

Nordic Ecolabelling of

Laundry detergents and stain removers



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006 Laundry detergents and stain removers, version 7.10, 10 October 2018

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

Addresses

In 1989, the Nordic Council of Ministers decided to introduce a voluntary official ecolabel, the Nordic 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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What is a Nordic Swan Ecolabelled laundry detergent or stain remover?

Ecolabelled laundry detergent and stain removers are amongst the products with the least impact on the environment within their category. The Nordic Swan Ecolabel provides a guarantee that the product fulfils strict environmental requirements and that satisfactory performance is documented through standardized testing. The environmental requirements include restrictions on the dosage, ensuring that only concentrated products are eligible for the ecolabel, restrictions on the quantity of environmentally harmful substances and the quantity of substances that are not readily degradable in aquatic environments.

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 phase is minimized if used correctly. Mandatory consumer guidance for sustainable use of the products is included to encourage correct dosing and filling of the machine. Requirements to the packaging optimize the filling of the packs and the use of packaging material.

The ecolabel criteria for laundry detergents and stain removers have traditionally had a high focus on the environmental properties of the ingredients in the products. In this version of the criteria, particular emphasis has been placed on dosage, documentation of performance at reduced temperature for coloursafe detergents and guidance to the consumer for sustainable use, as well as an overall good environmental profile of the ingredients.

Laundry detergents and stain removers carrying the Nordic Swan Ecolabel are:

- Highly concentrated
- Fulfilling strict requirements regarding biodegradability and aquatic toxicity
- Efficient at 40 °C or below

Why choose the Nordic Swan Ecolabel?

- The products 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 Ecolabel is a cost-effective and simple way of communicating environmental work and commitment to customers and suppliers.
- Environmental issues are complex. It can take a long time and extensive resources to gain an understanding of a specific area. Nordic Ecolabelling facilitates this process.
- 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 ecolabel criteria distinguish between heavy-duty detergents and low-duty detergents.

Heavy-duty detergents are defined as detergents used for regular washing of white and colored textiles at any temperature.

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

The product group does not comprise products that are exclusively used for hand-washing and products that are dosed via carriers such as sheets, cloths or other materials. The product group does not comprise multiple function detergents such as “2 in 1” products with both detergent and fabric softening effects/claims.

Products for professional laundries can not be labeled according to this criteria document. Nordic Ecolabelling has criteria for “Laundry detergents for professional use”.

How to apply

Application and costs

For information about the application process and fees for this productgroup, please refer to the respective national web site. For addresses see page 2.

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 R (requirement) and a number. All requirements must be fulfilled to be awarded a licence.

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

☒ Enclose

🔑 The requirement checked on site

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

License validity

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

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

On-site inspection

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

Queries

Please contact Nordic Ecolabelling if you have any queries or require further information. See page 2 for addresses. Further information and assistance (such as calculation sheets or electronic application help) may be available. Visit the relevant national website for further information.

1 Environmental requirements

The ecolabel criteria for laundry detergents and stain removers are based on a functional unit expressed in g/kg wash (grams per kilograms wash), this is called the reference dosage. The reference dosage used for calculation of the environmental requirements shall correspond to the dosage used in the performance test in g/kg wash as well as the dosage recommended by the manufacturer to consumers on the package. 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.

The performance must be documented according to the present Nordic Ecolabelling criteria (Appendix 5), which uses soft water (5.5 dH). The chemical requirements regarding dosage, toxicity and biodegradability in chapter 1.3 are based on the recommended dosage for soft water.

The on-pack recommended dosage for laundry detergents is often stated for different intervals of wash loads, e.g. 3-5 kg or 6-8 kg. The reference dosage used for the performance test and for calculation of the ecological criteria must, however, correspond to the average load size. If the dosage is e.g. 50 g per 3-5 kg, then a dosage of $50 \text{ g}/4 \text{ kg} = 12.5 \text{ g/kg}$ wash must be used to demonstrate performance and for calculation of the environmental requirements.

Unless otherwise specified, the requirements in Chapter 1 apply to all ingoing substances in the final product (laundry detergent/stain remover).

The term ingoing substances refers to all substances in the ingredients including additives (such as preservatives and stabilisers) but does not include impurities from primary production. Impurities are defined as residual products from primary production that can be found in the final product in concentrations $\leq 100 \text{ ppm}$ (0.010 wt%, 100 mg/kg). Substances that are added intentionally to an ingredient or to the product are not considered impurities irrespective of their concentration. Impurities present in concentrations $> 1.0\%$ in the raw material should be counted as an ingoing substance. Even known substances released from constituent ingredients are considered as ingoing substances.

For calculation of the chemical requirements, reference is made to the Detergents Ingredient Database list (DID list), which is further described in Appendix 1. The DID list contains the most widely used ingredients used in detergent formulations. For substances not present on the DID list, guidance is given on how to calculate or extrapolate the relevant data. If a substance is listed on the DID list, the DID list values are to be used. The DID list is available at the websites of the Nordic Ecolabelling. The DID list adopted at January 2007 or later versions will apply for calculation of the ecological criteria.

1.1 Product description

R1 Description of the product and packaging

The full formulation of the product and a description of the primary packaging must be submitted to Nordic Ecolabelling. The products full formulation must contain:

- Chemical name for ingoing substances
- Trade name and CAS nr for ingoing substances
- DID-nr for substances that can be placed on the DID-list
- Ingoing amounts including and excluding water
- Function of all ingoing substances (regardless of concentration)

Are the requirements met?

Yes No

- Full formulation with specification of trade name, chemical name, CAS no., DID no., ingoing quantity including and excluding water and the function of all ingoing substances (regardless of concentration) in the product. Appendix no. _____
- Safety data sheet (MSDS) complying with applicable legislation in the country of application such as Annex II of REACH (Council Regulation 1907/2006/EEC) for each ingredient. Appendix no. _____
- Description of the packaging of the product: Composition and weight of packaging material. Documentation for the percentage of recycled material. *DID no. is the number of the substance on the Detergent Ingredient Database" list (DID list), and is used in calculating the chemical requirements. The DID list can be found on the websites of the Nordic Ecolabelling, see page 2.* Appendix no. _____

1.2 Excluded or limited substances and mixtures

Are the requirements met?

R2 Product classification

Yes No

The product must not be classified with any of the following hazard classes and associated hazard codes:

Hazard Class	Hazard code and hazard statement (Regulation 1272/2008 ¹)	Corresponding Hazard Designation and risk phrase (Directive 67/548/EEC ²)
Acute toxicity*	Acute tox. 1-4 H300, H301, H302, H304, H310, H311, H312, H330, H331, H332	Harmful to health (Xn) R20, R21, R22, R65 Toxic (T) R23, R24, R25 Highly Toxic (T+) R26, R27, R28
Skin corrosion	Skin corr. 1A, 1B, 1C H314	Corrosive (C) R34, R35
Respiratory/skin sensitization	Resp. Sens. 1 H334 Skin Sens. 1 H317	Harmful to health (Xn) R42 Sensitizing (Xi) R43
Specific target organ toxicity – single/repeated exposure	STOT SE 1-2 H370, H371 STOT RE 1-2 H372, H373	Harmful to health (Xn) R48/20, R48/21, R48/22 R68/20, R68/21, R68/22 Toxic (T) R39/23, R39/24, R39/25 R48/23, R48/24, R48/25 Highly Toxic (T+) R39/26, R39/27, R39/28
Hazardous to the aquatic environment	Aquatic Acute 1 H400 Aquatic Chronic 1-4 H410, H411, H412, H413	Dangerous for the environment (N) / (-) R50, R52, R53 R50/53, R51/53, R52/53

¹ Applicable from Dec. 2010

² Applicable during the transition to Regulation 1272/2008 from Dec. 2010 until June 2015

* Stain removers may be classified as acutely toxic Cat 4 with H302/Xn; R22 (Harmful if swallowed).

- Product safety data sheet in according with the applicable legislation and/or product label. Appendix no. _____

R3 CMR substances

Yes No

The product must not contain substances that are classified with any of the following hazard codes and hazard statements, or combinations thereof.

Hazard Class	Hazard code and hazard statement (Regulation 1272/20081)	Corresponding hazard designation and risk Phase (Directive 67/548/EEC2)
Carcinogenicity	Carc. 1A or 1B; H350 Carc. 1A or 1B; H350i Carc. 2; H351	Carc. Cat. 1 or 2; R45 Carc. Cat. 1 or 2: R49 Carc. Cat. 3; R40
Germ cell mutagenicity	Muta 1A; H340 Muta. 1B; H340 Muta. 2; H341	Muta. Cat. 1; R46 Muta. Cat. 2; R46 Muta. Cat. 3; R68
Reproductive toxicity	Repr. 1A or 1B; H360F Repr. 1A or 1B; H360D Repr. 2; H361f Repr. 2; H361d Lact. H362	Repr. Cat. 1 or 2; R60 Repr. Cat. 1 or 2; R61 Repr. Cat. 3; R62 Repr. Cat. 3; R63 R64

1 Applicable from Dec. 2010

2 Applicable during the transition to Regulation 1272/2008 from Dec. 2010 until June 2015

The requirement also applies to substances that may release substances with the above classifications.

- Completed and signed declaration of compliance from manufacturer and raw material supplier shall be provided. Appendix 2 and 3 are to be used.

Appendix no. _____

R4 Sensitizing substances

Yes No

Substances classified as respiratory sensitizers (according to Regulation 1272/2008 and Directive 67/548/EEC, respectively) with H334/ R42 and/ or H317/R43 may not be used in the products.

The following substances are exempted from the requirement above, except spray products:

- ▮ enzymes (including stabilizers and preservatives in the enzyme raw material) if they are added as liquids or as encapsulated granulates
- ▮ bleach-catalysts
- ▮ fragrance (see requirement R5)

Enzymes can be used in spray products if a risk assessment is included in the documentation according to AISE's: "Exposure measurements of enzymes for risk assessment of spray products, AISE, 6 October 2010".

http://www.aise.eu/reach/documents/AISE_SprayProducts_October06%272010.pdf.

- Documentation on the full formulation and safety datasheets as specified in requirement R1.

Appendix no. _____

- Completed and signed declaration of compliance from manufacturer and raw material supplier shall be provided. Appendix 2 and 3 are to be used.

Appendix no. _____

- Documentation showing that the risk assessment done for enzymes in spray-products is done according to AISE's guidelines "Exposure measurements of enzymes for risk assessment of spray products, AISE, 6 October 2010".

Appendix no. _____

R5 Fragrances

Yes No

- a) Fragrance substances encompassed by the declaration requirement in the Detergents Regulation 648/2004/EEC and its subsequent amendments must not be present in quantities > 100ppm (>0.010%) per substance.

- b) Fragrance substances can be included even when classified with H317/R43 and/or H334/R42; the amounts have to be < 0,010% (100ppm).
- c) Any ingredients added to the product as a fragrance shall have been manufactured and/or handled following the code of practice of the International Fragrance Association (IFRA). The recommendations of the IFRA Standards concerning prohibition, restricted use and specified purity criteria for materials shall be followed by the manufacturer.

Declaration of the amounts of fragrance in the product. Completed and signed declaration from the manufacturer (appendices 2 and 3). Declaration of the content of the substances encompassed by declaration requirements in the Detergents Regulation 648/2004/EEC and its subsequent amendments (appendix 3) and other relevant fragrance substances classified with H317/R43 and/or H334/R42 (appendix 3).

Appendix no. _____

Completed and signed declaration of compliance with IFRA's guidelines from the manufacturer.

Appendix no. _____

R6 Other excluded substances

Yes No

The following substances must not be included in the product, neither as part of the formulation nor as part of any ingredient included in the formulation:

- 1 APEO (alkylphenoethoxylates)
- 1 APD (alkylphenol derivatives)
- 1 Substances fulfilling the PBT (Persistent, Bioaccumulative and Toxic) and vPvB (very Persistent and very Bioaccumulative) criteria on the candidate list for "substances of very high concern" (according to the criteria in Annex XIII of the REACH Regulation)
- 1 Substances assessed as endocrine disruptors (EDCs) Cat I or Cat II within the EU Strategy on endocrine disruptors (http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf)
- 1 Substances considered as "Substances of very high concern" according to REACH article 59, appendix XIV. (http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp)
- 1 Antimicrobial or disinfecting ingredients added for other purposes than preservation
- 1 EDTA (ethylenediamine tetraacetate), DTPA (dietylenetriaminepentaacetat)
- 1 Nitromusks and polycyclic musks
- 1 Chlorine based bleach
- 1 Optical brighteners

Note the separate national legislation concerning phosphates and phosphorous under R7.

Note the national legislations concerning PFOA in the Nordic countries. In Norway PFOA is regulated in «Forskrift om begrensning i bruk av helse- og miljøfarlige kjemikalier og andre produkter (produktforskriften)», §2- 32.

Completed and signed declaration of compliance from the manufacturer and raw material suppliers. Appendix 2 and 3 are to be used.

Appendix no. _____

R7 Phosphorous

Yes No

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

The total content of phosphorous (P) is limited according to the table below:

Type of product	Content of phosphorus (P)
Heavy-duty laundry detergent (normally soiled)	0.030g/kg wash
Low-duty laundry detergent (lighty soiled)	0.030g/kg wash
Stain-removers (in-wash)	0.010g/kg wash

Stain-removers (pre-treatment)	0.0050g/kg wash
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Note the national legislations concerning phosphorous in the Nordic countries. In Sweden phosphorus is regulated in Regulation 1998:944. In Norway phosphorus is regulated in «Forskrift om begrensning i bruk av helse- og miljøfarlige kjemikalier og andre produkter (produktforskriften)», §2- 12 and § 2-14.

- Documentation of the content of phosphorous in the product and calculations of the product's total content of P.
- Documentation of the fulfillment of national legislation (Sweden and Norway).

Appendix no. _____

Appendix no. _____

Yes No

R8 Colouring agents

Colouring agents may be added to liquid products provided that the colouring agent in question has been approved for use in foodstuffs or is not bioaccumulable. Colouring agents are not regarded as bioaccumulable if $BCF < 500$ or $\log K_{ow} < 4.0$. If information is available on both BCF and $\log K_{ow}$, the information on BCF must be used.

- Documentation of BCF or $\log K_{ow}$, alternatively E-number.

Appendix no. _____

Are the requirements met?

1.3 Dosage, ecotoxicity and biodegradability

The requirements in chapter 1.3 (requirements R9-R12) are based on the recommended dosage for soft water*, i.e. the reference dosage. This is also the reference dosage used for testing the performance according to the Nordic Ecolabelling criteria.

* *Tablets/capsules/pods which have the same dosage (1 unit) regardless of water hardness do all calculations and performance test according to 1 dosage (ie one dose is used to calculate amount of detergent in grams per kg laundry).*

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 considered to be part of the product formulation in requirements R1-R12.

Yes No

R9 Maximum dosage

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

(Dosage = in-wash dosage, excl. content of water in the formulation, ie active content).

The dosage shall not exceed the following amounts:

Product type	Water hardness	Dosage:
Heavy-duty laundry detergent (normally soiled)	Soft	14.0 g/kg wash
Low-duty laundry detergent (lightly soiled)	Soft	14.0 g/kg wash
Stain-removers (in-wash)	All	4.5 g/kg wash
Stain-removers (pre-treatment)	All	2.7 g/kg wash*

* *Estimated average dose to be used in CDV calculations. Actual dosing will depend on*

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 middlehard and hard water

The recommended dosage for middlehard 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, this could imply a maximum dosage span of 150% from soft to hard water (e.g. from 2 to 3 tablets).

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, this could imply a maximum dosage span of 150% from normally soiled textiles to heavily soiled textiles (e.g. from 2 to 3 tablets).

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.

Appendix no. _____

- Product label or artwork including dosage recommendations.

Yes No

R10 Environmentally hazardous substances

The content of substances classified as environmentally hazardous (according to Regulation 1272/2008 and Directive 67/548/EEC, respectively) with the beneath hazard statements/risk phrases must not exceed the following value:

Dosage (g/kg wash)*(100*_{conc}H410 + 10*_{conc}H411 + _{conc}H412) ≤ 0.18 g/kg wash or

Dosage (g/kg wash)*(100*_{conc}R50/53 + 10*_{conc}R51/53 + _{conc}R52/53) ≤ 0.18 g/kg wash

where conc is part of the substance in the product with the designated classification (indicated as a number between 0.00 and 1.00). If no information is available regarding the environmental hazard of a constituent substance, it will be regarded as environmentally hazardous with H410 (R50/53).

(Limit based on recommended dosage for soft water).

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

Protease/Subtilisin classified with Aquatic Chronic 2 (H411) is exempted from the requirement, see requirement R4 concerning how to handle enzymes. Beware that all products need to fulfill requirement R2 regarding classification of the product.

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

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

Appendix no. _____

- Declaration of surfactants that are exempted from the requirement (quantity, classification, degradability).

Appendix no. _____

- Documentation on the formulation and the safety datasheets as specified in requirement R1. Calculation of the content of environmentally hazardous substances according to the above formula.

R11 Critical Dilution Volume (CDV)

Yes No

The critical dilution volume CDV_{chronic} or CDV_{acute} must not exceed the following limits:

Product type	Water hardness	CDV_{chronic}	CDV_{acute}
Heavy-duty laundry detergent (normally soiled)	Soft	45 000 l/kg wash	100 000 l/kg wash
Low-duty laundry detergent (lightly soiled)	Soft	15 000 l/kg wash	55 000 l/kg wash
Stain-removers (in-wash)	Not applicable	7 500 l/kg wash	30 000 l/kg wash
Stain-removers (pre-treatment)	Not applicable	3 500 l/kg wash	30 000 l/kg wash

The CDV is calculated by the below formula:

$$CDV_{\text{(chronic)}} = \sum CDV_s = \sum (\text{dose}_s * DF_s * 1,000 / TF_{\text{(chronic)}s})$$

Or

$$CDV_{\text{(acute)}} = \sum CDV_s = \sum (\text{dose}_s * DF_s * 1,000 / TF_{\text{(acute)}s})$$

where:

dose_s (weight) = the weight of the substance s per recommended dose

DF_s = the degradation factor of the substance s as stated in the DID list

$TF_{\text{(chronic)}s}$ = the chronic toxicity factor of the substance s as stated in the DID list.

$TF_{\text{(acute)}s}$ = the acute toxicity factor of the substance s as stated in the DID list.

The values of the DF and TF parameters shall be as given in the DID list. If the substance is not found on the DID list, the parameters must be calculated using the guidelines contained in part B of the DID list and the associated documentation must be attached. All ingoing substances including preservatives, colouring agents and fragrance present in the product must be included in the CDV calculation even if the concentrations is lower than 100 ppm (0.010%). Note that if chronic toxicity data are not available then acute data and the associated safety factors are used to estimate the chronic toxicity factor for CDV_{chronic} .

Products with multiple areas of usage (such as stain removers that can be used in wash and as pretreatment) have to fulfill CDV limits for all areas of usage.



Calculation of the CDV_{chronic} or CDV_{acute} of the product. The DID list and a spreadsheet for calculation of this requirement is available on the national websites of Nordic Ecolabelling.

Appendix no. _____

R12 Biodegradability - aerobic (aNBO) and anaerobic (anNBO)

Yes No

a) All surfactants must be aerobically and anaerobically biodegradable.

b) The content of organic substances in the product that are aerobically non-biodegradable (not readily biodegradable) (aNBO) and/or anaerobically non-biodegradable (anNBO) must not exceed the following limits (i.e both the limit for aNBO and for anNBO shall be fulfilled):

Product type	Water hardness	aNBO	anNBO
Heavy-duty laundry detergent (normally soiled)	Soft	1.00 g/kg wash	1.00 g/kg wash
Low-duty laundry detergent (lightly soiled)	Soft	0.50 g/kg wash	0.50 g/kg wash
Stain-removers (in-wash)	Not applicable	0.20 g/kg wash	0.20 g/kg wash
Stain-removers (pre-treatment)	Not applicable	0.10 g/kg wash	0.10 g/kg wash

(Limits based on recommended dosage for soft water)

- ☒ Calculation of aNBO and anNBO for the product.
- ☒ Reference to the DID list. For ingoing substances which are not included in the DID list, the relevant information from literature or other sources, or appropriate test results, showing that they are aerobically and anaerobically biodegradable shall be provided (see Appendix 1).
A spreadsheet for calculation of this requirement is available on the national websites of Nordic Ecolabelling.
 - Note that the following exceptions apply:
 - TAED (DID no 128) should be considered anaerobically biodegradable (DID list states "no data").
 - Cumenesulphonates (DID no 139) has data on the DID-list that isn't the same as data published in the HERA-project. Therefore the following data can be used in the applications (instead of the DID-list values): $aNBO = R$ or $DF = 0,05$. Since $BCF = 1,41$ and $\log K_{ow} = -2,7$ cumene sulphonates can, according to appendix 1, be exempted from the calculation of anNBO.

Appendix no. _____

Appendix no. _____

1.4 Quality and traceability of renewable ingredients

Are the requirements met?

R13 Origin and traceability of vegetable raw materials

Yes No

This requirement includes fatty acids, soap and oils consisting of $\geq 75\%$ vegetable based materials* and which are present in the final product in concentrations $> 1.0\%$ (by weight).

* Refers to the part of the substance/molecule originating from vegetable based raw materials.

The following should be fulfilled:

- 1) The name and geographical origin of the type of plant species used to extract the vegetable raw materials must be specified.
- 2) The detergent manufacturer must furthermore have a written routine for purchasing of vegetable raw materials to ensure that it does not come from environments with a large need for protection for biological and/or social reasons and must have a written policy documenting this. The vegetable raw materials must not come from
 - Protected areas or areas that are under evaluation for protection
 - Areas with uncertain ownership or userrights
 - Illegally harvested vegetable raw materials
 - Genetically modified vegetable raw materials/plants (enzymes and other GMO used in closed systems are not included)

Certificates ensuring sustainable production (e.g. RSPO, organic farming) and legal harvest (e.g. established traceability system) may be included in the written routines to strengthen the documentation to the Nordic Ecolabelling.

Impurities of up to 0,9% GMO vegetable raw materials are allowed, if it is either unintentional or unavoidable, as in EU regulation No 1829/2003 about labelling of genetic modified foods or feedstock.

- ☒ Data from supplier of vegetable raw materials indicating the name (in Latin and English/Nordic language) and the geographical origin (country/state and region/province/municipality) of the plant species used to manufacture the ingoing vegetable based raw materials. Appendix 4 is to be used.

Appendix no. _____

- ☒ A written routine from the manufacturer of the laundry detergent or stain remover describing how the requirement is fulfilled. The routine shall describe how the origin of the raw materials is ensured.

Appendix no. _____

In the event of uncertainty about vegetable based raw materials deriving from environments with a high need for protection for biological and/or social reasons, Nordic Ecolabelling may require further documentation.

1.5 Packaging

Are the requirements met?

R14 Weight/utility ratio (WUR)

Yes No

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

Product type	WUR
Powders	1.2 g/kg wash
Others (liquids, tablets, gels, etc)	1.5 g/kg wash

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.

- Calculation of the WUR of the product. Account for the content of recycled material in the packaging. For approval of refill packaging, the applicant and/or retailer must document that the refills will be available for purchase by the consumer.

Appendix no. _____

A spreadsheet for calculation of this requirement is available on the national websites of Nordic Ecolabelling.

R15 Plastic packaging

Yes No

- Halogenated plastic must not form part of the packaging including the label.
- Primary packaging consisting of plastic must be labeled according to Commission Decision 97/129/EC of 28 January 1997 or ISO 11469:2000 Plastics - Generic identification and marking of plastics products or similar.

Caps, stoppers, hand pumps/spraying devices are, however, exempted from the labelling requirement.

- Completed and signed declaration of compliance from the supplier of plastic packaging. Appendix 5 is to be used.

Appendix no. _____

1.6 Consumer guidance

Are the requirements met?

R16 Dosage instructions

Yes No

Water hardness for the recommended dosage must be stated in German degrees of hardness (°dH). Water hardness must be expressed in ranges that are relevant to the geographic areas in which the product is on sale.

See also requirement R9 regarding dosage limits for different degrees of soiling.

- Product label or artwork including dosage recommendations. If the product is going to be sold in more than one Nordic country the labels or artwork with dosage recommendation shall be submitted in all relevant languages.

Appendix no. _____

R17 Mandatory consumer guidance on packagingYes No

The Nordic Swan Ecolabel with correct license number shall be present on the packaging.

The label/packaging must clearly indicate the temperature at which the product has been performance tested, e.g. "Efficient at 40 °C" (In R19 it is stated which test temperatures should be used for the different product types).

The following 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 soil and water hardness. Overdosing does not make the laundry cleaner and is harmful for the environment
- Reduce the temperature of your normal wash programmes to safeguard the environment
- If you are allergic to house dust, always wash bedding at 60 °C or above
- Run a 60 °C wash now and again with a bleach containing detergent (white wash powder detergent) and follow the machine manufacturer's recommendations regarding maintenance
- Leave the machine open between washes

In cases where the whole text on the label must to appear in two or more languages, e.g. due to official language minority considerations in the country, and the size of the packaging is too small to include all the washing advices above on the (for the size of the product) ordinary label, the applicant can be excepted from writing the last three washing advices on the label. In these cases the applicant has to ensure that the information regarding the last three washing advices will be available for the consumers otherwise (e.g. via advertising material or homepage).

- Product label or artwork including dosage recommendations, ecolabel with licence number, temperature claim and washing advices.

Appendix no. _____

R18 Claims on the packagingYes No

Products marketed as cold water products* should pass the performance test in R19 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.*

A stain remover must always pass the performance requirements (R19) for any specific stain type for which the product claims to be effective. Documentation for other performance related claims shall be made available to Nordic Ecolabelling on request.

If claims are made regarding the content of certified raw materials (e.g. organically grown ingredients), the total content in weight percent of these ingredients must be clearly stated on the pack (e.g. "contains x% organic ingredients"). The certification body, system or standard must be indicated.

Documentation for certified ingredients must be provided according to R11.

- Product claims shall be documented through appropriate test reports or other relevant documentation. Certificates for certified ingredients must be provided if a content of such is claimed on the package.

Appendix no. _____

1.7 Performance

Are the requirements met?

R19 Fitness for use

Yes No

The fitness for use shall be documented by use of the Nordic Ecolabelling Performance Test for laundry detergents and stain removers (Appendix 6). 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.

For detergents for white wash and for stain removers the performance of the products 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 always need to 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 has to be determined at this temperature. For cold water products (see the definition R18), the temperature should maximum be 20 °C. The reference is still to be washed at 40 °C for all product types except for detergents for delicates, where the reference is to be washed at 30 °C.

The performance test is performed with

The reference dosage multiplied with 3.5 for washes in 3-5kg washing machines or

The reference dosage multiplied by 4.5 for washes in 4-5kg washing machines.

The reference dosage = the recommended dosage to 1 kg laundry (see section 1 Environmental requirements).

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

Heavy-duty laundry detergents:

The table below summarises 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. ΔY for one of the tested stain type 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 of the performance for all stain types for which the product is claimed to have an effect. If no particular stains are emphasised 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 normalised 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 fulfill one of the following two requirements:

- Visual evaluation: the rulting 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 Nordic Ecolabel Performance Test (Appendix 6).

Appendix no. _____

Exceptions to the above requirements:

Nordic Ecolabelling may possibly grant exemptions from the requirements for re-testing of efficiency if minor changes are made to the composition of the product during the period of validity of the license which will not impact the overall performance.

Reasoning for the exemption must be submitted by the applicant and approved by Nordic Ecolabelling in accordance with Appendix 7. See also Appendix 1 concerning the requirements applicable to test institutions.

Nordic Ecolabelling will consider in the individual case whether the documentation provided in accordance with Appendix 7 is sufficient for an exemption to be granted.



Reasoning and documentation as provided for in Appendix 7.

Appendix no. _____

2 Quality and regulatory requirements

Are the requirements met?

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

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

R20 Legislation and regulations

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

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

Yes No

R21 License administrators

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

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

Yes No

Appendix no. _____

R22 Documentation

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

- Checked on site.

Yes No

R23 Quality of the product

The licensee must guarantee that the quality of the production of the ecolabelled product is maintained throughout the validity period of the license.

- Procedures for collating and, where necessary, dealing with claims and complaints regarding the quality of the ecolabelled product.

Yes No

Appendix no. _____

R24 Planned changes

Written notice must be given to Nordic Ecolabelling of planned changes that have a bearing on the Nordic Ecolabelling requirements.

- Procedures detailing how planned changes are handled.

Yes No

Appendix no. _____

R25 Unplanned nonconformities

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

- Procedures detailing how unplanned nonconformities are handled.

Yes No

Appendix no. _____

R26 Traceability

The licensee must have a traceability system for the production of the ecolabelled products.

Yes No

☒ Description of/procedures for the fulfillment of the requirement.

Appendix no. _____

R27 Take-back system

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

R28 Marketing

The requirement is removed as decided by the Board of Directors 17 November 2014.

Follow-up inspections

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

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

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

Regulations for the Nordic Ecolabelling of products

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

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

Criteria version history

Nordic Ecolabelling adopted version 7.0 of the criteria for laundry detergents and stain removers on 15 December 2011. The criteria are valid until 31 December 2014.

The Secretariat Manager's Meeting adopted a few minor changes in the document on 16 February 2012. The new version is called 7.1 and is valid until 31 December 2015.

At the Secretariat Manager's Meeting 12 September 2012 following changes were agreed:

- Sale in other Nordic countries: The text in this paragraph in the Danish criteria document is changed from Norwegian to Danish to ensure that the whole criteria document is written in the same language.
- R2 Product classification: When translating the old EU classification to CLP R65 will be translated into H304. H304 has been inserted in the text of the requirement in version 7.2.
- R4 Sensitizing substances: The text of the requirement has been altered to emphasize that preservatives and stabilizers classified as sensitizing may form part of the enzyme raw material, if the enzyme raw material is added as liquids or as encapsulated granulates.
- R9 Maximum dosage: The text under the tabel has been altered to facilitate the understanding and to ensure conformity with paragraph 1 environmental requirements in the criteria document.
- R10 Environmentally hazardous substances: The wording has been altered to facilitate the understanding of the calculation.
- R17 Mandatory consumer guidance on the packaging: An exception to the requirement has been added to consider the lack of space on small labels where more languages is required – in these cases three of the six mandatory washing advices may be omitted. Furthermore, minor alterations have been made in the text of the requirement to facilitate the understanding.
- R18 Claims stated on the packaging: The text of the requirement has been altered to facilitate the understanding.
- Appendix 6A Test description for detergents: In paragraph 1 the wording regarding cold water products for whitewash has been changed to ensure the understanding that cold water is considered as $< 30\text{ }^{\circ}\text{C}$ regardless of whitewash or coloursafe detergent.
- Appendix 3: A new sentence has been added to clarify that the applicant always have to tick off a box if the raw material contains some of the substances mentioned in the declaration irrespective of the appearance in the raw material as pollutants or not.

In addition minor alterations have been made in R9 Maximum dosage and R19 Fitness for use. In R9 the requirement for the recommended dosage for prewash and the subsequent wash has been clarified. In R9 it has been clarified that the performance test for detergents for delicates has to be performed on lightly soiled clothing (not normally soiled clothing). Furthermore, the text of the requirement has been altered to facilitate the understanding. The new version is called 7.2.

On 12 December 2012 the Nordic Ecolabelling Board adopted a change in R10. In addition minor alterations have been made, especially in Appendix 6 Nordic Ecolabelling Performance Test. The new version is called 7.3.

On June 19 2013 the Nordic Ecolabelling Board adopted a change in R19, the change is a change of the requirement to $\Delta Y \leq 10$ and $\Delta M \leq 10$. The new version is called 7.4.

On 11 December 2013 the Nordic Ecolabelling Board decided to prolong the criteria with two years. The new version is called 7.5 and is valid until 31 December 2017.

At the Secretariat Manager's Meeting 19 February 2014 it was decided to make several adjustments and clarifications in the criteria document. This was mainly done in R1, R9, R11, R18, R19 and in the appendices 1 (part 1B), 6A and 7. The background document was updated at the same time. The new criteria version is called 7.6.

The Board of Directors decided on 22 October 2014 to make an exemption for the enzyme protease in the requirement R10. On 17 November 2014 the Board of Directors decided to remove requirement R28 Marketing. The new criteria version is called 7.7.

The Board of Directors decided on 29 June 2016 to prolong the criteria with two years. The new version is called 7.8 and is valid until 30 June 2018.

Nordic Ecolabelling's Criteria Group decided on 7 February 2017 to prolong the criteria with 21 months to the 31 March 2020. The new version is called 7.9.

On the 9 October 2017 Nordic Ecolabelling's Criteria Group decided to remove R27 Take-back system. On the 10 October 2018 the Nordic Ecolabelling's Criteria Group decided to prolong the criteria with 7 months to the 31 October 2020. The new version is called 7.10.

New criteria

Future ecolabel criteria for laundry detergents and stain removers should give attention to the following topics:

- Possibility of requiring lower temperature for whites and stain removers (30 °C).
- Evaluation of the performance test to remove the exemption for liquid products for whites to be compared to a reference without bleach. The requirements for CDV in connection with the requirements at lower temperature (30 °C) for whites and stain removers should be evaluated.
- Evaluation of the requirements set for the test laboratories.
- Possibility of harmonisation with the revised EU Ecolabel performance test for laundry detergents (adopted by the EU Ecolabel April 28, 2011).
- Evaluation of the requirements for stain removers and the number of stains to be included in the performance test.
- Possibility of imposing requirements promoting the use of renewable, sustainable raw materials in detergents.

Abbreviations and definitions

aNBO	Aerobically non biodegradable substances
anNBO	Anaerobically non biodegradable substances
CDV	Critical Dilution Volume (l/kg wash)
CMR	Substances classified as either carcinogenic, mutagenic or toxic to reproduction
Cold water product	A cold water product is in the context of the ecolabel defined as products that have a documented washing performance at ≤ 20 °C
DF	Degradation Factor (used in CDV calculation)
dH	German degrees of hardness. 1°dH equivalent to 7,1 mg/l calcium and 4,3 mg/l magnesium.
DID list	Detergents Ingredients Database list
EC50	Half maximal effective concentration (effective concentration, 50%)
Functional unit	The quantity of detergent (in grams) used per kg textile during one wash/treatment
Heavy-duty detergent	Detergents used for regular washing of white and coloured textiles
IFRA	International Fragrance Association
LC50	Median Lethal Concentration (lethal concentration 50%)
Low-duty detergent	Detergents promoting special fabric care: e.g. use for delicate fabrics such as viscose, wool, silk, microfiber or other fabric requiring special care
SDS	Safety Data Sheet
NOEC	No Observed Effect Concentration
PBT/vPvB	Persistent, Bioaccumulative, Toxic/very Persistent and very Bioaccumulative
PPM	Parts per million. Measuring unit (100 ppm = 0.010%)
RSPO	Round Table of Sustainable Palm Oil
TF	Toxicity Factor (used in CDV calculation)
Water hardness	Water hardness expressed in german degrees of hardness (dH) for soft, middlehard and hard water in ranges relevant for the geographical area
WUR	Weight-Utility ratio

Appendix 1 Analysis and test laboratories

The laboratory performing sampling/analysis must be impartial and competent. Raw data must be available for checking by the ecolabelling organisation during the period of validity of the license. The applicant is responsible for the cost of documentation and analysis.

1A) Testing individual substances

Requirements on the analysis laboratory

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

The applicant's analysis laboratory/test procedure may be approved for analysis and testing if:

- 1 The manufacturer can demonstrate agreement between a first-time test conducted at the manufacturer's own laboratory and testing carried out in parallel at an independent test institute, and the manufacturer takes samples in accordance with a fixed sampling schedule.

Biodegradability, aerobic

Aerobic biodegradability is tested using OECD Guideline for testing of chemicals No. 301 (A to F), 310 or other equivalent test methods.

Biodegradability, anaerobic

Anaerobic degradability is tested using ISO 11734, ECOTOC No. 28 (June 1988), OECD Guideline for testing of chemicals No. 311 or equivalent test methods. The requirement is a minimum of 60% degradability under anaerobic conditions.

In the case of substances that are not surfactants and that are not toxic to aquatic organisms ($LC_{50}/EC_{50}/IC_{50} > 10$ mg/l), the following exceptions for testing anaerobic degradability may be applied:

- The substance is readily degradable and not bioaccumulable (see section on bioaccumulation below), or
- The substance is readily degradable and has low adsorption ($A < 25\%$) or high desorption ($D > 75\%$).

Adsorption/desorption is tested using OECD Guideline for testing of chemicals No. 106 or ISO CD 18749 "Water Quality – Adsorption of substances on activated sludge".

Aquatic toxicity (Acute/Chronic)

Acute aquatic toxicity is tested using OECD guideline for testing of chemicals No. 201, 202 and 203 or other equivalent test methods.

Chronic toxicity is tested using OECD guideline for testing of chemicals No. 210, 211, 215, 229 or other equivalent methods.

Bioaccumulability

Unless evidence to the contrary is presented, the substance will be considered to be bioaccumulable if $\log K_{ow} = 4.0$ in accordance with OECD guideline for testing of chemicals 107 or 117 or the equivalent. The bioaccumulability of a substance of this nature may be tested on fish in accordance with OECD guideline for testing of chemicals No. 305 A-E. If the bioconcentration factor (BCF) of the substance is ≥ 500 , the substance will be viewed as bioaccumulable, and if $BCF < 500$ the substance will be viewed as non-bioaccumulable. Where a BCF value is available, the highest measured BCF value should be used instead of $\log K_{ow}$. This means that a substance with a $\log K_{ow} \geq 4.0$ is not considered as bioaccumulative if the highest BCF is < 500 .

OECD test method 107 is not suitable for use on surface active substances with both oil and water soluble properties. Given the current state of knowledge, evidence providing a high degree of certainty must be presented to show that such substances and their degradation products do not represent a long-term hazard to organisms in aquatic environments.

The DID list

The DID is a joint list for the EU Ecolabelling scheme and Nordic Ecolabelling. The list was developed in co-operation with interested parties both from consumer and environmental organisations and the industry, and contains information on the toxicity and degradability of a number of substances that could be used in chemical products. The substances contained in the DID list do not express the substances found in ecolabelled products.

The DID list cannot be used for documenting the toxicity of individual substances for the purposes of the classification rules. Information must be taken from product safety data sheets, from the literature or obtained from raw material manufacturers for this purpose.

If a substance is found on the DIDlist the data on the DIDlist must be used.

The DID list is available from the ecolabelling organisation or via the websites of the individual countries, see page 2.

For these criteria the DID list adopted at January 2007 or later versions will apply.

1B) Performance testing of laundry detergents and stain removers

Requirements for laboratories used for performance testing

The test laboratory must fulfil the general requirements contained in the EN /ISO/IEC 17025 standard or ISO9001 or have GLP status.

Provided that the following requirements have been met, the manufacturer's test laboratory may be approved to perform tests used as documentation of performance:

- The ecolabelling organisation must have access to monitor the performance of the test.
- The ecolabelling organisation must have access to all data on the product and all test results (raw data).
- The tests must be anonymised for the test laboratory.
- The performance of the performance tests must be described in the quality control system.

Appendix 2 Declaration for manufacturers of laundry detergents and stain removers

This declaration is based on the best of our knowledge concerning the product, based on tests and/or declarations from rawmaterial suppliers, at the time of application.

Product name(s): _____

Product type: _____

Constituent substances are defined, unless otherwise stated, as all substances in the final product, including additives in the ingredients (e.g. preservatives or stabilizers), exempted are pollutants from the production of raw materials. Pollutants are defined as traces from raw material production, present in concentrations under 100 ppm (0.0100% by weight, 100 mg/kg) in the final product, but not substances that are deliberately added to a raw material for a purpose, irrespective of quantity. Pollutants present in concentrations > 1% in the raw material should be counted as an constituent substance. Even known substances released from ingredients are considered as constituent ingredients.

- R3:** Does the product contain substances that are classified as carcinogenic (Carc), mutagenic (Muta), toxic to reproduction (Repr.) or harmful for breastfed children (Lact.)? Yes No
- R4:** Does the product contain substances that are classified as sensitising (H334/R42 and/or H317/R43) (incl. stabilisers and other auxiliary compounds in these preparations)? Yes No
- R4:** Are enzymes added either as liquids or as non-dusting granules? Yes No
- R5:** Are fragrances added to the product? Yes No
- If yes: has the fragrance been added in accordance with the IFRA Guidelines? Yes No
- R6:** Does the product contain:
- APEO (alkylphenolethoxylates)? Yes No
 - APD (Alkylphenol derivatives)? Yes No
 - Substances fulfilling the PBT and vPvB criteria on the candidate list for "substances of very high concern" (Annex XIII of the REACH Regulation)? Yes No
 - Substances assessed as endocrine disrupters (EDC's) Cat I or Cat II within the EU Strategy on endocrine disrupters? Yes No
 - Substances considered as "Substances of very high concern", according to REACH article 59, appendix XIV Yes No
 - Antimicrobial or disinfecting ingredients added for other purposes than preservation Yes No
 - EDTA (ethylenediamine tetraacetate), DTPA (dietylenetriaminepentaacetat) Yes No
 - Nitromusks and polycyclic musks Yes No
 - Chlorine based bleach Yes No
 - Optical brighteners Yes No

- R7:** Does the product contain phosphorous? Yes No
- R8:** Does the product contain colouring agents? Yes No
 If yes, state log Kow, BCF or E-number: _____
- R10:** Does the product contain substances with the following hazard statements/risk phrases?
- H410 / R50/53 Yes No
- H411 / R51/53 Yes No
- H412 / R52/53 Yes No
- R27:** Are relevant national regulations, legislation and/or agreements within the sector regarding the recycling systems for products and packaging fulfilled in the Nordic countries in which the ecolabelled products are marketed?
- Finland (e.g. PYR) Yes No
- Sweden (REPA) Yes No
- Norway (Grønne Punkt) Yes No

If the "yes box" is ticked of for any of the above questions, please indicate name, CAS no., concentration and reason for presence of the substance(s) in question:

In the event of changes to the composition of the product a new declaration of compliance must be submitted to Nordic Ecolabelling.

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

Appendix 3 Declaration for suppliers of raw materials

This declaration is based on the best of our knowledge at the time of application.

Name of raw material(s): _____

Constituent substances are defined, unless otherwise stated, as all substances in the final product, including additives in the ingredients (e.g. preservatives or stabilizers), exempted are pollutants from the production of raw materials. Pollutants are defined as traces from raw material production, present in concentrations under 100 ppm (0.0100% by weight, 100 mg/kg) in the final product, but not substances that are deliberately added to a raw material for a purpose, irrespective of quantity. Pollutants present in concentrations > 1% in the raw material should be counted as a constituent substance. Even known substances released from ingredients are considered as constituent ingredients.

In this declaration it has to be indicated if any of the below mentioned substances appear in the raw material irrespective of it is as pollutants or not. This should be explained thoroughly at the end of this declaration.

R3: Does the raw material contain substances that are classified as carcinogenic (Carc), mutagenic (Muta), toxic to reproduction (Repr.) or harmful for breastfed children (Lact.)? Yes No

R4: Does the raw material contain substances that are classified as sensitising (H334/R42 and/or H317/R43) (incl. stabilisers and other auxiliary compounds in these preparations)? Yes No

R5: Does the raw material contain perfume? Yes No

a-b) If yes, does the perfume contain perfume substances classified as H317/R43 and/or H334/R42 and/or perfume substances encompassed by declaration requirements in the Detergents Regulation 648/2004/EEC and its subsequent amendments? Yes No

If yes, indicate which perfume substances and what concentrations below this table.

c) Is the perfume handled according to IFRA's guidelines? Yes No

R6: Does the raw material contain:

APEO (alkylphenolethoxylates)? Yes No

APD (Alkylphenol derivatives)? Yes No

Substances fulfilling the PBT and vPvB criteria on the candidate list for "substances of very high concern" (Annex XIII of the REACH Regulation)? Yes No

Substances assessed as endocrine disruptors (EDC's) Cat I or Cat II within the EU Strategy on endocrine disruptors? Yes No

Substances considered as "Substances of very high concern", according to REACH article 59, appendix XIV Yes No

Antimicrobial or disinfecting ingredients added for other purposes than preservation Yes No

EDTA (ethylenediamine tetraacetate), DTPA (dietylenetriaminepentaacetat) Yes No

Nitromusks and polycyclic musks Yes No

Chlorine based bleach Yes No

Optical brighteners Yes No

R7: Does the raw material contain phosphorous? Yes No

R8: Does the raw material contain colouring agents? Yes No

If yes, state log Kow, BCF or E-number: _____

R10: Does the raw material contain substances with the following hazard statements/risk phrases?

H410 / R50/53

Yes No

H411 / R51/53

Yes No

H412 / R52/53

Yes No

If the "yes box" is ticked of for any of the above questions, please indicate name, CAS no., concentration and reason for presence of the substance(s) in question (eg unpurities from production):

In the event of changes to the composition of the raw material a new declaration of compliance must be submitted to Nordic Ecolabelling.

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

Appendix 4 Declaration for suppliers of vegetable based ingredients (R13)

The documentation shall be supplied for fatty acids, soaps and oils consisting of $\geq 75\%$ vegetable based materials* and which are present in the final product in concentrations $> 1.0\%$ (by weight).

* Refers to the part of the substance/molecule originating from vegetable based raw materials.

Trade name of ingredient	Percentage vegetable raw material in the ingredient (%)	Name of plant species (Latin and English/Nordic language)	Geographical origin of vegetable raw material (country/state/region / province/municipality)

It is hereby declared that the vegetable raw materials listed above do not come from:

- Protected areas or areas that are under evaluation for protection
- Areas with uncertain ownership or user rights
- Illegally harvested vegetable raw materials
- Genetically modified vegetable raw materials/plants (enzymes and other GMO used in closed systems are not included)

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

Appendix 5 Declaration for suppliers of plastic packaging

Specification/name of packaging material: _____

Plastic type: _____

R15: Does the packaging or label contain halogenated plastic?

Yes No

Is the plastic packaging labelled according to Commission Decision 97/129/EC of 28 January 1997 or ISO 11469:2000?

Yes No

(This criterion does not apply to caps, stoppers, handpumps/spraying devices)

In the event of changes of the plastic packaging a new declaration of compliance must be submitted to Nordic Ecolabelling

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

Appendix 6 Nordic Ecolabelling Performance Test (fitness for use)

6A) Heavy-Duty detergents

6B) Low-duty detergents

6C) Stainremovers with subsequent wash

6D) Stain removers without subsequent wash

6A) 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.

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

EMPA Testmaterials AG

Mövenstrasse 12	Tel: +41 (0)71 311 80 55
CH-9015 St. Gallen, Schweiz	Fax: +41 (0)71 311 80 57
http://www.empa-testmaterials.ch	E-mail: info@empa-testmaterials.ch

WfK Testgewebe GmbH

Christenfeld 10	Tel: +49 (0)2151 77 00 72
D-41379 Brueggen, Tyskland	Fax: +49 (0)2151 77 00 75
http://www.testgewebe.de	E-mail: info@testgewebe.de

Center for Testmaterials (CFT) B.V.

Stoomlogerweg 11	Tel: +31 104 603 955
Vlaardingen, Zuid Holland	Fax: +31 104 340 236
3133 KT, Holland	

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 products may be ecolabelled?". The method is not designed for use on special laundry detergents for delicate textiles such as wool and silk, see Appendix 6B.

The cleaning effect for coloursafe 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, water 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 fulfils these requirements. Later models of Wascator may be used instead. There is no need for a test with water if a Wascator FOM 71 MP is used.

Alternatively a Miele Novotronic W375 may be used (technical specifications: Programmable electronic washing machine with connection to drainage outlet and set at medium performance) or other models of Miele e.g. W3375 (has replaced W3365) or older models such as WM918, WM986, W5000-series or W3365.

* Programmable electronic Miele household washing machines with a rated capacity of 5 – 6 kg which fulfil the following requirements:

	Cotton wash program (at 40 °C, 30°C, 20°C ¹ , 15°C ¹)	Delicate program ² (at 30°C, 20°C ¹ , 15°C ¹)
Duration Main Wash	50 – 70 min	30 – 40 min
Total Program Duration	100 – 120 min	55 – 65 min
Water Quantity Main Wash	15 ± 2 l	20 ± 2 l
Total Water Quantity	55 ± 5 l	64 ± 5 l
Number of Rinse Cycles	3	3
Final spin speed	1200 rpm	600 rpm

¹ For cold water products

² Some newer Miele washing machines offer an equivalent synthetic program

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.

2.2 Wash programmes

Cleaning program	Wash programme for cotton at 60 °C. Wash with reference detergent without bleach: 19 g IEC-A*/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.

3 Water quality

Water with a hardness of 5.5°dH ± 0.5 equivalent to 1.0 mmol CaCO₃/l must be used. The temperature should be 15°C ± 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, 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 or three ballasts: one for the reference detergent, one for the test detergent and - if a Wascator is not used - one for water.

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 amount 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, 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 have to be standardized – of the types sold by WfK, 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
<u>Thread count</u>	
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

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.10J, empa 167 or CFT BS-01)

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 CS-33)
- Sebum/pigment on standard polyester/cotton (e.g. wfk 20D or empa 119)
- 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.

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 gram of soils have to 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

Reference detergent, IEC-A*, consists according to the standard EN 60456:2005 appendix F of the following:

Linear sodium alkyl benzene sulphonate	8.8%
Ethoxylated fatty alcohol C12-18 (7 EO)	4.7%
Sodium soap	3.2%
Anti foam DC2-4248S	3.9%
Sodium aluminium silicate zeolote 4A	28.3%
Sodium carbonates	11.6%
Sodium salt of a copolymer from acrylic and maleic acid (Sokalan CP5)	2.4%
Sodium silicate	3.0%
Carboxymethylcellulose	1.2%
Phosphonate, Dequest 2066	2.8%
Optical brightener	0.2%
Sodium sulphate	6.5%
Enzyme, protease	0.4%
Total Base Powder	77%
Perborate	20.0%
TAED	3.0%

The reference detergent, IEC-A*, is delivered in three separate parts consisting of the basic powder, perborate and TAED. If the function relates to the laundry detergent consisting of bleaching agents, the reference detergent's basic powder has to be added perborate and TAED in the described proportion (quantity is described in the passage below).

Laundry detergents, not containing bleaching agents have to be tested against the reference detergent's basic powder without containing perborate and TAED, see section below. This applies to liquid detergents that are marketed as products for white wash (white, ultra or equivalent) that do not contain bleaching agents. Such products shall be tested against the reference detergent's basic powder without containing perborate and TAED – but test strips for measurement of bleach effect shall be included in the test.

Dosage for the reference detergent

Reference washing machine (4.5 kg load)

Reference detergent with bleaching agent (basic powder added perborate and TAED) consisting of: 86.7 g IEC-A* (basic powder), 22.5 g perborate and 3.3 g TAED

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

Domestic machine (3.5 kg load)

Reference detergent with bleaching agent (basic powder added perborate and TAED) consisting of: 67.5 g IEC-A* (basic powder), 17.5 g perborate and 2.6 g TAED.

Reference detergent without bleaching agent: 66.5 g IEC-A* (basic 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:

$$(\text{Recommended dosage at 4.5 kg}) = (\text{Recommended dosage at 3.5 kg}) * 4.5/3.5$$

(dosage adjusted to machine size as with the reference detergent)

** Dosage for 3-5kg machines is calculated as the reference dosage, which is the dosage to 1kg laundry (see section 1 Environmental requirements), 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.

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, test detergents and if applicable water 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, 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 tumbledried 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. Since this test is an example conducted on a Wascator, there are no results for clean water. If the performance test is performed on a Miele Novotronics the results can be presented in a similar way with the addition of the results for water. The result for water is not used to determine the efficiency of the test detergent.

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 (Y_i)		72.1	70.9	72.8	43.7	72.2	71.1	47.4
Mean value (M_{type})		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 (Y_i)		65.5	65.7	76.2	45.1	70.1	64.1	50.1
Mean value (M_{type})		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
$\Delta M_{type} = M_{type,r} - M_{type,t}$		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 R17 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 6B 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 in the range of 5.0°dH to 15.1°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.

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 a Miele Novotronic W375 may be used (for technical specifications: see annex C) or other models of Miele e.g. WM918, WM986, W5000-series, W3365, W986 or W918.

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°dH - 15.1°dH (1.0-2.5 mmol CaCO₃/l) must be used. The temperature should be 15 °C ± 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, Section 6.1.3.

The test strips must be compiled by the following (available e.g. from WfK):

- Sebum/pigment on standard acrylic (for products for generally delicate textiles)
- Sebum/pigment on standard wool (for products for wool and generally delicate textiles)
- Sebum/pigment on standard silk (for products for silk and generally delicate textiles)
- Olive oil/pigment on standard wool (for products for wool and generally delicate textiles)

A complete "soil load" for the test strips stitched on a polyester strip in accordance with EN 60456 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.

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, 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, Section 12 in relation to water at a temperature of 30 °C and water hardness in the range of 5.0-15.1°dH. The effect of the test detergent must not exceed $\pm 2\%$ compared with water. Colour fastness must (wool excepted) also be measured. Measurements must take place after the first and fifth washes.

Colour fastness (wool excepted):

Four readymade garments are used to determine colour fastness (e.g. sweat-shirt, T shirt, children's trousers and underwear, or other fabrics, with a colour fastness at 40 °C of 4 in accordance with ISO105 C06 with a scale of 1-5). These 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, Section 8.2 and 8.3.4). The coloured pieces of clothes, which have to 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 3.

Secondary effects

Changes in dimension are measured in accordance with EN 60456, 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 -5.0 . ΔY for one of the tested stain types can be 0,0.

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

Colour fastness (except wool) 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 R17 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 6C 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 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 is based on a test used for heavy-duty laundry detergents described in Appendix 6A. 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 A.1. Wascator FOM 71 MP fulfils these requirements. Later versions of Wascator may be used instead.

Alternatively a Miele Novotronic W375 may be used (technical specifications: Programmable electronic washing machine with connection to drainage outlet and set at medium performance), or other models of Miele e.g. WM918 or WM986, W5000-series, W3365, W986 or W918.

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 has to be used for the same test.

2.2 Wash programmes

Cleaning program	Wash programme for cotton at 60 °C. Wash with reference detergent without bleach: 19 g IEC-A*/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 $1.0 \text{ mmol CaCO}_3/\text{l}$ 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 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 2 sheets, 3 pillowcases and sufficient 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, 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 have to be standardized – of the types sold by WfK, 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) $170 \pm 10 \text{ g/m}^2$

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 $29.5 \pm 1 \text{ Tex}$

Each of the soil strips measures $100 \times 100 \text{ mm} \pm 5 \text{ mm}$ 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.

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 type's 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 gram of soils have to 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, IEC-A*, consists of the following standard EN 60456:2005 appendix F:

Linear sodium alkyl benzene sulphonate	8.8%
Ethoxylated fatty alcohol C12-18 (7 EO)	4.7%
Sodium soap	3.2%
Anti foam DC2-4248S	3.9%
Sodium aluminium silicate zeolote 4A	28.3%
Sodium carbonates	11.6%
Sodium salt of a copolymer from acrylic and maleic acid (Sokalan CP5)	2.4%
Sodium silicate	3.0%
Carboxymethylcellulose	1.2%
Phosphonate, Dequest 2066	2.8%
Optical brightener	0.2%
Sodium sulphate	6.5%
Enzyme, protease	0.4%
Total Base Powder	77%
Perborate	20%
TAED	3.0%

The reference detergent, IEC-A*, is delivered in three separate parts consisting of the basic powder, perborate and TAED. If the function relates to a detergent containing a bleaching agent, the reference detergent's basic powder must be added perborate and TAED in the described quantity (quantity is given in the paragraph below). Detergents not containing bleaching agents are tested against the reference detergent basic powder without the addition of perborate and TAED, see paragraph below.

Dosage for the reference detergent

Reference washing machine (4.5 kg load)

Reference detergent with bleaching agent (basic powder added perborate and TAED) consisting of: 86.7 g IEC-A* (basic powder), 22.5 g perborate and 3.3 g TAED.

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

Domestic machine (3.5 kg load)

Reference detergent with bleaching agent (basic powder added perborate and TAED) consisting of: 67.5 g IEC-A* (basic powder), 17.5 g perborate and 2.6 g TAED.

Reference detergent without bleaching agent: 66.5 g IEC-A* (basic 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 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 a stain removers 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 and test detergents are tested in the following order: First the test product and then the reference product (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 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 the control strip from becoming shiny or miscoloured. 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 normalised 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_i)		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 41.9	60.1
	4	45.9	64.7	62.0	67.9	42.7	58.3
	5	46.1	62.9	61.8	69.4		58.9
Mean value (Y_i)		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 normalised cleaning effect must be greater than 110% for each soil type compared to the reference detergent.

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 R17 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 6D 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.

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 standardised 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.

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).

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.

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.

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 _i)		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 _i)		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 _i)		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 _i)		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 removers will be considered to be 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.

5.2 Limit values for mechanical evaluation

The performance of the stain removers will be considered to be 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.

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 R17 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 7 Preconditions for exemptions from re-testing the performance requirements in accordance with Appendix 6

- 1) In the event of changes to the composition of the product during the period of validity of the licence or in connection with new applications or the extension of a licence for a formulation which is identical or virtually identical to a product for which the applicant already holds a licence:

The applicant must provide thorough details of

- a) differences in the formulations
 - b) why the performance of the new products is considered to be equal to the comparative product
 - c) why an exemption from a complete test is justified
- 2) If a test is to be performed, the applicant may choose between testing against a standard reference product (see Appendix 6A-6C) or against the comparative product (the originally licensed product):
 - a) If testing is against a standard reference product, the new formulation must meet the requirements specified in the relevant appendix (Appendix 6)
 - b) If the test is against the original product, the test must show that the new formula is at least as good as the original formula, in other words ΔY must be equal to or less than 0 for all soil types. ΔY is defined as: $\Delta Y = Y_o - Y_n$, where Y_o is Y of the original product, and Y_n is Y of the new formulation of the product
 - 3) If the coloursafe detergent has been tested according to the performance requirements specified in criteria version 5.1 or later (product tested at 40 °C against the reference product tested at 40 °C) and have the same formulation/recipe as in the performance test for version 5.1, the applicant may perform a comparative in-house testing (even if the laboratory does not fulfill the requirement for test laboratories in appendix 1B) of the product at 30 °C and 40 °C against the reference detergent tested at 40 °C in order to document that the performance is met at 30 °C. This test must be conducted according to the performance test protocol as described in Appendix 6.

Appendix 8 Marketing of Nordic Ecolabelled laundry detergents and stain removers

We hereby certify that we are well acquainted with the regulations governing the use of the Nordic Ecolabel, as detailed in "Regulations for the Nordic Ecolabelling of products" 22 June 2011 or later versions. We agree to follow these regulations when marketing the Nordic Ecolabelled products.

Further, we confirm that we are familiar with the criteria document regarding the Nordic Ecolabelling of laundry detergents and stain removers.

We undertake to advise those individuals within the company involved in marketing the Nordic Ecolabelled products of the criteria for Nordic Ecolabelling of laundry detergents and stain removers and "Regulations for the Nordic Ecolabelling of products" 22 June 2011 or later versions.

Date and place	Company
Signature, responsible person	
Clarification of name	Phone
Signature, marketing director	
Clarification of name	Phone

In case of a change in personnel, a new declaration must be submitted to Nordic Ecolabelling