labels become endorsed

¹ https://recyclass.eu/wp-content/uploads/2021/10/RecyClass-Washing-QT-Procedure-for-Film-Labels-applied-on-HDPE-and-PP-Containers_FINAL.pdf (Accessed on 2021-11-19)

² https://recyclass.eu/wp-content/uploads/2021/10/RecyClass-Washing-QT-Procedure-for-Paper-Labels-applied-on-HDPE-and-PP-Containers_FINAL.pdf (Accessed on 2021-11-19)

³ https://recyclass.eu/wp-content/uploads/2021/10/RecyClass-Washing-QT-Procedure-for-Paper-Labels-applied-on-HDPE-and-PP-Containers_FINAL.pdf (Accessed on 2021-11-19)

by EPBP (*The European PET Bottle Platform*) for PET bottles and/or by RecyClass (www.recyclclass.eu).

- Polystyrene (PS), polyvinyl chloride (PVC) and other halogenated plastics must not be used in labels.
- Metallized labels/shrink film labels are not permitted.
- For labels of different material than the packaging:
- Labels must not cover more than 60% of the container. The calculation of the percentage shall be based on the two-dimensional profile of the container i.e., the area of the top and bottom of the packaging and the sides of a box/ container/bottle/can shall not be included in the calculation. If the label on the front of pack and back of pack are of different size, the maximum percentage of 60% shall be fulfilled for each side separately. For a cylindrical bottle, the calculation can also be based on the three-dimensional profile exclusive bottom and top of the bottle.
- Direct print on the container is not permitted except for date codes, batch codes and UFI (Unique Formula Identifier).

Label means "traditional label", shrink film label/sleeve, direct print etc.

Please note: Nordic Ecolabelling conducted a project on labels in 2020 and concluded that requirements on labels should be included in the criteria. This requirement is thus introduced ultimo 2021, with a transition period until 2024-12-31. More information can be found in the background document under section "The label project and 20B" under the argumentation regarding requirement O20.

- Label specifications showing the material used and density. Appendix 4 Declaration from the manufacturer(s) of the packaging can be used as part of the documentation.
- If plastic labels of different material than the container is used on PE or PP containers. Test report from a laboratory fulfilling the conditions in Appendix 1, showing that the label is approved.
- If paper labels are used: Test report from a laboratory fulfilling the conditions in Appendix 1, showing that the label is approved.
- Declarations that PS, PVC and other halogenated plastics, aluminium and other metals have not been used. Appendix 4 can be used.
- For labels of different material than the packaging: Calculation of label size compared to the surface of the container.
- Declaration from the applicant that direct print is not used except for date codes, batch codes and UFI. Appendix 2 can be used.

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

Flexible plastic pouches

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

- The plastic packaging (incl. closure, excl. label) must be made from Polyethylene (PE), Polypropylene (PP) or Polyethylene terephthalate (PET).
- The pouch/bag must be made of monomaterial, i.e. not laminates with layers of different materials. Barrier coating of EVOH (Ethylene vinyl alcohol) is allowed in maximum amounts of 5% related to the total weight.
- Carbon black pigments can not be added to the pouch or closures. Exemption is made for text and pictograms. Exemption is also made for small amounts of carbon black used in other colours than black. It must then be documented that the NIR sensor reads and sorts the pouch or the closure to the correct plastic fraction.
- Fillers (such as CaCO₃) cannot be included in PE or PP packaging (incl. closures) at a level that the density of the plastic exceeds 0.995g / cm³.
- Polystyrene (PS) and polyvinyl chloride (PVC) or plastics based on other types of halogenated plastics must not be present in the label.
- Silicone is not allowed in closures

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

- ☒ Packaging specifications (including pouch, labels and closures) or certificate showing the plastic used and what colours the packaging and closure has.
- ☒ Appendix 4 declaration from the manufacturer(s) of the packaging (box/bottle/container/flexible pouches, labels and closures).
- ☒ Documentation showing that the density limit is not exceeded.

Cardboard packaging for liquid products

- Cardboard packaging for liquid products must contain at least 60% paper/paperboard.
- Tree species listed on Nordic Ecolabelling's list of prohibited tree species must not be used in pulp/paperboard. The list of prohibited tree species is located on the website: www.nordic-ecolabel.org/wood/
- Paper/paperboard: A minimum of 70% of the wood raw material that are used in the paper/cardboard must originate from forestry certified under the FSC or PEFC schemes. Alternatively, the raw material can be recycled (PCR)*, or a combination of the two. The remaining proportion of wood raw material must be covered by the FSC/PEFC control schemes (FSC controlled wood/PEFC controlled sources).
- At least 90% by weight of the primary packaging must be made of bio-based material** or post-consumer/commercial recycled material (PCR)* or a combination of these. A mass balance approach is permitted.

- Palm oil and soy cannot be used as a raw material in the production of bio-based plastic. For bio-based plastic that originates from sugar cane: Sugar cane must be certified according to a standard that meets Nordic Ecolabelling's requirements for raw material standards. This requirement does not apply for secondary raw materials***
- PVC or plastic based on other types of halogenated plastics must not be used.
- Aluminium and other metals must not be used.
- Packaging that is Nordic Swan Ecolabelled according to the criteria for Nordic Ecolabelling for Packaging for Liquid Foods, and that consists mainly of paper/paperboard (fibre), can be used without further documentation of requirement O19 or O21. The Weight-Utility Ratio (WUR) in O22 must still be documented.

* *Post-consumer / commercial recycled material is defined in the requirement according to ISO 14021:2016: "Post-consumer / commercial" is defined as material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose. This includes returns of material from the distribution chain.*

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

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

- ☒ Description of the packaging from the packaging producer showing percentage (by weight) of paperboard material, barrier material (material type, whether it is bio-based or PCR and percentage) and other elements such as closure (material type, whether it is bio-based or PCR and percentage). Appendix 6 must be used.
- ☒ Declaration from the producer of the packaging or paperboard producer that tree species from the Nordic Ecolabelling's list of prohibited tree species are not used. Appendix 6 must be used.
- ☒ The producer of the packaging shall document, for instance based on invoice or delivery note, that the requirement of minimum 70% certified paper/paperboard is purchased on a yearly basis, and that the remaining proportion is covered by the FSC/PEFC control schemes.
- ☒ Calculation showing that the requirement for the proportion of bio-based or recycled material in the primary packaging is fulfilled. Appendix 6 must be used.
- ☒ Declaration that palm oil and soy has not been used. Appendix 6 must be used.
- ☒ For sugar cane: Copy of valid CoC certificate or certification number. The CoC certificate holder shall declare that all sugar cane used in the plastic for the

cardboard packaging that is used for the Nordic Swan Ecolabelled product is certified according to a specified standard. The standard must meet Nordic Ecolabelling's requirements for raw material standards. A mass balance approach is permitted.

- ☒ Declarations that PVC and other plastic based on other types of halogenated plastics has not been used. Appendix 6 must be used.
- ☒ Declarations that aluminium and other metals has not been used. Appendix 6 must be used.
- ☒ For packaging that is Nordic Swan Ecolabelled according to the criteria for Nordic Ecolabelling for Packaging for Liquid Foods: Please state the Nordic Swan Ecolabel license number.

O22 Weight-Utility Ratio (WUR)

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

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

* Packaging made of more than 90% plastic.

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

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

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

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

$$WUR = \sum [(W_i + U_i)/(D_i * r_i)]$$

Where:

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

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

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

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

- ☒ Declaration/documentation from the packaging manufacturer stating the type of material in the packaging components (e.g. closure (cap, spray nozzle etc.), bottle and labels). Appendix 4 can be used. For cardboard packaging for liquid products, appendix 6 can be used.
- ☒ Calculation of weight-utility ratio (WUR) and required documentation on reuse of the packaging component. Nordic Ecolabelling's calculation sheet can be used and can be obtained from <http://www.nordic-ecolabel.org/product-groups/group/?productGroupCode=006> or Nordic Ecolabelling's national websites
- ☒ Declaration from the packaging manufacturer about the proportion of recycled material, if recovered/recycled material is used. Appendix 4 can be used. For cardboard packaging for liquid products, appendix 6 can be used.

8 Quality and regulatory requirements

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

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

O23 Responsible person and organisation

The company shall appoint individuals who are responsible for ensuring the fulfilment of the Nordic Ecolabelling requirements, for marketing and for finance, as well as a contact person for communications with Nordic Ecolabelling.

- ☒ Organisational chart showing who is responsible for the above.

O24 Documentation

The licensee must archive the documentation that is sent in with the application, or in a similar way maintain information in the Nordic Ecolabelling data system.

- ρ Checked on site as necessary.

O25 Quality of laundry detergent and stain remover

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

- Procedures for archiving claims and, where necessary, dealing with claims and complaints regarding the quality of the Nordic Swan Ecolabelled laundry detergent or stain remover

🔍 The claims archive is checked on site.

O26 Planned changes

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

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

O27 Unplanned nonconformities

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

- Procedures detailing how unplanned nonconformities are handled.

O28 Traceability

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

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

O29 Legislation and regulations

The licensee shall ensure compliance with all applicable local laws and provisions at all production facilities for the Nordic Swan Ecolabelled product, e.g. with regard to safety, working environment, environmental legislation and site-specific terms/permits.

- Duly signed application form.

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

Regulations for the Nordic Ecolabelling of products

When the Nordic Swan Ecolabel is used on products the license number shall be included.

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

Follow-up inspections

Nordic Ecolabelling may decide to check whether the laundry detergent or stain remover 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 laundry detergent or stain remover 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.

History of the criteria

Nordic Ecolabelling adopted version 8.0 of the criteria for Laundry Detergents and Stain Removers on 19 December 2019. The criteria are valid until 31 December 2024.

Nordic Ecolabelling adopted version 8.1 of the criteria for Laundry Detergents and Stain Removers on 10 November 2020. Requirements for cardboard packaging for liquid products were introduced. A clarification for titanium dioxide was added to O5. The prohibition of Reach Annex XVII substances was deleted (O6). The exemption for testing secondary performance effects for liquid laundry detergents without bleaching agents was corrected (Appendix 5A section 4.3). The criteria are valid until 31 December 2024.

On the 26 January 2021 Nordic Ecolabelling decided to adjust requirement O5 with a transition period for titanium dioxide. Furthermore, an exemption for membranes of thermoplastic elastomer was introduced in requirement O20. The new version is called 8.2.

On the 24 August 2021 Nordic Ecolabelling decided to adjust the requirement O11 by exempting hydrogen peroxide. Furthermore, the washing advice "preferably wash with full load" was updated (O15) and a typo in the IEC-P reference formulation was corrected (Appendix 5A section 4.3). The new version is called 8.3.

On the 6 October 2021 Nordic Ecolabelling decided to adjust the description of the performance test in Appendix 5A by specifying that universal laundry detergents (liquid and powder) that do not contain bleaching agents have to be

tested against the reference detergent's base powder without containing percarbonate/perborate and TAED. Further, it was decided to adjust requirement O17 and add that products marketed as universal products must include a recommendation to use a powder detergent containing bleaching agent in order to maintain whiteness. It was also decided to introduce an exception in requirement O20 for silicone as lubricants in spray bottle triggers. On the 14 December 2021 Nordic Ecolabelling decided to adjust requirement O20 to include an exemption for metal rivets for attaching plastic handles to heavier cardboard packaging > 4.5 kg powder detergent. Nordic Ecolabelling has also, as announced in the O20 on publication, carried out a label project to investigate how label requirements can be implemented in the criteria. The new label requirement called "O20 - B Labels for rigid plastic packaging: Design for recycling of packaging" is now included in the criteria with a transition period until 2023-12-31. On the 29 March 2022 Nordic Ecolabelling decided to adjust requirement O11 by also exempting H411 classified surfactants from the requirement. The new version is called 8.4.

On 18 October 2022, Nordic Ecolabelling decided to change the allowed amount of EVOH in flexible plastic pouches (O21) from 2% to 5%. On 13 December 2022, Nordic Ecolabelling decided further to prolong the exemption for TiO₂ to 30 June 2023. At the same time, it was decided to extend the criteria with 12 months until 31 December 2025. The new version is called 8.5.

On 31 March 2023, Nordic Ecolabelling decided to additionally prolong the time limited transition period for titanium dioxide in solid mixtures (e.g., in enzymes) until 2024-06-30. The new version is called 8.6.

On 24 October 2024 Nordic Ecolabelling decided to change the transition period of the requirement O20 – B Labels for rigid plastic packaging until 2024-12-31. The new version is called 8.7.

Nordic Ecolabelling decided on 12 March 2024 to clarify that coloured packaging components made from PP are allowed to have up to 5 % PE if it comes from the masterbatch and that recycled plastic, which is bought as one type of polymer, e.g. PP, is considered monomaterial (O20A). The new version is called 8.8.

New criteria

- In the next version of the criteria, the following should be reviewed:
 - Possibility to set sustainability requirements to other renewable raw materials than palm oil
 - Possibility to set stricter repackaging requirements incl. labels
 - Possibility to set requirements on chemicals used in packaging
 - Possibility to set stricter requirements/definition on use microplastics
 - Possibility to set stricter limit value for impurity 1,4-dioxan than stated in the definition of ingoing substances

Appendix 1 Analyses, test methods and calculations

1A Requirements on the analysis laboratory

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

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

1B Requirements on the analysis laboratory for performance

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

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

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

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

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

2 Ecotoxicological test methods

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

3 Aquatic toxicity

Acute aquatic toxicity is tested with the aid of test methods Nos. 201, 202, 203 and 212 in OECD guidelines for testing of chemicals or equivalent test methods. Other scientifically accepted test methods can be used if the test result is evaluated by an independent body and controlled by Nordic Ecolabelling.

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

4 Bioaccumulation

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

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

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

5 Aerobic biodegradability

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

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

6 Anaerobic biodegradability,

Anaerobic degradability can be tested in accordance with ISO 11734, ECETOC No 28 (June 1988), OECD 311 or some other scientifically approved method. In order for a substance to be regarded as anaerobically degradable, a minimum of 60% mineralisation is required after maximum 60 days (equates to > 60% ThOD / ThCO₂ or > 70% DOC reduction).

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

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

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

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

7 Endocrine disruptors

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

Nordic Ecolabelling prohibits substances that are considered to be potential endocrine disruptors, category 1 (clear evidence for endocrine disruption from ≥ 1 in-vivo study) or category 2 (in-vitro data indicating potential for effects in-vivo, or in-vivo data on effects that may be ED-mediated), in line with the EU's original report on "Endocrine disruptors"⁴ and later studies.⁵ Future updates of the European Commission's endocrine disruptor priority list apply.

The European Commission has established criteria for endocrine disrupting properties in relation to the biocidal⁶ and plant protection⁷ products regulations (BPR and PPPR). Nordic Ecolabelling prohibits substances that have been identified as EDs according to the BPR and/or PPPR.

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

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

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

8 DID list

The DID list is common to the European ecolabel and Nordic Ecolabelling. The list has been established in collaboration with stakeholders from industry and

⁴ DG Environment (2002): Towards the establishment of a priority list of substances for further evaluation of their role in endocrine disruption. FINAL REPORT. European Commission DG ENV / BKH Consulting Engineers with TNO Nutrition and Food Research. 21 June 2000

⁵ DG Environment. (2002): Endocrine disruptors: Study on gathering information on 435 substances with insufficient data. http://ec.europa.eu/environment/endocrine/documents/bkh_report.pdf#page=1, European Commission / DG ENV / WRC-NSF. (2002): Study on the scientific evaluation of 12 substances in the context of endocrine disrupter priority list of actions, http://ec.europa.eu/environment/chemicals/endocrine/pdf/wrc_report.pdf#page=29 DHI water and environment. (2007): Study on enhancing the Endocrine Disrupter priority list with a focus on low production volume chemicals. DG Environment. http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf

⁶ Commission Delegated Regulation (EU) 2017/2100

⁷ Commission Regulation (EU) 2018/605

consumer and environmental organisations. The list contains information on the toxicity and biodegradability of substances that may be used in chemical/technical products. The DID list does not show which substances can be used in ecolabelled products.

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

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

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

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

Appendix 2 Declaration from the producer of the laundry detergent or stain remover

To be used in conjunction with an application for a licence for the Nordic Swan Ecolabelling of laundry detergents and stain removers. To complete the following declaration, you will need declarations for all raw materials (Appendix 3 or equivalent declaration).

This declaration is based on the knowledge we have at the time of the application, based on tests and/or declarations from raw material manufacturers, with reservations for new advances and new knowledge. Should such new knowledge arise, the undersigned is obliged to submit an updated declaration to Nordic Ecolabelling.

Product name(s):

Product type:

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

- Ingoing substances: all substances in the Nordic Swan Ecolabelled product, including additives (e.g. preservatives and stabilisers) in the raw materials. Substances known to be released from ingoing substances (e.g. formaldehyde, arylamine, in situ-generated preservatives) are also regarded as ingoing substances.
- Impurities: residuals, pollutants, contaminants etc. from production, (incl. production of raw materials) that remain in the Nordic Swan Ecolabelled product in concentrations less than $\leq 100,0$ ppm ($\leq 0,01000$ weight percent, $\leq 100,0$ mg/kg) in the Nordic Swan Ecolabelled product.
- Impurities in the raw materials exceeding concentrations $\geq 10\ 000$ ppm ($\geq 1,0000$ weight percent, $\geq 10\ 000$ mg/kg) are always regarded as ingoing substances, regardless of the concentration in the Nordic Swan Ecolabelled product.

Examples of impurities are residues of the following: residues or reagents incl. residues of monomers, catalysts, by-products, scavengers, and detergents for production equipment and carry-over from other or previous production lines.

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

O5: Does the product contain ingoing substances classified with any of the hazard phrases below?			
Incl. all classification variants. For example, H350 also covers classification H350i.			
H350 – Carc 1A or 1B	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
H351 – Carc 2	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
H340 – Muta 1A or 1B	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
H341 – Muta 2	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
H360 – Repr 1A och 1B	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
H361 – Repr 2	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
H362 – Lact.	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
H334 – Resp Sens. 1/1A/B	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
H317 – Skin Sens. 1/1A/B	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
O6: Does the product contain any of the following ingoing substances?			
Titanium dioxide (of any particle size, prohibited by O5)	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Alkylphenoethoxylates (APEO) and/or alkylphenol derivatives (APD)	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
EDTA (Ethylenediaminetetraacetic acid) and its salts and/or DTPA (diethylene triamine pentaacetic acid, CAS 67-43-6)	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Nitro musks and polycyclic musk compounds	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Per- and polyfluorinated compounds (PFC)	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Antimicrobial or disinfecting ingredients added for other purposes than preservation	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Organochloride compounds and hypochlorite	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Optical brighteners	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Microplastics*	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
<p>* Microplastic means particles with a size of below 5 mm of insoluble macromolecular plastic, obtained through one of the following processes: (a) a polymerisation process such as polyaddition or polycondensation or a similar process using monomers or other starting substances; (b) chemical modification of natural or synthetic macromolecules; (c) microbial fermentation.</p> <p>Note that foils/films wrapping tablets and similar generating microplastics may not be Nordic Swan Ecolabelled.</p> <p>Please note that Nordic Ecolabelling is following the ECHA restriction proposal and its definition and reserve the right to change the definition above when the definition used in the restriction proposal is finalized. An appropriate transition period would be decided.</p>			
Nanomaterials/-particles	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
<p>Nanomaterials/-particles are defined according to EU commission recommendation on the definition of nanomaterial (2011/696/EU) : "A natural, incidental or manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for 50% or more of the particles in the number size distribution, one or more external dimensions is in the size range 1 nm-100 nm." Examples include ZnO, TiO₂, SiO₂ and Ag. Polymer emulsions are not considered nanomaterials</p>			
Substances judged to be "Substances of very high concern", which are included on the Candidate List: http://echa.europa.eu/candidate-list-table	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Endocrine disruptors according to:	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
<p>Substances that are considered to be potential endocrine disruptors according to the EU commission's Endocrine Disruptor priority list, category 1 and 2, or future priority lists of the EU commission.</p> <p>https://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf (Appendix L, page 238 onwards)</p> <p>Substances that have been identified by the Danish Centre on Endocrine Disruptors (CeHoS) as fulfilling or likely fulfilling the WHO definition of an endocrine disruptor.</p> <p>http://www.cend.dk/files/DK_ED-list-final_2018.pdf (table 8 and 13), or later publications</p> <p>Substances that have been identified as endocrine disruptors according to the scientific criteria in the Biocidal Products Regulation (EU 2017/2100) or Plant Protection Products Regulation (EU 2018/605), respectively.</p> <p>Substances that have been identified as endocrine disruptors by ECHA's ED Expert Group:</p> <p>https://echa.europa.eu/fi/ed-assessment</p>			
Substances evaluated by the EU to be PBT (persistent, bioaccumulative and toxic) or vPvB (very persistent and very bioaccumulative), in accordance with the criteria in Annex XIII of REACH and substances that have not yet been investigated but which meet these criteria.	Yes	<input type="checkbox"/>	No <input type="checkbox"/>

8: Does the product contain ingoing substances with phosphorous? If yes, send in calculation on phosphorous content	Yes <input type="checkbox"/> No <input type="checkbox"/>														
O9: Does the product contain fragrances (incl. fragrance substances in plant extracts)? If yes, have fragrances been handled in line with IFRA guidelines? www.ifraorg.org	Yes <input type="checkbox"/> No <input type="checkbox"/>														
If yes, does the fragrance contain substances that are judged to be sensitising with the hazard statement H317 and/or H334, or which is subject to declaration? If yes, send in perfume specifications	Yes <input type="checkbox"/> No <input type="checkbox"/>														
If yes, does the fragrance contain following:	Yes <input type="checkbox"/> No <input type="checkbox"/>														
<table border="1"> <tr> <td>Cananga Odorata och Ylang-ylang oil</td> <td>83863-30-3; 8006-81-3</td> </tr> <tr> <td>Eugenia Caryophyllus Leaf / Flower oil</td> <td>8000-34-8</td> </tr> <tr> <td>Jasminum Grandiflorum / Officinale</td> <td>84776-64-7; 90045-94-6; 8022-96-6</td> </tr> <tr> <td>Myroxylon Pereirae</td> <td>8007-00-9;</td> </tr> <tr> <td>Santalum Album</td> <td>84787-70-2; 8006-87-9</td> </tr> <tr> <td>Turpentine oil</td> <td>8006-64-2; 9005-90-7; 8052-14-0</td> </tr> <tr> <td>Verbena absolute Cinnamomum cassia leaf oil/Cinnamomum zeylanicum, ext.</td> <td>8024-12-02 8007-80- 5/84649-98-9</td> </tr> </table>	Cananga Odorata och Ylang-ylang oil	83863-30-3; 8006-81-3	Eugenia Caryophyllus Leaf / Flower oil	8000-34-8	Jasminum Grandiflorum / Officinale	84776-64-7; 90045-94-6; 8022-96-6	Myroxylon Pereirae	8007-00-9;	Santalum Album	84787-70-2; 8006-87-9	Turpentine oil	8006-64-2; 9005-90-7; 8052-14-0	Verbena absolute Cinnamomum cassia leaf oil/Cinnamomum zeylanicum, ext.	8024-12-02 8007-80- 5/84649-98-9	
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Verbena absolute Cinnamomum cassia leaf oil/Cinnamomum zeylanicum, ext.	8024-12-02 8007-80- 5/84649-98-9														
If yes, send in perfume specifications															
If yes, does the fragrance contain HICC (CAS 31906-04-4), chloroatranol (CAS 57074-21-2), atranol (CAS 526-37-4) or benzyl salicylate (CAS 118-58-1)?	Yes <input type="checkbox"/> No <input type="checkbox"/>														
O11: Does the product contain substances classified as environmentally hazardous with H410, H411 and H412? Please note that in order to assess classification, all available data must have been evaluated, including data in ECHA databases. If yes, state the amount (% by weight) per classification:	Yes <input type="checkbox"/> No <input type="checkbox"/>														
O19 Packaging: Does the packaging have labels covering > 60 % of the surface of the packaging? Send in Calculation of label size compared to the surface of the packaging	Yes <input type="checkbox"/> No <input type="checkbox"/>														
O20B: Is there any direct print on the container except for date codes, batch codes and UFI (Unique Formula Identifier)?	Yes <input type="checkbox"/> No <input type="checkbox"/>														

If the answer to any of the above questions is Yes, state the CAS No (where possible), chemical name and level (in ppm, % by weight or mg/kg). Also state whether the substance is contained in the form of an impurity or an added substance.

In the event of any change to the formulation of the product, a new declaration of fulfilment of the requirements is to be submitted to Nordic Ecolabelling.

Place and date	Company name/stamp
Responsible person:	Signature of responsible person
Telephone	Email

Appendix 3 Declaration from the manufacturer/ supplier of the raw material / ingredient

To be used in conjunction with an application for a licence for the Nordic Ecolabelling of laundry detergents and stain removers.

This declaration is based on the knowledge we have at the time of the application, based on tests and/or declarations from raw material manufacturers, with reservations for new advances and new knowledge. Should such new knowledge arise, the undersigned is obliged to submit an updated declaration to Nordic Ecolabelling.

Trade name of the raw material/ingredient:

Ingoing substances in the raw material/ingredient (chemical name, CAS-number, amount in weight-%):

Function of the raw material/ingredient(s), including all ingoing substances:

Please note that substances that are defined as surfactants according to Detergent Regulation (EC) No 648/2004, must always be reported with the function "surfactant".

Suggested DID-numbers for the raw material/ingredient(s), including all declared ingoing substances (The DID list can be obtained from <http://www.nordic-ecolabel.org/product-groups/group/?productGroupCode=006>):

Please note that the information in this declaration is internally shared with certification personnel in Nordic Ecolabelling to be used in evaluation of applications of chemical technical products.

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

- Ingoing substances: all substances in the Nordic Swan Ecolabelled product, including additives (e.g. preservatives and stabilisers) in the raw materials. Substances known to be released from ingoing substances (e.g. formaldehyde, arylamine, in situ-generated preservatives) are also regarded as ingoing substances.
- Impurities: residuals, pollutants, contaminants etc. from production, incl. production of raw materials that remain in the Nordic Swan Ecolabelled product in concentrations <100,0 ppm (<0,01000 weight percent, <100,0 mg/kg) in the Nordic Swan Ecolabelled product.
- Impurities in the raw materials exceeding concentrations of $\geq 10\ 000$ ppm ($\geq 1,0000$ weight percent, $\geq 10\ 000$ mg/kg) are always regarded as ingoing substances, regardless of the concentration in the Nordic Swan Ecolabelled product.

Examples of impurities are residues of the following: residues or reagents incl. residues of monomers, catalysts, by-products, scavengers, and detergents for production equipment and carry-over from other or previous production lines.

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

Note that if the raw material contains impurities listed in this appendix, write the amount at the end of the appendix. The manufacturer of the Nordic Swan Ecolabelled product is responsible for calculating compliance with the requirements of the criteria.

Table 1 Part 1 – General requirements (applies to all raw materials)			
O5: Does the raw material/ingredient contain substances classified with any of the hazard phrases below?			
Incl. all classification variants. For example, H350 also covers classification H350i.			
H350 – Carc 1A or 1B	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
H351 – Carc 2	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
H340 – Muta 1A or 1B	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
H341 – Muta 2	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
H360 – Repr 1A och 1B	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
H361 – Repr 2	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
H362 – Lact.	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
H334 – Resp Sens. 1/1A/B	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
H317 – Skin Sens. 1/1A/B	Yes	<input type="checkbox"/>	No <input type="checkbox"/>

O6: Does the raw material/ingredient contain any of the following substances?			
Titanium dioxide (of any particle size, prohibited by O5)	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Alkylphenoethoxylates (APEO) and/or alkylphenol derivatives (APD)	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
EDTA (Ethylenediaminetetraacetic acid) and its salts and/or DTPA (diethylene triamine pentaacetic acid, CAS 67-43-6)	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Nitro musks and polycyclic musk compounds	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Per- and polyfluorinated compounds (PFC)	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Antimicrobial or disinfecting ingredients added for other purposes than preservation	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Organochloride compounds and hypochlorite	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Optical brighteners	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Microplastics*	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
<p>* Microplastic means particles with a size of below 5 mm of insoluble macromolecular plastic, obtained through one of the following processes: (a) a polymerisation process such as polyaddition or polycondensation or a similar process using monomers or other starting substances; (b) chemical modification of natural or synthetic macromolecules; (c) microbial fermentation.</p> <p>Note that foils/films wrapping tablets and similar generating microplastics may not be Nordic Swan Ecolabelled.</p> <p>Please note that Nordic Ecolabelling is following the ECHA restriction proposal and its definition and reserve the right to change the definition above when the definition used in the restriction proposal is finalized. An appropriate transition period would be decided.</p>			
Nanomaterials/-particles	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
<p>Nanomaterials/-particles are defined according to EU commission recommendation on the definition of nanomaterial (2011/696/EU) : "A natural, incidental or manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for 50% or more of the particles in the number size distribution, one or more external dimensions is in the size range 1 nm-100 nm." Examples include ZnO, TiO₂, SiO₂ and Ag. Polymer emulsions are not considered nanomaterials</p>			
Substances judged to be "Substances of very high concern", which are included on the Candidate List: http://echa.europa.eu/candidate-list-table	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
Endocrine disruptors according to:	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
<p>Substances that are considered to be potential endocrine disruptors according to the EU commission's Endocrine Disruptor priority list, category 1 and 2, or future priority lists of the EU commission.</p> <p>https://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf (Appendix L, page 238 onwards)</p> <p>Substances that have been identified by the Danish Centre on Endocrine Disruptors (CeHoS) as fulfilling or likely fulfilling the WHO definition of an endocrine disruptor.</p> <p>http://www.cend.dk/files/DK_ED-list-final_2018.pdf (table 8 and 13), or later publications</p> <p>Substances that have been identified as endocrine disruptors according to the scientific criteria in the Biocidal Products Regulation (EU 2017/2100) or Plant Protection Products Regulation (EU 2018/605), respectively.</p> <p>Substances that have been identified as endocrine disruptors by ECHA's ED Expert Group:</p> <p>https://echa.europa.eu/fi/ed-assessment</p>			
Substances evaluated by the EU to be PBT (persistent, bioaccumulative and toxic) or vPvB (very persistent and very bioaccumulative), in accordance with the criteria in Annex XIII of REACH and substances that have not yet been investigated but which meet these criteria.	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
O8: Does the raw material/ingredient contain substances with phosphorous?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
O9: Does the product contain fragrances (incl. fragrance substances in plant extracts)?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
If yes, have fragrances been handled in line with IFRA guidelines? www.ifraorg.org	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
If yes, does the fragrance contain substances that are judged to be sensitising with the hazard statement H317 and/or H334, or which is subject to declaration?	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
If yes, send in perfume specifications.			

If yes, does the fragrance contain following: Yes No

Cananga Odorata och Ylang-ylang oil	83863-30-3; 8006-81-3
Eugenia Caryophyllus Leaf / Flower oil	8000-34-8
Jasminum Grandiflorum / Officinale	84776-64-7; 90045-94-6; 8022-96-6
Myroxylon Pereirae	8007-00-9;
Santalum Album	84787-70-2; 8006-87-9
Turpentine oil	8006-64-2; 9005-90-7; 8052-14-0
Verbena absolute	8024-12-02
Cinnamomum cassia leaf oil/Cinnamomum zeylanicum, ext.	8007-80- 5/84649-98-9

If yes, send in perfume specifications.

If yes, does the fragrance contain HICC (CAS 31906-04-4), chloroatranol (CAS 57074-21-2), atranol (CAS 526-37-4) or benzyl salicylate (CAS 118-58-1)? Yes No

O11: Does the raw material/ingredient contain substances classified as environmentally hazardous with H410, H411 and H412? Yes No

Please note that in order to assess classification, all available data must have been evaluated, including data in ECHA databases.

If yes, state the amount (% by weight) per classification:

If the answer to any of the above questions is Yes, state the CAS No (where possible), chemical name and level (in ppm, % by weight or mg/kg). Also state whether the substance is contained in the form of an impurity or an ingoing substance.

Are renewable raw materials used in the raw material/ingredient?

Yes No

Part 2 – Only to be used if a raw material/ingredient contains renewable raw materials

PLEASE ONLY ONE RENEWABLE RAW MATERIAL PER LINE

Part 2 – List the renewable raw materials used (e.g. palm oil, coconut oil, rapeseed oil, beeswax) and the amount in % on a yearly basis:	
	<p>Origin of renewable raw material in the raw material/ingredient (e.g. palm oil, coconut oil, rapeseed oil, beeswax, etc)</p> <p>Amount of the renewable raw material (weight percent) in the raw material/ingredient on a yearly basis</p> <p>The calculation of the proportion of the renewable material can be done using the following formula: Used amount renewable material / used amount renewable material + used amount nonrenewable material) x 100%</p> <p>Amounts in kg, molarweight or carbon atoms can be used in the calculation. Average carbon chainlengths can be used.</p> <p>State how the calculation has been done.</p>
Renewable raw material 1	
Renewable raw material 2	
Renewable raw material 3	
Renewable raw material 4	
Renewable raw material 5	
Total amount (weight percent) of renewable raw materials in the raw material / ingredient:	

For each renewable raw material in the raw material / ingredient, the following data is to be completed.

Renewable raw material 1 (e.g. palm oil or coconut oil or rapeseed oil or beeswax):	

Name of the supplier, if stated: _____	
Is the renewable raw material sustainability certified? Yes <input type="checkbox"/> No <input type="checkbox"/>	
If yes, please state the raw material sustainability certification system: _____	
If a raw material sustainability certification system is used, state the level of traceability (shown in a Chain of Custody certificate where applicable)	
No traceability	<input type="checkbox"/>
Identity preserved	<input type="checkbox"/>
Segregated	<input type="checkbox"/>
Mass balance	<input type="checkbox"/>
Book & Claim	<input type="checkbox"/>

Renewable raw material 2 (e.g. palm oil or coconut oil or rapeseed oil or beeswax):
--

Name of the supplier, if stated: _____	
Is the renewable raw material sustainability certified?	Yes <input type="checkbox"/> No <input type="checkbox"/>
If yes, please state the raw material sustainability certification system: _____	
If a raw material sustainability certification system is used, state the level of traceability (shown in a Chain of Custody certificate where applicable)	
No traceability	<input type="checkbox"/>
Identity preserved	<input type="checkbox"/>
Segregated	<input type="checkbox"/>
Mass balance	<input type="checkbox"/>
Book & Claim	<input type="checkbox"/>

Renewable raw material 3 (e.g. palm oil or coconut oil or rapeseed oil or beeswax):	
Name of the supplier, if stated: _____	
Is the renewable raw material sustainability certified?	Yes <input type="checkbox"/> No <input type="checkbox"/>
If yes, please state the raw material sustainability certification system: _____	
If a raw material sustainability certification system is used, state the level of traceability (shown in a Chain of Custody certificate where applicable)	
No traceability	<input type="checkbox"/>
Identity preserved	<input type="checkbox"/>
Segregated	<input type="checkbox"/>
Mass balance	<input type="checkbox"/>
Book & Claim	<input type="checkbox"/>

Renewable raw material 4 (e.g. palm oil or coconut oil or rapeseed oil or beeswax):	
Name of the supplier, if stated: _____	
Is the renewable raw material sustainability certified?	Yes <input type="checkbox"/> No <input type="checkbox"/>
If yes, please state the raw material sustainability certification system: _____	
If a raw material sustainability certification system is used, state the level of traceability (shown in a Chain of Custody certificate where applicable)	
No traceability	<input type="checkbox"/>
Identity preserved	<input type="checkbox"/>
Segregated	<input type="checkbox"/>
Mass balance	<input type="checkbox"/>
Book & Claim	<input type="checkbox"/>

Renewable raw material 5 (e.g. palm oil or coconut oil or rapeseed oil or beeswax):	
Name of the supplier, if stated: _____	
Is the renewable raw material sustainability certified?	Yes <input type="checkbox"/> No <input type="checkbox"/>
If yes, please state the raw material sustainability certification system: _____	
If a raw material sustainability certification system is used, state the level of traceability (shown in a Chain of Custody certificate where applicable)	
No traceability	<input type="checkbox"/>
Identity preserved	<input type="checkbox"/>
Segregated	<input type="checkbox"/>
Mass balance	<input type="checkbox"/>
Book & Claim	<input type="checkbox"/>

In the event of any change to the formulation of the product, a new declaration of fulfilment of the requirements is to be submitted to Nordic Swan Ecolabelling.

Place and date	Company name/stamp
Is the company a manufacturer or other kind of supplier of the raw material? <input type="checkbox"/> Manufacturer <input type="checkbox"/> Other kind of supplier (please specify)	
Responsible person	Signature of responsible person electronic signature is accepted
Telephone	Email

Appendix 4 Declaration from the manufacturer of the primary packaging component

To be used in conjunction with an application for a licence for the Nordic Ecolabelling of laundry detergents and stain removers.

This declaration is based on the knowledge we have at the time of the application, based on tests and/or declarations from raw material manufacturers, with reservations for new advances and new knowledge. Should such new knowledge arise, the undersigned is obliged to submit an updated declaration to Nordic Ecolabelling.

Please note that small amounts of impurities when using recycled materials are possible and do not affect fulfilment of the requirements.

Producer/distributor
Part of the packaging (bottle, closure, label)
Packaging material (type of plastic, cardboard etc.) List all materials included in the packaging component

How should the packaging component be recycled? (E.g. as paper, cardboard, plastic packaging) (O19)

Plastic packaging (box/bottle/container)		
Does the box/bottle/container contain post-consumer/commercial recycled material (PCR), as defined in ISO 14021? (O19, O22)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, what is the recycling percent? _____		
Is the PET bottle/box/container coloured/tinted? (O20)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the box/bottle/container coloured with carbon black? (O20)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, can the NIR sensor read and sort the box/bottle/container or the closure to the correct plastic fraction?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Please, send in test results other documentation that demonstrates this.		
Are barriers used? (O20)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Are fillers used? (O20)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, state the density of the packaging component _____		
Does the bottle/box/container contain metal seals or other metal parts? (O20)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Plastic packaging: pouches		
Does the packaging contain post-consumer/commercial recycled material (PCR), as defined in ISO 14021? (O19, O22)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, what is the recycling percent? _____		
Is the packaging of monomaterial, i.e. not laminates with different material layers? (O21)	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Is the pouch coloured with carbon black (exclusive text and pictograms printed on the pouch)? (O21)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, can the NIR sensor read and sort the box/bottle/container or the closure to the correct plastic fraction? Please, send in test results other documentation that demonstrates this.	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Are fillers used? (O21) If yes, state concentration and density of the plastic: _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Are any barriers used in the component? (O21) If yes, please state barrier type and percentage (weight %): _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Paper and cardboard packaging		
Does the paper/cardboard packaging contain post-consumer/commercial recycled material (PCR), as defined in ISO 14021? (O19, O22) If yes, what is the recycling percent? _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is there PS (polystyrene) and PVC (polyvinyl chloride) or plastic based on other types of halogenated plastics present in the paper or cardboard packaging? (O20)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Does the bottle/box/container contain metal seals or other metal parts? (O20)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Closures (including cork / lid and mounted dosing devices / pumps)		
Does the closure contain post-consumer/commercial recycled material (PCR), as defined in ISO 14021? (O19, O22) If yes, what is the recycling percent? _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Has carbon black been added to the closure? (O20–O21)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, can the NIR sensor read and sort the box/bottle/container or the closure to the correct plastic fraction? Please, send in test results other documentation that demonstrates this.	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is silicone used in the closure? (O20–O21)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Are barriers used? (O20–O21)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Are fillers used? (O20–O21) If yes, state the density of the packaging component: _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Are there metal parts in the closure? (O20–O21) If yes, specify the use of the metal parts: _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If the closure is a trigger to a spray product: Please describe the ingoing materials (in percentage) in the trigger: _____ _____		
Labels and shrink film labels		
Please specify the label material (O19-O21)		
For non-polyolefin plastic labels applied to PE or PP containers: Please state the density of the label (O20-O21)		
Note: Density in g/cm3, not the grammage (g/cm2).		
For labels applied to PET containers: Please state the density of the label (O20-O21)		
Note: Density in g/ cm3, not the grammage.		

Does the label contain post-consumer/commercial recycled material (PCR), as defined in ISO 14021? (O19, O22) If yes, what is the recycling percent? _____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is there PS (polystyrene) and PVC (polyvinyl chloride) or plastic based on other types of halogenated plastics present in the label? (O20–O21)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Are there metal parts in the label? (O20–O21)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the label of PET-G (polyethylene terephthalate glycol-modified)? (O20–O21)	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Place and date	Company name/stamp
Responsible person	Signature of responsible person
Telephone	Email

Appendix 5 Nordic Ecolabelling Performance Test (Fitness for Use)

TABLE OF CONTENTS

5A) Heavy-Duty detergents

5B) Low-duty detergents

5C) Stain removers with subsequent wash

5D) Stain removers without subsequent wash

Appendix 5A Test description for heavy-duty laundry detergents

This appendix contains a description of how the performance of heavy-duty laundry detergents is to be documented to Nordic Ecolabelling.

Table of contents

1	Summary of the function test
2	Washing machines and wash programmes
3	Water quality
4	Materials
5	Procedure
6	Evaluation
7	Limit values
8	Report

References

Washing effect

- EN 60456: 2005 or later issues and adaptations
Clothes washing machines for household use – Methods for measuring the performance
- ISO 607: 1980
Surface active agents detergents – Method of sample division
- ISO 697: 1981
Surface active agents – Washing powders – Determination of apparent density method by measuring the mass of a given volume

Secondary effects

- ISO 2267: 1986
Surface active agents – Evaluation of certain effects of laundering – Methods of preparation and use of unsoiled cotton control cloth
- ISO 4312: 1989
Surface active agents – Evaluation of certain effects of laundering – Methods of analysis and use of unsoiled cotton control cloth

Suppliers' addresses

Swissatest Testmaterialien AG (formerly EMPA Test materials AG)

Mövenstrasse 12

CH-9015 St. Gallen, Switzerland

<http://www.swissatest.ch>

Tel: +41 (0)71 311 80 55

Fax: +41 (0)71 311 80 57

E-mail: info@swissatest.ch

wfk Testgewebe GmbH

Christenfeld 10

D-41379 Brüggen-Bracht, Germany

<http://www.testgewebe.de>

Tel: +49 (0)2157-871977

Fax: +49 (0)2157-90657

e-mail: info@testgewebe.de

Center for Test materials (CFT) B.V.

Stoomloggerweg 11

3133 KT Vlaardingen, The Netherlands

<http://www.cftbv.nl>

Tel: +31 104 603 955

Fax: +31 104 340 236

e-mail: info@cftbv.nl

1 Summary of the performance test

The performance test must be performed in accordance with this appendix. The cleaning effect is partially based on EN 60456 and measured after 5 wash cycles. The secondary effects are measured in accordance with ISO 4312 and measured after 10 wash cycles. Deviations from the specified standards are described in this appendix.

The performance test has been designed for testing detergents for colour and white wash in accordance with the product group definition in the Section headed "What can carry the Nordic Swan Ecolabel?". The method is not designed for use on special laundry detergents for delicate textiles such as wool and silk, see Appendix 5B.

The cleaning effect for colour safe detergents are determined by washing soiled cloths (strips) in a washing machine at 30 °C* using a specified programme and are evaluated by means of a comparison of the wash results of the test product with the results produced by a reference product at 40 °C. For detergents for white wash the performance is tested by washing soiled cloths (strips) in a washing machine at 40 °C* using a specified programme and is evaluated by means of a comparison of the wash results of the test product with the results produced by a reference product at 40 °C.

** With "cold-water" products for which it is stated on the packaging, or in some other form of marketing, that the product can be used for cold wash (e.g. "cold-water wash" or equivalent wording or symbol that indicates a normal usage temperature of < 30 °C), the washing performance will be determined at the lowest stated temperature at which the detergent is claimed to be effective – and maximum at 20 °C. The reference detergent must still be tested at 40 °C.*

Before the test starts, the washing machine must be put through a cleaning programme.

The reference product and test product must be tested in the following order: First the test product, then the reference product and finally 5 wash cycles for primary effect plus 5 extra cycles for secondary effects. After each wash cycle a cleaning programme must be run.

A laundry detergent with poor dispersion ability or high oxidization capacity may cause secondary effects, which do not become apparent until after many washes. The secondary effects that are to be measured are: Greying, encrustation and chemical wear. These are measured after ten wash cycles with the test product. At least five of these washes must be from the testing of cleaning effect.

The performance test described in this appendix is based on a total of 4.5 kg of laundry for Wascator and 3.5 kg of laundry for Miele Novotronic (other calculations in this criteria document are based on 1 kg of laundry).

2 Washing machines and wash programmes

2.1 Washing machines

The reference machine must meet the requirements of EN 60456:2005, Annex A, Table 1A. Wascator FOM 71 MP and Wascator FOM71 CLS fulfil these requirements.

Alternatively, the following Miele machines may be used: Miele W4446 WPS, Miele W1935 WTL, Miele WCI360 WPS WTL, Miele PW6065 or older models such as Miele Novotronic W375, Miele W3365, W3375, WM918, WM986 and W5000-series.

If more than one machine is used the wash cycles must be run on different machines to prevent effects caused by specific differences between the washing machines. However, the same type of machine has to be used in the same test. Water and energy consumption shall be monitored and recorded in order to ensure equal testing conditions.

2.2 Wash programmes

Cleaning programme	Wash programme for cotton at 60 °C. Wash with reference detergent without bleach: 19 g IEC P base (IEC-A* base)/kg.
Reference machine	Wash programme for cotton in accordance with EN 60456:2005, Annex A, table A2 with the following modifications: The washing temperature shall be max. 40 °C and the washing time is 30 minutes.
Domestic machine	Wash programme for a normal cotton wash at max. 40 °C ⁸ .

⁸ However, please note specific temperature as stated above for “cold-water” products.

3 Water quality

Water with a hardness of $5.5^{\circ}\text{dH} \pm 0.5$ equivalent to $1.0 \text{ mmol CaCO}_3/\text{l}$ must be used. The temperature should be $15^{\circ}\text{C} \pm 2$ and pH must be 7–9.

4 Materials

The fronts of the test strip must be marked before washing. Test materials must be handled and stored in accordance with the manufacturer's recommendations. Test materials from the same batch must be used in all washes (this is particularly important for test strips).

4.1 Laundry

Preparation of the ballast

Before the start of the wash cycles the standard cotton strips (untreated control strips wfk 11A) for all products including the reference and huckaback towels to be used as support for the soil strips must be washed three times at 95°C cotton programme without prewash (the "water plus" on the Miele Novotronic W375 and other Miele machines must be pressed). The basic powder from the ECE standard for colour fastness (without bleach, phosphate and optical brightener) must be used at a dose of 91.0 g per 4 kg laundry (detergents in accordance with ISO 6330 must be used). The standard cotton strips must not be ironed until after the third wash (setting: 2 dots without steam).

The load distribution specified for the abovementioned standard must be used in the case of the domestic machine but not in the case of the Wascator.

The specification of the ballast must fulfil EN 60456:2005, Section 6.1.1.

Ballast must not be switched between the test products each test product accordingly has its own ballast. This means that there are in total two ballasts: one for the reference detergent and one for the test detergent.

The laundry load comprises: test strips (see Section 4.2), artificial soils (see Section 4.2), two sheets, six pillowcases and sufficient towels and control strips wfk 11A (test products only) to make up a 4.5 kg load of washing. In order to fill up a machine with 3.5 kg load there has to be used 2 sheets, 3 pillowcases and a sufficient number of towels and control strips wfk 11A (only for test products). The ballast (sheets, pillowcases and towels) must be handled in accordance with EN 60456:2005, Section 6.

4.2 Test strips and control strips

The cleaning effect is determined by using test strips comprising samples of soiled standard textiles.

Test strips must be standardized – of the types sold by wfk, Swissatest (formerly Empa), CFT or similar companies. This means that the soil strips have good sensitivity, a wide measuring area and are reproducible. It must be proven if soil strips are not used from Swissatest, wfk or CFT.

Standard cotton

100 % pure cotton, bleached (Tristimulus Y > 85)

Weave plain 1/1

Weight (ISO 12127) $170 \pm 10 \text{ g/m}^2$

Thread count

Warp $7 \pm 2 \text{ threads/cm}$

Weft $7 \pm 2 \text{ threads/cm}$

Yarn count (ISO 2060)

Warp $29.5 \pm 1 \text{ Tex}$

Weft $29.5 \pm 1 \text{ Tex}$

Standard polyester/cotton

Polyester/cotton 65/35, heat treated, bleached (Tristimulus Y > 85)

Weave plain 1/1

Weight (ISO 12127) $170 \pm 10 \text{ g/m}^2$

Thread count

Warp $7 \pm 2 \text{ threads/cm}$

Weft $7 \pm 2 \text{ threads/cm}$

Yarn count (ISO 2060)

Warp $29.5 \pm 1 \text{ Tex}$

Weft $29.5 \pm 1 \text{ Tex}$

Test strips (soiled standard textiles)**For measuring bleaching effect (not relevant for detergents for coloured laundry)**

- Red wine on standard cotton, aged (e.g. wfk 90LI, empa 114 or CFT CS-03)
- Black tea on standard cotton (e.g. wfk 10J, empa 167 or CFT CS-97)

For measuring enzyme effect

- Egg/pigment on standard cotton (e.g. wfk 10N or CFT CS-37)
- Starch on standard cotton (potato or rice) (e.g. wfk 10R, empa 161 or CFT CS-27)

For measuring the general cleaning effect

- Sebum/pigment on standard cotton (e.g. wfk 10D, or empa 118 or CFT C-S-132)
- Sebum/pigment on standard polyester/cotton (e.g. wfk 20D or empa 119 or CFT PC-S-132)
- Cocoa/milk on standard cotton, aged (e.g. wfk 90MF, empa 112 or CFT CS-02)

This means that five different soil strips are used for detergents for coloured wash, while seven different soil strips are used for detergents for white wash.

Each soil strip measures 100x100 mm ± 5 mm and they are stitched together so that they make a full test strip. Four whole test strips must be included in each wash, each stitched to the longest side of a towel. Alternatively, smaller stains of 5 cm x 5 cm sewn onto a PES (polyester) carrier fabric can be used.

Alternatively, a multi-image analysis device and multiswatch monitors can be used for the measurement of stain removal. The multi-image analysis device should give similar output as a spectrophotometer.

Artificial ballast soils (added to each wash)

To gain information on the anti-depositing capacity of the detergent during the test and its elasticity to soil laundry, artificial soils are added. This represents the type (sebum, pigment, grease, protein, starch, salts etc.) and quantity (total 40 g) of soils that are generally found in "normally soiled laundry". It must be added to each wash cycle evenly distributed in the washing drum. Ready mixed soils are available from wfk (wfk SBL2004), consisting of a mixture of sebum, pigment and greasy soils, proteins and starch and salts on cotton. In this case 4 pieces of wfk SBL2004 analogous to 32 grams of soils must be added to a Wascator and 3 pieces of wfk SBL2004 equivalent to 24 grams of soiling to a Miele.

Secondary effects are measured on a control strip as described in ISO 2267. A control strip measuring approximately 40x90 cm is included in the wash for the test detergents only. Artificial ballast soils must be added.

4.3 The reference detergent

Two formulations can be used as reference detergent:

Regular standard powder detergent IEC P (that can serve as reference for a detergent to wash white fabrics). This standard detergent is distributed as three separate components (because of stability of storage) with the following composition:

- 82% IEC P BASE powder with enzyme and foam inhibitor (= IEC-A* BASE powder, see table below)
- 15% sodium percarbonate
- 3% bleach activator tetra-acetylenediamine (TAED)

Or IEC-A* detergent which consists of

- 77% IEC P BASE powder with enzyme and foam inhibitor (= IEC-A* Base powder)
- 20% sodium perborate
- 3% bleach activator tetra-acetythylenediamine (TAED)

IEC P BASE powder (= IEC-A* BASE powder)

Ingredient	% content	Tolerance (+/-)	CAS n.
linear sodium alkyl benzene sulfonate	11,4	0,5	25155-30-0
ethoxylated fatty alcohol C12/14 (7EO)	6,1	0,3	68439-50-9
sodium soap (tallow soap)	4,2	0,2	308075-99-2
foam inhibitor concentrate, 12% silicone on inorganic carrier)	5,1	0,3	68989-22-0
sodium aluminium silicate zeolite 4A (80% active substance)	36,7	1	70955-01-0
sodium carbonate	15,1	1	497-19-8
sodium salt of a copolymer from acrylic and maleic acid (sokalan CP5)	3,1	0,2	60472-42-6
sodium silicate (SiO ₂ :Na ₂ O = 3.3:1)	3,9	0,2	1344-09-8
carboxymethylcellulose	1,6	0,1	9004-32-4
phosphonate (25% active acid)	3,6	0,2	22042-96-2
optical whitener	0,26	0,02	16090-02-1
protease	0,5	0,5	9014-01-1
sodium sulfate	rest	rest	7757-82-6

Homogenize powder detergent, better with a sample divider or if not shake the detergent gently.

The ingredients shall be mixed prior to use. The maximum storage time after mixing is 7 days

Laundry detergents, not containing bleaching agents have to be tested against the reference detergent's base powder without containing percarbonate/perborate and TAED, see section below. This applies to liquid detergents that are marketed as products for white wash (white, ultra or equivalent) and universal detergents (powder and liquid) that do not contain bleaching agents. Such products shall be tested against the reference detergent's base powder without containing percarbonate/perborate and TAED – but test strips for measurement of bleach effect shall be included in the test. The secondary effect of chemical wear does not need to be tested as specified for liquid heavy-duty white wash that do not contain bleaching agents. Chemical wear is principally caused by bleaching agents.

Dosage for the reference detergent

Reference washing machine (4.5 kg load)

Reference detergent with bleaching agent (base powder added perborate/percarbonate and TAED) consisting of: 86.7 g IEC P base powder (IEC-A* base-powder), 22.5 g perborate and 3.3 g TAED or : 86.7 g IEC P base powder (IEC-A* base powder), 15.9 g percarbonate and 3.2 g TAED.

Reference detergent without bleaching agent: 85.5 g IEC P base powder (IEC-A* base powder)

Domestic machine (3.5 kg load)

Reference detergent with bleaching agent (base powder added perborate/percarbonate and TAED) consisting of: 67.5 g IEC P base powder (IEC-A* base powder), 17.5 g perborate and 2.6 g TAED or: 67.5 g IEC P base powder (IEC-A* base powder), 12.3 g percarbonate and 2.5 g TAED.

Reference detergent without bleaching agent: 66.5 g IEC P base powder (IEC-A*base powder).

4.4 Sampling

The manufacturer must ensure that the samples of the test product are selected in a representative way, in other words the laundry detergent must be selected/purchased from three different batches and mixed to produce a representative sample.

4.5 Test detergent

If a domestic washing machine is used, the detergent is dosed in accordance with the manufacturer's recommendations for a machine size of 3.5 kg*. If a 4.5 kg machine is used, the test detergent should be dosed according to the following calculation:

(Recommended dosage at 4.5kg) = (Recommended dosage at 3.5 kg) * 4.5/3.5
(dosage adjusted to machine size as with the reference detergent)

** Dosage for 3–5 kg machines is calculated as the reference dosage, which is the dosage to 1kg laundry (see section 4 Dosing, ecotoxicity and biodegradability), multiplied by 3.5*

If information is not given by the producer, the volume weight of the test detergent is determined according to test method ISO 697 and a representative sample is taken in accordance with ISO 607 by the producer, or according to section 4.4.

If the detergent is dedicated for auto dosing machines only, the amount of the detergent components that are used for performance testing should equal the reference dosage that is used for calculation of ecotoxicity and biodegradability (Critical Dilution Volume etc.). If the detergent is a multi-component system, the components should be dosed in the same sequence and at approximately the same stage of the washing programme as in a real wash situation.

4.6 Filling the washing machine

The washing machine is filled in accordance with EN 60456:2005 annex C5, where the method of filling machine is handled as described in detail with photographs, the direction of the drum etc.

5 Procedure

5.1 Wash

The reference detergent and test detergents are tested in the following order: First the test product, then the reference product (5 wash cycles for primary effect plus 5 extra for secondary effect). A cleaning programme is run after each wash cycle.

Cleaning effect

Washes are performed with the test detergent, reference detergent. The wash cycles are run at least five times with each detergent using new test strips each time. New artificial soils are added to each wash cycle (equivalent to stain monitor). In addition, it is important to add filler soils since it is not the function of the stain monitor to add the correct quantity of soils to the wash. Washes with the test detergent and reference detergent are performed five times each.

Secondary effects

A further five wash cycles is performed for the secondary effects where the control strips from the cleaning effect with the test product is used. Artificial ballast soils must be added (e.g. 4 pieces wfk SBL2004 in a Wascator and 3 pieces of wfk SBL2004 in a Miele).

5.2 After treatment

After washing the test strips and control strips must be dried by pressing them at a temperature of between 130 °C and 150 °C. Press between two layers of materials to prevent the test strips or control strip from becoming shiny or discoloured. The load is tumble-dried after each wash.

6 Evaluation

Calculation of cleaning effect

The product will have fulfilled the performance requirements as to cleaning effect if the following limits are met:

- The difference in mean value for each soil type (ΔM) must be less than or equivalent to 10.
- The difference in mean value between the reference detergent and the test detergent (ΔY ; for bleach stains or stains with a general cleaning effect) must be less than or equivalent to 10. However, in the case of one mean value the result must be less than 20.
- The average of the mean values for each type of soiling (ΔM) must be less than 5.
- The reflectance of the washed test strips, equivalent to the measured result Y in the CIE system, is measured after washing using a colorimeter or spectrophotometer with the following instrument settings: D-65, 10° Observer, reflectance. Prior to each measurement the instrument must be calibrated in accordance with the manufacturer's instructions. Measurements must be taken on the front of the test strip (as marked, cf. the beginning of Section 4).
- Measurements are performed by placing the test strips on top of each other in four layers and measuring each soil in at least three places. When using an instrument with a measurement opening of 20 mm diameter,

four measurements must be taken (EN 60456: 2005, Section 8.3.4, figure 2).

- The mean value (Y) for the above measurements is taken for each test strip, in other words for each soil type attached to the test strip. In this case, with a measurement opening of 20 mm in diameter, Y is the average of four measurements per test strip per soil type. The mean value must be specified to one decimal place. The difference between the mean value for the reference detergent and the test detergent is referred to as ΔY . In other words: $\Delta Y = Y_{\text{reference}} - Y_{\text{test detergent}}$.
- The overall average value (M_{type}) is calculated on the basis of four measurements of Y per wash and soil type. M_{type} is then calculated for the five washes according to soil type. The difference between the mean value for the reference detergent and the test detergent is referred to as ΔM . This means that: $\Delta M = M_{\text{reference, soil type}} - M_{\text{test product, soil type}}$. M is determined for each type classified as follows: bleaching (red wine and tea); enzymatic, protease (egg/pigment); enzymatic, amylase (starch); general cleaning effect (sebum/pigment on cotton, sebum/pigment on polyester/cotton and cocoa).

The following table provides an example of how the test results can be presented. The figures in the table are an average of the four measurements registered with a 20 mm measuring instrument.

Detergent	Wash cycle	Red wine	Tea	Egg/pigment	Starch	Sebum/pigment on cotton	Sebum/pigment on PE/cotton	Cocoa
Reference detergent (r)	1	69.6	68.3	73.6	42.2	71.4	68.1	47.5
	2	71.9	70.4	71.7	43.0	71.9	71.1	47.8
	3	72.6	71.9	71.5	43.3	72.3	72.0	46.3
	4	72.9	71.5	73.1	44.7	72.2	72.1	48.2
	5	73.0	72.3	74.0	45.1	73.1	72.0	47.0
Mean value (Yr)		72.1	70.9	72.8	43.7	72.2	71.1	47.4
Mean value (Mtype)		71.5		72.8	43.7	63.6		
Test detergent (t)	1	66.5	65.9	77.2	46.6	68.9	57.2	45.1
	2	64.8	65.5	75.3	44.1	70.2	63.1	48.8
	3	65.7	66.6	76.3	46.5	71.5	70.1	57.5
	4	65.1	66.2	75.8	44.2	70.3	67.6	53.0
	5	65.2	64.1	76.2	44.0	69.9	62.3	45.9
Mean value (Yt)		65.5	65.7	76.2	45.1	70.1	64.1	50.1
Mean value (Mtype)		65.6		76.2	45.1	61.4		
$\Delta Y = Y_r - Y_t$		6.6	5.2	-3.4	-1.4	2.1	7.0	-2.7
$\Delta M_{\text{type}} = M_{\text{type,r}} - M_{\text{type,t}}$		5.9		-3.4	-1.4	2.2		
Average ΔM	0.8							

Secondary effects

The secondary effects are determined by means of measurements in accordance with ISO 4312.

ISO 4312, clause 4: Determination of intrinsic greying

ISO 4312, clause 7: Determination of increase in incineration residue (ash) also referred to as encrustation

ISO 4312, clause 9: Determination of decrease in breaking strength resulting from chemical degradation of cellulose due to laundering (chemical wear)

7 Limit values

If the product achieves the following results, it will be considered to have a satisfactory cleaning effect at the temperature in question:

ΔM must be less than or equivalent to 10 for all soil types.

The average of ΔM must be less than 5 for all types of soiling.

ΔY for bleached stains or stains with a general cleaning effect must be less than or equivalent to 10. ΔY for one soil stain is permitted to be less than 20.

Greying must be less than 2.8 (laundry detergent for white wash only).

Encrustation must be less than 0.6 %.

Chemical wear must be less than 1.0 Rhes (= 10 (Pa.s)-1) (laundry detergent for white wash only).

8 The report

The test report must contain the following:

- References to this appendix
- The washing machine used for testing
- Wash programmes
- Water quality and hardness
- The dosage of reference detergent
- Description of the test product
- The dosage of the test product
- Opening diameter of measuring instrument when measuring reflectance
- Number of measuring points
- Evaluation in accordance with the example in Section 6 or in a comparable way
- Comments on measurement points that deviate from other results
- Limit values according to the requirement in O18 of the criteria document or Section 7 of this appendix or a comparable method
- Any deviation from the specified standards and/or this appendix must be stated and explained

Appendix 5B Test description for low-duty laundry detergents (for delicate textiles etc.)

This appendix contains a description of how the performance of low-duty laundry detergents for delicate textiles is to be documented to Nordic Ecolabelling.

Contents

1	Summary of the function test
2	Washing machines and wash programmes
3	Water quality
4	Materials
5	Procedure
6	Evaluation
7	Limit values
8	Report

1 Summary of the performance test

The performance test has been designed to test laundry detergents for delicate textiles such as wool and silk. The effect of the laundry detergent on soils and changes in dimensions must be determined. The colour fastness requirements (except wool) must also be met.

The performance test must be conducted in accordance with this appendix. The cleaning effect and changes in dimensions are in part based on EN 60456 with deviations as outlined in this appendix. The tests must be conducted at a water temperature of 30 °C. The water hardness must be $5.5 \pm 0.5^{\circ}\text{dH}$. Test strips as described in Section 4.1 must be used.

The cleaning effect is determined by washing soiled pieces of textile (soil strips) in a washing machine using a specified programme. The performance of the laundry detergent is assessed by means of a comparison with the performance of water. The test is conducted five times.

The effects of the laundry detergent on the dimensions of the fabrics are determined by washing wool strips in a washing machine at a water temperature of 30 °C. The results for the detergents and water are compared. The effect of the

detergent must not exceed $\pm 2\%$ compared to water. The effects of the laundry detergent on coloured textiles are determined by washing 4 differently coloured textiles 20 times in a washing machine at a water temperature of 40 °C (wool exempt).

2 Washing machines and wash programmes

2.1 Washing machines

The reference machine must meet the requirements of EN 60456:2005, annex A, table A.1.

Alternatively, the following Miele machines may be used: Miele W4446 WPS, Miele W1935 WTL, Miele WCI360 WPS WTL, Miele PW6065 or older models such as Miele Novotronic W375, Miele W3365, W3375, WM918, WM986 and W5000-series.

If more than one machine is used the wash cycles must be run on different machines in order to prevent effects caused by specific differences between the washing machines. However, the same type of machine has to be used in the same test. Water and energy consumption shall be monitored and recorded in order to ensure equal testing conditions.

2.2 Wash programme

A wash programme in accordance with EN 60456:2005, annex A, table A.4, must be used for the reference machine, with a washing temperature of 30 °C.

A domestic washing machine must always use the wool programme at 30 °C.

3 Water quality

Water with a hardness of 5.5 ± 0.5 dH (1.0 mmol CaCO₃/l) must be used. The temperature should be $15 \text{ °C} \pm 2$ and pH should not exceed 9.

4 Materials

The fronts of the test strip must be marked before washing. Test materials must be handled and stored in accordance with the manufacturer's recommendations. Test materials from the same batch must be used in all washes (this is particularly important for test strips).

4.1 Wash

The load comprises ballast and test strips stitched together on a polyester strip. The ballast must be the same quantity and materials as specified in EN 60456:2005, Section 6.1.3.

The test strips must be compiled by the following (available e.g. from wfk, or CFT):

- Sebum/pigment on standard acrylic (for products for generally delicate textiles), eg wfk 50D, PA-S-132.
- Sebum/pigment on standard wool (for products for wool and generally delicate textiles), eg wfk 60D, W-S-132.

- Sebum/pigment on standard silk (for products for silk and generally delicate textiles), eg wfk 70D, S-S-132.
- Olive oil/pigment on standard wool (for products for wool and generally delicate textiles), eg wfk 60B, W-02.

A complete "soil load" for the test strips stitched on a polyester strip in accordance with EN 60456:2005 Section 6.3 and "on pieces of a polyester textile based load" with the following exceptions: The test strips must measure 100x100 mm. Three full polyester strips must be used for each load. Alternatively, smaller stains of 5 cm x 5 cm sewn onto a carrier can be used.

Alternatively, a multi-image analysis device and multiswatch monitors can be used. The multi-image analysis device should give similar output as a spectrophotometer.

4.2 Sampling

The detergent manufacturer must ensure that the samples of the test product are selected in a representative way, in other words the laundry detergent must be selected/purchased from three different batches and mixed to produce a representative sample.

4.3 Test detergent

The test detergent must be dosed in accordance with the manufacturer's recommendation for lightly soiled laundry and with a load of 1 kg. If the manufacturer has not given information on the volume weight of the detergent, it is determined in accordance with test method ISO 697 and a representative sample is taken in accordance with ISO 607 by the manufacturer or according to section 4.2.

5 Procedure

5.1 Wash

Cleaning effect

The washes are performed in accordance with EN 60456:2005, Section 8 with the following exception: Washes with the test detergent and water are performed five times, each in random order, with new stitched polyester strips used each time for each detergent.

Secondary effects

Changes in dimension are measured in accordance with EN 60456:2005, Section 12 in relation to water at a temperature of 30 °C and water hardness of 5.5±0.5°dH. The effect of the test detergent must not exceed ± 2 % compared with water. Measurements must take place after the first and fifth washes. Colour fastness must also be measured, see below.

Colour fastness (wool exempted):

Four readymade garments are used to determine colour fastness (e.g. sweatshirt, T-shirt, children's trousers and underwear), with a colour fastness at 40 °C of 4

in accordance with ISO105 C06 with a scale of 1-5. Other textiles ("fabrics") with a pre-determined color fastness of 4 can also be used. The garments/fabrics are washed 20 times at 40 °C in a programme for delicate fabrics. Colour change in the four realistic pieces of fabric is assessed mechanically by measuring the colour range ΔE in accordance with ISO J01 and J03 using a spectrophotometer (e.g. Data Color Spectraflash 500 or 600 with 10° Observer, light source D65 without reflection and without UV light) after 20 wash cycles. The average of the ΔE values must be lower than (better than) or equal to the result of water.

5.2 After treatment

After washing, the test strips and control strips must be dried by pressing them at a temperature of between 130 °C and 150 °C. Press between two layers of materials to prevent the test strips or control strip from becoming shiny or miscoloured (EN 60456:2005, Section 8.2 and 8.3.4). The coloured pieces of clothes, which must be determined of colour constancy, and washed 20 times also, have to be dried the same way.

6 Evaluation

Calculation of cleaning effect

The reflectance of the washed test strips, equivalent to the measured result Y in the CIE system, is measured after washing using a colorimeter or spectrophotometer with the following instrument settings: D-65, 10° Observer, Tristimulus Y value. Prior to each measurement the instrument must be calibrated in accordance with the manufacturer's instructions. Measurements must be taken on the front of the test strip (as marked, cf. the beginning of Section 4).

Measurements are performed by placing the test strips on top of each other in four layers and measuring each soil in at least three places. When using an instrument with a measurement opening of 20 mm diameter, four measurements must be taken (EN 60456: 2005, Section 8.3.4, figure 2).

The mean value (Y) for the above measurements is taken for each test strip, in other words for each soil type attached to the test strip. In this case, with a measurement opening of 20 mm in diameter, Y is the average of four measurements per test strip per soil type. The mean value must be specified to one decimal place. The difference between the mean value for the reference detergent and the test detergent is referred to as ΔY . In other words: $\Delta Y = Y_{\text{water}} - Y_{\text{test detergent}}$.

An example of the way in which the test results might be presented is provided in Appendix 5A.

Secondary effects

Changes in dimension are measured in accordance with EN 60456:2005, Section 12.

Colour fastness (except wool) is measured in accordance with ISO 05 J01 and J03.

7 Limit values

The product will be considered to have a satisfactory cleaning effect if it achieves the following results:

ΔY must be less than -5 (more negative). ΔY for one of the tested stain types can be 0.0.

Dimensional changes must not exceed $\pm 2\%$ compared with water.

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

8 Report

The test report must contain the following:

- References to this appendix
- The washing machine used for testing
- Wash programmes
- Water quality and hardness
- Description of the test product
- The dosage of the test product
- Opening diameter of measuring instrument when measuring reflectance
- Number of measuring points
- Evaluation in accordance with the example in Section 6 or in a comparable way
- Limit values according to the requirement in O18 in the criteria document or Section 7 of this appendix or a comparable method

Any deviation from the specified standards and/or this appendix must be stated and explained

Appendix 5C Test description for stain removers with subsequent washing

This test is used for testing stain removers where the textile is subsequently washed in a washing machine. In other words, the test is for use on products that are used as stain removers for clothing, for soaking, as a wash enhancer or for pre-washes or other equivalent functions.

Contents

1	Summary of the performance test
2	Washing machines and wash programmes
3	Water quality
4	Materials
5	Procedure
6	Evaluation
7	Limit values
8	Report

1 Summary of the performance test

The performance test is based on a test used for heavy-duty laundry detergents described in Appendix 5A. The intention is that the test should show that stain removers make a positive contribution to the washing result. This is achieved by performing a wash test for the standard reference and comparing this result with the result of an equivalent wash test for the standard reference with a stain remover added.

The wash test must be passed for all soil types that the product is claimed to have an effect on. If no specific types of soils are specified on the product at least four different soil types must be tested and the relevant reasons for the choice of soils must be stated. The performance requirement must be met for the soil types tested.

2 Washing machines and wash programmes

2.1 Washing machines

The reference machine must meet the requirements of EN 60456:2005, Annex A, Table 1A. Wascator FOM 71 MP and Wascator FOM71 CLS fulfil these requirements.

Alternatively, the following Miele machines may be used: Miele W4446 WPS, Miele W1935 WTL, Miele WCI360 WPS WTL, Miele PW6065 or older models such as Miele Novotronic W375, Miele W3365, W3375, WM918, WM986 and W5000-series.

If more than one machine is used the wash cycles must be run on different machines in order to prevent effects caused by specific differences between the washing machines, however the same machine model must be used for the same test. Water and energy consumption shall be monitored and recorded in order to ensure equal testing conditions.

2.2 Wash programmes

Cleaning programme	Wash programme for cotton at 60 °C. Wash with reference detergent without bleach: 19 g IEC P base (IEC-A* base) /kg.
Reference machine	Wash programme for cotton in accordance with EN 60456:2005, Annex A, table A2 with the following modifications: The washing temperature shall be max. 40 °C and the washing time is 30 minutes.
Domestic machine	Wash programme for a normal cotton wash at 40 °C.

3 Water quality

Water with a hardness of $5.5^{\circ}\text{dH} \pm 0.5$ equivalent to 1.0 mmol CaCO_3/l is to be used. The temperature should be $15^{\circ}\text{C} \pm 2$ and pH must be 7–9.

4 Materials

The fronts of the test strip must be marked before washing. Test materials must be handled and stored in accordance with the manufacturer's recommendations. Test materials from the same batch must be used in all washes (this is particularly important for test strips).

4.1 Laundry

The laundry load comprises: test strips (see Section 4.2), artificial soils (see Section 4.2), two sheets, six pillowcases and sufficient number of towels to make up a 4.5 kg load of washing. To fill up a machine with 3.5 kg load 2 sheets, 3 pillowcases and sufficient number of towels have to be used in order to account for 3.5 kg load. The ballast (sheets, pillowcases and towels) must be handled in accordance with EN 60456:2005, Section 6.

4.2 Test strips

The cleaning effect is determined by using test strips comprising samples of soiled standard textiles.

Test strips must be standardized – of the types sold by wfk, Swissatest (formerly Empa), CFT or similar companies. This means that the soil strips have good sensitivity, a wide measuring area and are reproducible. It must be proven if soil strips are not used from Empa, wfk or CFT.

Standard cotton

100 % pure cotton, bleached (Tristimulus Y>85)

Weave	plain 1/1
Weight (ISO 12127)	170 ± 10 g/m ²

Thread count

Warp	7 ± 2 threads/cm
Weft	7 ± 2 threads/cm

Yarn count (ISO 2060)

Warp	29.5 ± 1 Tex
Weft	29.5 ± 1 Tex

Standard polyester/cotton

Polyester/cotton 65/35, heat treated, bleached (Tristimulus Y>85)

Weave	plain 1/1
Weight (ISO 12127)	170 ± 10 g/m ²

Thread count

Warp	7 ± 2 threads/cm
Weft	7 ± 2 threads/cm

Yarn count (ISO 2060)

Warp	29.5 ± 1 Tex
Weft	29.5 ± 1 Tex

Each of the soil strips measures 100x100 mm ± 5 mm and they are stitched together so that they make a full test strip. Four whole test strips must be included in each wash, each stitched onto the long side of a towel. Alternatively, smaller stains of 5 cm x 5 cm sewn onto a carrier can be used.

Alternatively, a multi-image analysis device and multiswatch monitors can be used. The multi-image analysis device should give similar output as a spectrophotometer.

At least four different soil strips must be selected with relevant reasons given for the choice of soils. If a product is claimed to remove specific types of soils, then these must be included in the test – irrespective of number.

Artificial ballast soils (added to each wash)

To gain information on the anti-depositing capacity of the detergent during the test and its elasticity to soil laundry, artificial soils are added. This represents the type (sebum, pigment, grease, protein, starch, salts etc.) and quantity (total 40 g) of soils that are generally found in "normally soiled laundry". It must be added to each wash cycle evenly distributed in the washing drum. Ready mixed soils are available from wfk (wfk SBL2004), consisting of a mixture of sebum, pigment and greasy soils, proteins and starch and salts on cotton. In this case 4 pieces of wfk SBL2004 analogous to 32 grams of soils must be added to a Wascator and 3 pieces of wfk SBL2004 equivalent to 24 grams of soiling to a Miele.

4.3 The reference detergent

Reference detergent and dosage, see Appendix 5A "Test description for heavy-duty laundry detergents" paragraph 4.3.

4.4 Sampling

The manufacturer must ensure that the samples of the test product are selected in a representative way, in other words the product must be selected/purchased from three different batches and mixed to produce a representative sample.

4.5 Test detergent

The test detergents consist of a reference detergent with stain remover added. The stain removers may be applied directly onto the textile, in the drum, in the soap tray, combinations thereof or in some other equivalent way. The reference detergent is dosed as described in Section 4.3. The stain removers is dosed in accordance with the dosage instructions provided on the product. If the product performs several functions, the test must be conducted on the primary function and on the function with the lowest dosage.

5 Procedure

5.1 Wash

The reference detergent, test detergents and – if applicable water - are tested in the following order: First the test product, then the reference product and finally water (5 wash cycles). A cleaning programme is run after each wash cycle.

Cleaning effect

Washes are performed with the test detergent and reference detergent. The wash cycles are run at least five times with each detergent using new test strips each time. Washes with the test detergent and reference detergent are performed five times each.

5.2 After treatment

After washing the test strips must be dried by pressing them at a temperature of between 130 °C and 150 °C. Press between two layers of materials to prevent the test strips or the control strip from becoming shiny or discoloured. The load is tumble-dried after each wash.

6 Evaluation

The reflectance of the washed test strips, equivalent to the measured result Y in the CIE system, is measured after washing using a colorimeter or spectrophotometer with the following instrument settings: D-65, 10° Observer, Tristimulus Y value. Prior to each measurement the instrument must be calibrated in accordance with the manufacturer's instructions. Measurements must be taken on the front of the test strip (as marked, cf. the beginning of Section 4).

Measurements are performed by placing the test strips on top of each other in four layers and measuring each soil in at least three places. When using an instrument with a measurement opening of 20 mm diameter, four measurements must be taken (EN 60456: 2005, Section 8.3.4, figure 2).

The mean value (Y) for the above measurements is taken for each test strip, in other words for each soil type attached to the test strip. In this case, with a measurement opening of 20 mm in diameter, Y is the average of four measurements per test strip per soil type. The mean value must be specified to one decimal place. The normalized wash result is achieved by subtracting the result for water from both the reference product and the test product.

The following table provides an example of how the test results can be presented. The figures in the table are an average of the four measurements registered with a 20 mm measuring instrument.

Detergent	Wash cycle	Lipstick	Motor oil/ Pigment	Tea	Chocolate	Olive oil	Cocoa
Reference detergent (r)	1	41.6	46.0	55.2	67.0	38.0	56.0
	2	41.2	46.8	56.0	68.1	37.5	55.5
	3	42.3	47.5	56.2	67.9	38.3	56.4
	4	40.0	45.3	54.3	66.9	37.3	55.7
	5	41.4	46.2	54.1	67.4	38.5	56.1
Mean value (Y_r)		41.3	46.4	55.2	67.5	37.9	55.9
Test detergent (t)	1	42.8	61.2	61.4	68.0	42.2	57.6
	2	48.3	63.9	60.4	68.6	40.5	58.2
	3	47.1	66.8	62.3	69.5	44.2	60.1
	4	45.9	64.7	62.0	67.9	41.9	58.3
	5	46.1	62.9	61.8	69.4	42.7	58.9
Mean value (Y_t)		46.0	63.9	61.6	68.7	42.3	58.6
Normalised result		134%	236%	140%	113%	127%	119%

7 Limit values

The product will be considered to have a satisfactory performance at 40 °C if it achieves the following results:

The normalized cleaning effect must be greater than 110% for each soil type compared to the reference detergent. Testing without water (i.e no normalization) is also permitted. The cleaning effect must still be greater than 110% for each soil type compared to the reference detergent. This represents a more stringent approach (it is more difficult to reach 110% without the subtraction of a water value).

8 Report

The test report must contain the following:

- References to this appendix
- The washing machine used for testing
- Wash programmes
- Water quality and hardness and the reason for choice of water hardness
- The dosage of the reference detergent
- Description of the test product
- Dosage of test product
- Opening diameter of measuring instrument when measuring reflectance
- Number of measuring points
- Evaluation in accordance with the example in Section 6 or in a comparable way
- Limit values according to the requirement in O18 in the criteria document or Section 7 of this appendix or a comparable method

Any deviation from the specified standards and/or this appendix must be stated and explained

Appendix 5D Test description for stain removers used without subsequent washing

This test may be used for stain removers where the textile is not subsequently washed in a washing machine. In other words, the test is used on products that are applied directly to textiles such as carpets, furniture upholstery or the like to remove stains.

Contents

1	Summary of the function test
2	Materials
3	Procedure
4	Assessment
5	Limit values
6	Report

1 Summary of the performance test

The procedure in this test description is divided into two different methods: One is inspired by the performance test for dishwashing detergents (visual evaluation); the second is inspired by the test of the performance test of stain removers with subsequent washing (mechanical evaluation). In the case of the method involving visual evaluation (cf. Nordic Ecolabelling's criteria for ecolabelling of dishwashing detergents), the principles in the test are that the relevant textiles are soiled and then cleaned in accordance with the instructions for use provided on the product. The cleaned textiles are then compared with the unsoiled samples and the degree of cleanness is evaluated visually using a predetermined scale. In the case of the method using mechanical evaluation (cf. Section A of the appendix) the principles in the test are that the relevant textiles are soiled and then cleaned in accordance with the instructions for use provided on the product. The reflectance of the cleaned textiles is then measured on a colorimeter or spectrophotometer and compared with measurements taken on unsoiled textiles.

For both methods, the cleaning and evaluation procedure must in addition be repeated with water in place of the product. The product must perform better than water.

The product must pass the performance test for all soil types that the product is claimed to be effective on. If the product makes no claims as regards particular types of soils, at least four different soil types must be tested and relevant reason for the choice of soil types must be stated. If no proposals for soil types are made,

the following may be used: red wine, tea, olive oil and cocoa. Please note however that the soil must be on the relevant textile(s).

2 Materials

If the product can be used on several different types of textiles, then it must be tested on samples of all types, e.g. carpet, curtains, furniture upholstery fabric etc. The size of the textile must be at least 100x100 mm. Tests must be conducted on three parallels.

Similarly, tests must be conducted using all soil types on which the product can be used.

If standardized soil strips are available, these may be used, provided that the textile is equivalent to the areas of use stated on the product.

3 Procedure

Tests are to be conducted only in accordance with one of the described procedures.

3.1 Method using visual evaluation

Each of the relevant textiles (three parallels) is soiled with each of the soil types on which the product is claimed to be effective. Three parallels must be conducted on each soil type and each textile.

If no specific types of soils are specified on the product at least four different soil types must be tested and the relevant reasons for the choice of soils must be stated. In the absence of suggestions for soils the following may be used without further justification: red wine, tea, olive oil and cocoa.

The textile swatches are soiled with a quantity of soils equivalent to 0.2 ml/cm², after which the textile is left for at least 5 minutes.

The textile is cleaned with the test product in accordance with the instructions for use provided on the product.

The cleanness of the textile swatches is assessed visually on a scale from 0–5 where 0 is "not clean" and 5 is "entirely clean", using an unsoiled swatch as a reference.

In addition, the cleaning and evaluation procedure must be repeated with water in place of the product. The product must perform better than water.

3.2 Method using mechanical evaluation

Each of the relevant textile swatches (three parallels) is soiled with each of the soil types stated on the product. Three parallels must be conducted of each soil type.

If no specific types of soils are specified on the product at least four different soil types must be tested and the relevant reasons for the choice of soils must be stated. In the absence of suggestions for soils the following may be used without further justification: red wine, tea, olive oil and cocoa.

The textile swatches are soiled with a quantity of soils equivalent to 0.2 ml/cm², after which the textile is left for at least 5 minutes.

The textile is cleaned with the product in accordance with the instructions for use provided on the product.

The reflectance of the textile swatches is measured (five measuring points on each) and compared with measuring points on unsoiled textile swatches (five measuring points).

In addition, the cleaning and evaluation procedure must be repeated with water in place of the product. The product must perform better than water.

4 Evaluation

The test results must be evaluated only in accordance with the relevant procedure.

4.1 Visual evaluation of cleanness

The cleanness of the textile swatches is evaluated visually on a scale from 0-5 where 0 is "not clean" and 5 is "entirely clean", using an unsoiled textile swatch as a reference.

The evaluation scale is as follows:

- 5 No residual soils
- 4 1 to 4 small stains, in total less than 1% of the area of the textile swatch
- 3 5 to 10 small stains, in total less than 1% of the area of the textile swatch
- 2 >10 small stains, in total less than or equal to 10% of the area of the textile swatch
- 1 a total of more than 10% of the area of the textile swatch but less than 40% of the area of the textile swatch
- 0 >40% of the area of the textile swatch is soiled

The table below provides an example of how the test results might be presented. Cleaning results with water only may be presented in the same table or in a separate table.

Textile	Parallel	Red wine	Tea	Olive oil	Cocoa
Carpet	1	4	5	4	4
	2	4	5	3	4
	3	5	4	3	3
Total		13	14	10	11
Furniture fabric	1	5	4	4	4
	2	5	5	3	5
	3	5	5	4	4
Total		15	14	11	13

4.2 Mechanical evaluation of cleanness

The reflectance of the cleaned textile swatches, equivalent to the measurement result Y in the CIE system, is measured after cleaning using a colorimeter or a spectrophotometer.

The mean value (Y) of the aforementioned measurements is taken for each textile swatch. The mean value is specified to one decimal point.

The mean value of the soiled textiles is compared with the mean value of the unsoiled textiles swatches.

The tables below provide an example of how the test results might be presented. The figures in the tables are averages of the four measurements taken with a 20 mm measurement instrument. Cleaning results with water only may be presented in the same table or in a separate table.

Textile	Measurement	Red wine	Tea	Olive oil	Cocoa
Reference. carpet (unsoiled)	1	80.6			
	2	81.5			
	3	79.9			
	4	80.3			
	5	81.0			
Mean value (Y_r)		80.7			
Carpet	1	67.9	75.6	72.6	66.6
	2	68.4	76.3	71.4	67.8
	3	66.2	77.0	73.9	67.9
	4	68.3	77.2	74.0	66.1
	5	67.6	75.8	72.8	66.0
Mean value (Y_t)		67.7	76.4	72.9	66.9
Result for carpet		84%	95%	90%	83%

Textile	Measurement	Red wine	Tea	Olive oil	Cocoa
Reference, furniture fabric (unsoiled)	1	90.3			
	2	89.6			
	3	91.0			
	4	89.3			
	5	90.2			
Mean value (Y_r)		90.1			
Furniture fabric	1	75.3	81.3	83.9	72.6
	2	74.2	80.9	84.2	73.4
	3	74.0	82.6	85.1	73.0
	4	73.8	81.7	82.0	74.2
	5	75.0	80.6	83.4	72.9
Mean value (Y_t)		74.5	81.4	83.7	73.2
Result for furniture fabric		83%	90%	93%	81%

5 Limit values

The test results need fulfil only the limit values for the relevant evaluation.

5.1 Limit values for visual evaluation

The performance of the stain remover is satisfactory if the following limit values are met:

The resulting total must be at least 10 for each textile within each soil type. No individual result may lie below a score of 2.

In addition, the cleaning and evaluation procedure must be repeated with water in place of the product. The score for water only must be less than 10 for each textile within each soil type. Otherwise, the test is not valid.

5.2 Limit values for mechanical evaluation

The performance of the stain remover is satisfactory if the following limit values are met:

Y for the cleaned textile must be at least 80% in relation to the unsoiled textile for each textile and soil type.

In addition, the cleaning and evaluation procedure must be repeated with water in place of the product. Y for the textile cleaned with water only must be less than Y for the textile cleaned with the product for each textile and each soil type.

6 Report

The test report must contain the following:

- References to this appendix
- Description of the test product
- Dosage of the test product
- If relevant: Measurement opening on the measuring instrument when measuring reflectance
- Number of measuring points
- Evaluation in relation to the example in Section 4 or an equivalent method
- Limit values in relation to requirement O18 of the criteria or Section 5 of this appendix or specified in some equivalent way

Any deviation from the specified standards and/or this appendix must be specified, and the reasons given

Appendix 6 Declaration from the manufacturer of the primary packaging component – cardboard packaging for liquid products

To be used in conjunction with an application for a license for the Nordic Swan Ecolabelling of laundry detergents and stain removers.

This declaration is based on the knowledge we have at the time of the application, based on tests and/or declarations from raw material manufacturers, with reservations for new advances and new knowledge. Should such new knowledge arise, the undersigned is obliged to submit an updated declaration to Nordic Ecolabelling. Please note that small amounts of impurities when using recycled materials are possible and do not affect fulfilment of the requirements.

Packaging manufacturer	Trademark/trade name of the primary packaging:
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Constituent materials

Please fill in all fields in the table below. Materials such as paper/paperboard, coating materials and closure materials must be listed. Additives or chemicals such as printing inks or chemicals within the pulp/paper does not need to be listed.

Overview of materials, suppliers and weights

Material	Function	Weight (grams or kg) of the material	% by weight of the material as a ratio of the total weight of the packaging	Is the material bio-based**? State Yes/No	Is the material post-consumer/commercial recycled*? State Yes/No
Total			100 %		

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

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

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

Ratio of bio-based material/recycled material in the packaging:

Pulp/paper

Have tree species listed on Nordic Ecolabelling's list of prohibited tree species* been used in the pulp? The list of prohibited tree species is located on the website: www.nordic-ecolabel.org/wood/ Yes No

State the percentage by weight of the pulp/paper that originates from forestry certified under the FSC or PEFC schemes:

State the percentage (by weight) of the pulp/paper that is post-consumer/commercial recycled*:

With reference to the percentages above. Is the remaining proportion of wood raw material covered by the FSC/PEFC control schemes (FSC controlled wood/PEFC controlled sources)? Yes No

Bio-based plastic

Has palm oil been used as a raw material, other than as secondary raw material***? Yes No

Has soy bean used as a raw material, other than as secondary raw material***? Yes No

Has sugar cane been used as a raw material, other than as a secondary raw material***? Yes No

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

Materials excluded from use

Does the packaging contain PVC or other types of halogenated plastics? Yes No

Does the packaging contain aluminium or other metals? Yes No

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