BLUE ANGEL

The German Ecolabel

Laundry detergent

DE-UZ 202

Basic Award Criteria

Edition January 2022

Version 1

The Environmental Label is supported by the following four institutions:

Federal Ministry
for the Environment, Nature Conservation,
Nuclear Safety and Consumer Protection

The Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection is the owner of the label. It regularly provides information on the decisions taken by the Environmental Label Jury.

Umwelt Bundesamt

The German Environmental Agency with its specialist department for "Ecodesign, Eco-Labelling and Environmentally friendly Procurement" acts as office of the Environmental Label Jury and develops the technical criteria of the Basic Criteria for Award of the Blue Angel.

Jury Umweltzeichen

The Environmental Label Jury is the independent, decision-making body for the Blue Angel and includes representatives from environmental and consumer associations, trade unions, industry, the trade, crafts, local authorities, academia, the media, churches, young people and the German federal states.

RAL gGmbH

The RAL gGmbH is the awarding body for the Environmental Label. It organises the process for developing the relevant award criteria in independent expert hearings – which involve all relevant interest groups.

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

1 Introduction

1.1 Preface

In cooperation with the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection, the German Environmental Agency and considering the results of the expert hearings conducted by RAL gGmbH, the Environmental Label Jury has set up these Basic Criteria for the Award of the Environmental Label. RAL gGmbH has been tasked with awarding the Environmental Label.
Upon application to RAL gGmbH and on the basis of a Contract on the Use of the Environmental Label to be concluded with RAL gGmbH, the permission to use the Environmental Label may be granted to all products, provided that they comply with the requirements as specified hereinafter.
The product must comply with all the legal requirements in the country in which it is to be marketed. The applicant shall declare that the product meets this requirement.

1.2 Background

Washing and cleaning agents are used on a daily basis for maintaining cleanliness and hygiene. Approx. 1.5 million tonnes of these washing, cleaning and care agents are sold each year in Germany, whereby dishwashing detergents account for around 260,000 tonnes.[1] All of these products contain ingredients that find their way into the wastewater system and can have a negative effect on the environment and human health. If these components cannot be completely retained or degraded in sewage treatment plants, they will enter into bodies of water and can be ingested by water organisms and, in some circumstances, enriched. Furthermore, washing and cleaning agents can negatively affect human health when substances hazardous to health such as fragrance allergens and preservatives are used.[1]

An important component of cleaning agents are surfactants. These can be manufactured based on petrochemicals and/or renewable raw materials. The use of sustainably produced raw materials makes a significant contribution to sustainable development. In order to ensure this is the case, the cultivation of the plants is subject to ecological, social and economic requirements. Criteria for sustainable cultivation are currently being discussed in different initiatives and reliable certification systems for recording and labelling this type of cultivation are being developed or are establishing themselves on the market.
The separation and traceability of the raw materials (segregation) is currently only possible to a very limited extent in the case of palm (kernel) oil for the manufacturing of surfactants. An interim solution that currently exists is the possibility of verifying sustainable cultivation using the mass balance of raw materials. In this process, the end product does not necessarily contain the certified palm (kernel) oil.
However, it is important to ensure in the longer term that certified palm (kernel) oil is exclusively used in the product and other natural resources e.g. other oil plants or raw materials for the manufacture of citric acid or bioalcohol are integrated into the certification system. In future updates to the environmental label criteria, the further development of these certification systems for sustainable cultivation will be taken into account.

[1] https://www.umweltbundesamt.de/themen/chemikalien/wasch-reinigungsmittel

1.3 Objectives of the Environmental Label

The following criteria are designed to promote the use of those laundry detergents that in the interests of the environment, climate and nature conservation have been produced in such a way that they have the least possible impact on the environment and human health during their production, use and disposal. In addition, they should also help to reduce and prevent the risks posed to the environment and human health through the use of hazardous substances and to minimise packaging waste. Furthermore, information should be provided that enables consumers to use the product both efficiently and with the least possible impact on the environment.

Preserving natural resources is also an important focus of this environmental label. Cleaning agents with the Blue Angel ecolabel should thus make a contribution to the protection of the environment through the use of renewable raw materials in their production that have been cultivated under sustainable conditions or which support sustainable cultivation.

1.4 Definitions

For the purpose of their use in these Basic Award Criteria, the following definitions are valid:

Substance[2]**:** means a chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.
Impurity[3]**:** An unintended constituent present in a substance as manufactured. It may originate from the starting materials or be the result of secondary or incomplete reactions during the manufacturing process. While it is present in the final substance it was not intentionally added.
Mixture: Mix, mixture or solution composed of two or more substances.
End product: Within the scope of these Basic Award Criteria, the end product describes the laundry detergent offered for sale on the market that should be labelled with the Blue Angel ecolabel.
Microplastic: Solid plastic particles with a size of between 1.0 nm and 5.0 mm.
Plastic: A macromolecular substance with a water solubility < 1.0 mg/L, obtained through:

- a polymerisation process such as e.g. polyaddition or polycondensation or a similar process using monomers or other starting substances
- or chemical modification of natural or synthetic micromolecules
- or microbial fermentation.

Synthetic polymer: A macromolecular substance obtained through:

- a polymerisation process such as e.g. polyaddition or polycondensation or a similar process using monomers or other starting substances
- or chemical modification of natural or synthetic micromolecules.

Nanomaterial: A natural, incidental or manufactured material containing particles in an un-bound state or as an aggregate or as an agglomerate and where, for 50 % or more of the particles in the number size distribution, one or more external dimensions is in the size range 1 nm - 100 nm.[4]

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[2] REACH, Article 3, and CLP Regulation, Article 2
[3] Guidance for identification and naming of substances under REACH and CLP, Version 1.2 March 2012, Chapter 2.2, P. 8, http://echa.europa.eu/documents/10162/13643/substance_id_de.pdf
[4] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:275:0038:0040:DE:PDF

Bioaccumulating: An ingredient is considered to be non-bioaccumulating if the bioconcentration factor (BCF) is < 100 or the log Pow is < 3.0. If the values for both the BCF and the log Pow are available, the highest measurement for the BCF is valid.
Heavy-duty laundry detergent/universal laundry detergent: Detergent for washing textiles at a temperature range of between 20 and 95 °C and with a reference dosage of 4.5 kg.
Colour-safe laundry detergent: Laundry detergent for washing coloured textiles at a temperature range of between 20 and 60°C and with a reference dosage of 4.5 kg.
Low-duty laundry detergent: Special detergent for laundry with delicate fabrics with a reference dosage of 2.5 kg.
Pre-treatment stain remover: Stain remover for direct spot treatment of textiles (before washing in the machine) but not including stain removers dosed in the washing machine or stain removers dedicated to other uses besides pre-treatment.
Laundry detergent booster: A laundry detergent additive containing bleach that is added alongside the laundry detergent to improve the performance of the main washing cycle in the washing machine.
Household washing machine: An automatic washing machine for cleaning and rinsing textiles with water that has a spin function and is primarily designed for non-professional purposes.[5]
Sales packaging (in the context of these Basic Award Criteria): All of the packaging contained in one sales unit (primary packaging = direct contact with the contents and, if relevant, a secondary packaging) as it is offered to the end user or consumer at a retail outlet in its smallest sales unit.
Secondary packaging: Packaging that can be removed from the product without changing its properties and which contains a certain number of sales units that are sold together to the end user or consumer at a retail outlet or is solely designed for stocking the shelves in the retail outlet.
Transport packaging: Transport packaging or delivery packaging is packaging that facilitates the transport of goods, protects the goods against damage during transport or which is used for reasons of safety of the transport.
Recyclate: Recyclates are products from post-consumer waste, sourced using waste recovery methods, that are used as substitutes for new products in typical material applications.
Identity preserved: Palm (kernel) oil from a specific production location that is sourced from sustainable plantations is kept separate from other palm oils along the whole supply chain.
Segregation: Palm (kernel) oil from different production locations that is sourced from sustainable plantations is kept separate from other non-certified palm oils along the whole supply chain.
Mass balance: In the mass balance model, sustainable palm oil from certified plantations is mixed with conventional, non-certified palm oil in the value added chain. In this process, the proportion of the certified goods is checked and verified so that no more of the end product is labelled as being certified than the amount of certified palm oil before the mixing process. The certified palm oil is recorded and monitored administratively as it is transferred. The mass balance option thus enables sustainable goods to be verified at every stage of the product chain, without having to establish an additional infrastructure for a parallel supply chain. Due to the fact that the certified and conventional goods are not physically separated, it enables the mass

[5] Commission Regulation (EC) No. 1015/2010 of 10 November 2010 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for household washing machines

balance goods to be traded within the supply chain really easily. This option is especially relevant for the use of palm kernel oil and its derivatives.
Book & claim: Sustainable plantations are promoted though the sale of certificates. Companies purchase these certificates via a trading platform (e.g. RSPO Credits) based on the quantity of oil required for the production of surfactants.

2 Scope

The product group "laundry detergents" comprises all laundry detergents, laundry detergent boosters and pre-treatment stain removers in powder, liquid or other form that are marketed and used for the washing of textiles principally in standard household washing machines but not excluding their use in launderettes and their additional use as a hand washing laundry detergent.
Pre-treatment stain removers are stain removers for the direct spot treatment of textiles (before washing in the machine) but not including stain removers dosed in the washing machine or stain removers dedicated to other uses besides pre-treatment.
Laundry detergent boosters are laundry detergent additives containing bleach that are added alongside the laundry detergent to improve the performance of the main washing cycle in the washing machine.
Excluded from the scope of these Basic Award Criteria are:

- Portioned laundry detergent in water-soluble films
- Stain removers combined with carriers such as sheets, cloths or other materials
- Stain removers for use without subsequent washing e.g. for carpets and upholstered furniture
- Products containing microorgansims that have been intentionally added by the manufacturer.

3 Requirements

The end products named under Paragraph 2 can be labelled with the environmental label illustrated on the first page of these Basic Award Criteria if they fulfil the following requirements.

If the applicant is required to submit declarations, documentation, analysis reports or other documentation in order to verify compliance with the criteria, these can come from the applicant and/or his/her suppliers and/or their suppliers, etc.
The substance requirements defined by Regulation (EC) No. 648/2004 (Detergents Regulation, DetVO)[6] on detergents and the CLP Regulation (Regulation (EC) No. 1272/2008)[7] are observed.

[6] Regulation (EC) No. 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents

[7] Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC
Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008 concerning the classification, labelling and packaging of substances and mixtures

3.1 Assessment and testing requirements

Paragraph 3.5 refers to the "Detergent Ingredient Database" (DID list 2016), which contains the most widely used substances in detergent formulations. The data found in this list shall be used for deriving the calculations for the Critical Dilution Volume (CDV) and for assessing the biodegradability of the substances. In the case of those substances not found on the DID list, guidance is given on how to calculate or extrapolate the relevant data. The DID lists are published as annexes.
In certain cases, RAL gGmbH can request additional verification and carry out independent tests.

3.1.1 Measurement thresholds

Every substance that exceeds a concentration of 0.010 % by mass in the final formulation must comply with these Basic Award Criteria. This also applies to the raw materials used in the product, any listed additives and impurities.

In the case of substances dealt with by the following criteria, a deviating measurement threshold of 0.0010 % by mass in the final formulation applies:

- 3.4 Biodegradability
- 3.5 Toxicity to aquatic organisms
- 3.6 a) Substances of very high concern (SVHC) Paragraph 1)
- 3.7 Exclusion of substances
- 3.8 Requirements for specific substances

In the case of substances dealt with by the following criteria, a deviating measurement threshold of 0.10 % by mass in the final formulation applies:

- 3.6 a) Substances of very high concern (SVHC) Paragraph 2)

There is no lower measurement threshold for colouring agents.

Table 1: Overview of the measurement thresholds for the requirement criteria

Chapter	Criterion	Measurement threshold in percent by mass [% (w/w)]
3.2	Renewable raw materials in **surfactants**	≥ 0.010
3.3	Requirements for renewable raw materials in the production of **surfactants**	≥ 0.010
3.4.1	Biodegradability of **surfactants**	≥ 0.010
3.4.2	Biodegradability of synthetic polymers	≥ 0.010
3.4.3	Biodegradability of organic substances	≥ 0.0010 (Colouring agents: no lower limit)
3.5	Toxicity to aquatic organisms	≥ 0.0010 (Colouring agents: no lower limit)
3.6 a) 1)	General exclusion of substances with certain properties – a) Substances of very high concern (SVHC) Paragraph 1)	≥ 0.0010 (Colouring agents: no lower limit)
3.6 a) 2)	General exclusion of substances with certain properties – a) Substances of very high concern (SVHC) Paragraph 2)	≥ 0.10
3.6 b)	General exclusion of substances with certain properties – b) Substances classified with the H-phrases	≥ 0.010 (Colouring agents: no lower limit)

Chapter	Criterion	Measurement threshold in percent by mass [% (w/w)]
	listed in accordance with Regulation (EC) No 1272/2008	
3.7	Exclusion of substances	≥ 0.0010
3.8.1	Requirements for specific substances – **biocides**	≥ 0.0010
3.8.2	Requirements for specific substances – **fragrances**	≥ 0.0010
3.8.3	Requirements for specific substances – **colouring agents**	no lower limit
3.8.4	Requirements for specific substances – **phospho-rous**	≥ 0.0010
3.8.5	Requirements for specific substances – **enzymes**	≥ 0.0010

3.1.2 Functional unit

The functional unit for this product group shall be expressed in g/kg laundry (grams per kilogram of laundry).

3.1.3 Reference dosage

For "heavy-duty laundry detergents" and "colour-safe laundry detergents", the dosage recommended by the manufacturer for a water hardness level of 2.5 mmol $CaCO_3$/l and "normally soiled" textiles is taken as the reference dosage for calculating the environmental criteria and testing the washing performance. For heavy-duty laundry detergents and colour-safe laundry detergents, this refers to the dosage for a 4.5 kg load (dry textiles) in the washing machine.

For "low-duty laundry detergents'', the dosage recommended by the manufacturer for a water hardness level of 2.5 mmol $CaCO_3$/l and "lightly soiled" textiles is taken as the reference dosage for calculating the environmental criteria and testing the washing performance. For low-duty laundry detergents, this refers to the dosage for a 2.5 kg load (dry textiles) in the washing machine.

If the recommended dosage refers to other load sizes than the figures mentioned above, the reference dosage used for calculating the environmental criteria must correspond to the average load size. If the dosage instructions on the packaging state values for a prewash and a main washing cycle (in addition to a single normal washing cycle), the total dosage (prewash and main wash) must also comply with the environmental criteria.
The maximum CDV limit in the case of stain removers is based on an estimated dosage of 2 ml per application and six applications for a 4.5 kg load (2.7 ml/kg laundry; liquid stain remover). Products added in powder or paste form must also comply with these maximum CDV limits.

For laundry detergent boosters, the dosage recommended by the manufacturer for "normally soiled" textiles is taken as the reference dosage for calculating the environmental criteria and testing the washing performance. This refers to the dosage for a 4.5 kg load (dry textiles) in the washing machine.

Cloths soaked with liquid laundry detergent are considered to be liquids in the context of these Basic Award Criteria.

3.1.4 Testing institutions

The tests to be submitted to verify compliance with the requirements, with the exception of the tests for the product's fitness for use, shall be carried out by testing institutions that fulfil the following requirements:

- The tests comply with the requirements of Good Laboratory Practice (Annex 1 of German Chemicals Act (ChemG)) or
- The testing institution has been notified or accredited according to DIN EN 17025 and these tests form part of this accreditation in terms of the fields being tested and the processes and specifications used.

Compliance verification

Verification of compliance shall be provided in the form of certification in accordance with Article 19b of the German Chemicals Act (ChemG) and a written declaration from the testing institution that the test was carried out according to the principles of Good Laboratory Practice or through submission of the accreditation certificate from Germany's National Accreditation Body (DAKKS) or another national accreditation system that has been included in the Multilateral Agreement (MLA).

3.2 Renewable raw materials in surfactants

The amount of carbon from renewable sources in the total carbon in the surfactant system must be at least 50 %.

Compliance verification

The applicant shall confirm compliance with the requirement in Annex 1. The amount of carbon from renewable sources shall be calculated based on the organic carbon (Annex 1) and verified with a declaration by the surfactant manufacturer. The calculation shall be based on the annual production volume (See Appendix B).

3.3 Requirements for renewable raw materials produced from palm oil and palm kernel oil

If raw materials produced from palm oil and palm kernel oil are used, the sustainable cultivation of the oil plants on certified plantations must be verified.

The renewable raw materials for all of the ingredients added to the product that are produced from palm oil and/palm kernel oil must be sourced from plantations cultivated under sustainable conditions. Raw materials produced from palm (kernel) oil must be certified at least in accordance with the "mass balance" model.

Compliance verification

The applicant shall confirm compliance with the requirement in Annex 1.
In the case of RSPO "Mass Balance", "Segregation" or "Identity Preserved" certification, the manufacturing company shall verify their membership of the RSPO (as an Ordinary Member) (in the case of first-time applications, to be applied for after the issuing of the contract) if they

source more than 500t of palm oil products. A list of RSPO members is published here: https://www.rspo.org/members/all

The following shall be submitted to RAL gGmbH at the latest after the Blue Angel ecolabel has been used for the first 15 months and then annually:

For "Ordinary Members": RSPO membership number and a corresponding certificate and the audit report. The audit must be carried out by a certification body accredited by the RSPO: https://www.rspo.org/certification/bodies/page/

For applicants that only use RSPO certified raw materials (and less than 500t PO/PKO): Proofs of purchase (delivery notes/invoices) for the corresponding raw materials. The RSPO certification number for the manufacturer of the raw materials must be stated on the documents. To verify that sufficient raw materials have been purchased, the annual production volume (for the formulation included in the application) must be stated in the sheet "Results-2" of the Excel table and the form of verification "Delivery notes/invoices (segregated or MB)" must be selected in column E. For raw materials produced from palm oil and palm kernel oil, the amount of the raw material required can then be calculated for a defined period. If multiple products are certified with the Blue Angel ecolabel, the calculations must be carried out for all products and the results (for identical raw materials) added together. Alternatively, a supply chain audit can be carried out. A supply chain audit is obligatory if using "MB claim transfer cross referencing".

3.4 Biodegradability

3.4.1 Biodegradability of surfactants

All of the surfactants contained in the end product must be readily biodegradable[8] under aerobic conditions and biodegradable under anaerobic conditions.

Compliance verification

The applicant shall confirm compliance with the requirement in Annex 1.
The precise formulation of the end product shall be submitted to RAL gGmbH together with an explanation of the function of every individual substance in Annex 1. Part A of the DID list indicates whether a certain surfactant is aerobically or anaerobically biodegradable (those surfactants with an "R" in the column for aerobic biodegradability are readily biodegradable, while those surfactants with a "Y" in the column for anaerobic biodegradability are biodegradable under anaerobic conditions). The list is not comprehensive, but guidance is given in Part B of the list concerning the determination of the relevant calculation parameters for substances not present on the DID list. For those surfactants which are not included in Part A of the DID list or those surfactants classified with an "O" in the column for anaerobic biodegradability, relevant information from literature or other sources or corresponding test results shall be submitted to verify that these surfactants are biodegradable under anaerobic conditions.
The reference test for anaerobic degradability shall be the OECD test 311, the ISO standard 11734, the ECETOC test No. 28 (June 1988) or an equivalent test method, with the requirement of 60 % ultimate degradability under anaerobic conditions. In order to verify at least 60 %

[8] According to the regulations in EU Regulation No. 648/2004/EC

ultimate degradability under anaerobic conditions, test processes can also be used that simulate the conditions in a corresponding anaerobic environment.

3.4.2 Biodegradability of synthetic polymers

All of the synthetic polymers in the end product must be at least inherently biodegradable under aerobic conditions.
The following polymers are exempt from this rule: carboxymethyl cellulose and dye transfer inhibitors made of PVP, PVOH, PVP/VI, PVNO or PVNO/PVPI.

Compliance verification

The applicant shall confirm compliance with the requirement in Annex 1.
The precise formulation of the end product shall be submitted to RAL gGmbH together with an explanation of the function of every individual substance in Annex 1. Part A of the DID list indicates whether a certain synthetic polymer is aerobically biodegradable (those synthetic polymers with an "I" in the column for aerobic biodegradability are inherently biodegradable).
The list is not comprehensive, but guidance is given in Part B of the list concerning the determination of the relevant calculation parameters for substances not present on the DID list. For those synthetic polymers which are not included in Part A of the DID list or those synthetic polymers classified with an "O" in the column for aerobic biodegradability, relevant information from literature or other sources or corresponding test results shall be submitted to verify that these surfactants are inherently biodegradable under aerobic conditions.
The reference test for inherent degradability under aerobic conditions shall be the OECD test OECD 302 C (MITI II test) or an equivalent test method, with the requirement of 60 % degradability under aerobic conditions. The biodegradability shall be expressed as a percentage of the theoretical maximum CO2 production (ThCO2), based on the amount of the test substance originally used. Biodegradability of > 60 % ThCO2 within 28 days in this test shows that the test substance is inherently biodegradable under aerobic conditions. The MITI II test (OECD 302 C) requires the use of a very specific mixture of different inocula, combined with a pre-incubation phase – an inoculum taken from other sources, such as activated sludge or a mixture of other inocula from different environmental compartments, is also acceptable.
The Zahn-Wellens test according to OECD 302 B is recognized as comparable if it is modified and supplemented by respirometric measurements. A DOC-based test alone in the Zahn-Wellens test according to OECD 302 B is not recognized. In addition, a test dossier regarding the biodegradation from an OECD 301 B, C, D or F test or a CO2 headspace test with a duration of up to 60 days are recognized as comparable within the scope of this award criteria, if a degradation of at least 60% under aerobic conditions was achieved within 60 days.

3.4.3 Biodegradability of organic substances

The content of aerobically not readily biodegradable (aNBO) and anaerobically non-biodegradable (anNBO) organic substances in the product must not exceed the following limits for the reference dosage (information in g/kg laundry).

Product type/product form	Solid (powder, tablet)		Liquid (incl. gel)	
	aNBO	annBO	aNBO	annBO
Heavy-duty laundry detergent, colour-safe laundry detergent	0.75	1.00	0.40	0.55
Low-duty laundry detergent	0.40	0.40	0.25	0.25
Stain remover	0.10	0.10	0.10	0.10
Laundry detergent booster	0.10	0.10	0.10	0.10

Compliance verification

The applicant shall confirm compliance with the requirement in Annex 1.
In order to calculate the aNBO and annNBO values, there is an Excel file available for this purpose on the Blue Angel website (Annex 1).
The DID list is authoritative here. In the case of ingredients not included in Part A of the DID list, relevant information from literature or other sources or corresponding test results shall be submitted to verify that these ingredients are biodegradable under aerobic and anaerobic conditions (as described in Part B of this list).
If verification is missing for the requirements stated above, an exemption can be granted for the required biodegradability under anaerobic conditions (annNBO) for ingredients that are not surfactants if the following condition is satisfied:

- *Ready biodegradability and no bioaccumulation*

An ingredient is considered to be non-bioaccumulating if the bioconcentration factor (BCF) is < 100 or the log Pow is < 3.0. If the values for both the BCF and the log Pow are available, the highest measurement for the BCF is valid.

3.5 Toxicity to aquatic organisms

The critical dilution volume toxicity ($CDV_{chronic}$) is calculated for each substance (i) using the following equation:

$$KVV_{chronisch} = \sum_{i=1}^{n} KVV_{(i)} = KVV_{(1)} + KVV_{(2)} + \ldots + KVV_{(n)}$$

mit

$$KVV_{(i)} = \frac{Gewicht_{(i)} \cdot AW_{(i)} \cdot 1000}{TW_{chronisch(i)}}$$

where the weight(i) is the weight of the substance (in grams) in the recommended dosage.

DF(i) is the degradation factor and $TF_{chronic}$(i) is the value for the chronic toxicity of the substance (in milligrams/litre).

The parameters DF and $TF_{chronic}$ shall be taken from Part A of the Detergent Ingredient Database (DID list) (Appendix). If the substance in question is not included in Part A of the DID list, the applicant shall estimate the values in accordance with the approach stated in Part B of the DID

list (Appendix). The sum of $CDV_{chronic}$ for the individual substances gives the $CDV_{chronic}$ for the end product.

The $CDV_{chronic}$ must not exceed the following limits for the reference dosage:

Type of product	**Maximum permissible $CDV_{chronic}$**
Heavy-duty laundry detergent, colour-safe laundry detergent	25 000 l/kg laundry
Low-duty laundry detergent	18 000 l/kg laundry
Stain remover	3 500 l/kg laundry
Laundry detergent booster	7 500 l/kg laundry

Compliance verification

The applicant shall confirm compliance with the requirement in Annex 1.
The precise formulation of the end product, together with the individual details of the calculation of the $CDV_{chronic}$ demonstrating compliance with this criterion, shall be submitted to RAL gGmbH in Annex 1.

3.6 General exclusion of substances with certain properties

The use of the following substances is not permitted in order to protect the environment and human health. In the case of mixtures e.g. fragrances where it is not possible to obtain information about the individual substances, the classification rules for mixtures shall be applied.

a) Substances of very high concern (SVHC)
   1) Substances in end products labelled with the Blue Angel ecolabel that have been identified in accordance with Article 57 of Regulation (EC) No. 1907/2006 and listed in accordance with Article 59 of the same regulation on the list of candidates[9] for inclusion on the Annex of substances subject to authorisation and have a concentration of ≥ 0.0010 % are not permitted. Impurities in substances added to the end product that correspond to the above named criteria are not permitted. The label holder is obligated to take into account current developments on the list of candidates.
   2) This requirement also applies to substances, which are classified on the ECHA website under https://echa.europa.eu/de/information-on-chemicals/registered-substances on the infocard for the substance under "Properties of concern" as suspected PBT, C, M, R, ED or POP. As an exception to section 1), the use of such suspected substances in end products labelled with the Blue Angel ecolabel that have a concentration of ≥ 0.10 % is not permitted.

   The label holder is obligated to take into account current developments on the list of candidates and the latest publications by the ECHA.

b) Substances which according to the criteria of Regulation (EC) No 1272/2008[10] are assigned the following H Phrases named in Table 2 or which meet the criteria for such classification.

[9] http://echa.europa.eu/web/guest/candidate-list-table
[10] Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, as well as amending Regulation (EC) No. 1907/2006 (GHS Regulation).

Table 2: Restrictive hazard classifications and their assignment to the categories

EC Regulation 1272/2008 (CLP Regulation)	**Wording**
Toxic substances	
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H304	May be fatal if swallowed and enters airways.
H310	Fatal in contact with skin.
H311	Toxic in contact with skin.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
EUH070	Toxic by eye contact.
H370	Causes damage to organs.
H371	May cause damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
Carcinogenic, mutagenic and reprotoxic substances	
H340	May cause genetic defects.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H350i	May cause cancer if inhaled.
H351	Suspected of causing cancer.
H360F	May damage fertility.
H360D	May damage the unborn child.
H360FD	May damage fertility. May damage the unborn child.
H360Fd	May damage fertility. Suspected of damaging the unborn child.
H360Df	May damage the unborn child. Suspected of damaging fertility.
H361f	Suspected of damaging fertility.
H361d	Suspected of damaging the unborn child.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
H362	May cause harm to breast fed children.
Water-hazardous substances	
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long-lasting effects.
H411	Toxic to aquatic organisms with long-lasting effects.
H412	Harmful aquatic organisms with long lasting effects.
H413	May cause long lasting harmful effects to aquatic organisms.
Other Health and Environmental Effects	
H420	Hazardous to the ozone layer.

The GHS Regulation (Global Harmonization System) that came into force on 20 January 2009, replaces the old Directives 67/548/EEC (Dangerous Substances Directive) and 1999/45/EC (Dangerous Preparations Directive). According to the said regulation, substances are classified, labelled and packed until 1 December 2010 according to Directive 67/548/EEC while mixtures (formerly preparations) are classified, labelled and packed until 1 June 2015 according to Directive 1999/45/EC.

EC Regulation 1272/2008 (CLP Regulation)	Wording
Sensitizing substances	
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.

The use of substances or mixtures which upon processing change their properties (e.g. become no longer bioavailable, undergo chemical modification) in a way that the identified hazard no longer applies are exempted from the above requirement.

Deviations: The following substances or mixtures are specifically exempted from the above requirement:

EC Regulation 1272/2008 (CLP Regulation)	Wording
Surfactant (*)	H400 Very toxic to aquatic life.
	H412 Harmful to aquatic organisms with long lasting effects.
Enzymes (**)	H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
	H317 May cause an allergic skin reaction.
Proteases (e.g. subtilisin)	H400 Very toxic to aquatic life. H411 Toxic to aquatic organisms with long lasting effects.
NTA as an impurity in MGDA and GLDA(***)	H351 Suspected of causing cancer.
TiO_2	H351 Suspected of causing cancer.
Formic acid (****)	H331 Toxic if inhaled.
Benzoic acid	H372 Causes damage to organs through prolonged or repeated exposure

(*) This is also valid for impurities from the starting substances
(**) Including stabilisers and other auxiliary substances in the preparations.
(***) In concentrations lower than 0.2 % in the raw material as long as the total concentration in the end product is lower than 0.10 %.
(****) Up to a total concentration in the end product of 0.50 % free acids.

Compliance verification

The applicant shall declare compliance with the requirements in Annex 1.
In the event of changes to the list of candidates, the applicant shall inform RAL gGmbH within one month in the event that the end product does not comply with this criterion.
The applicant shall submit the exact formulation of the end product in Annex 1. The applicant shall verify that the substances contained in the end product comply with this criterion by providing information that fulfils at least those requirements according to Annex VII of Regulation (EC) No. 1907/2006. Such information shall be specific to the particular form of the substance, including nanoforms, used in the end product. For that purpose, the applicant shall submit a declaration of compliance with this criterion, together with information on the type (IUPAC nomenclature and CAS number) and content (% by mass) of all substances added to the product and the related safety data sheets in accordance with Annex II to Regulation (EC) No 1907/2006 for the end product, as well as for all substances or mixtures listed in the formulation(s).

Concentration limits shall be specified in the safety data sheets in accordance with Article 31 of Regulation (EC) No. 1907/2006. The safety data sheets may not be older than two years. The manufacturer shall verify that he/she has requested that the suppliers of primary/intermediate products submit information on the content of substances up to 0.010 % by mass.

3.7 Exclusion of substances

The following substances are not permitted in the end product, either as part of the formulation or as part of any preparation included in the formulation:

- Alkyl phenol ethoxylates (APEOs) and derivatives thereof
- EDTA (ethylenediaminetetraacetic acid) and its salts
- DTPA (diethylenetriaminepentaacetic acid) and its salts
- Alkyl phosphonic acid derivatives (e.g. ATMP, HEDP, DTPMP) and their salts (*)
- Inorganic phosphate (**) (e.g. monophosphoric, diphosphoric, triphosphoric and polyphosphoric acids and their salts)
- Benzotriazole and benzotriazole derivatives
- Reactive chlorine compounds (e.g. hypochlorite)
- Borate and perborate
- Perfluorinated organic compounds
- Halogenated hydrocarbons
- Aromatic hydrocarbons
- Triclosan
- 3-Jod-2-propinylbutylcarbamate
- Glutaral (glutaraldehyde)
- Quaternary organic ammonium compounds and polyquaternium compounds that are not readily biodegradable (***)
- Parabens
- Formaldehyde and formaldehyde releasers (****), e.g. (INCI designations):
  - 5-bromo-5-nitro-1,3-dioxane
  - Diazolidinyl urea
  - Sodium hydroxymethylglycinate
  - Dimethylol glycol
  - Dimethylol urea
  - DMDM-Hydantoin
  - Quaternium-15
  - Tetramethylolglycoluril
- Nitromusks and polycyclic musks including e.g.:
  - Musk Xylene (5-tert-Butyl-2,4,6-trinitro-m-xylene / musk xylol: 5-tert-Butyl-2,4,6-trinitro-m-xylol),
  - Musk ambrette (4-tert.-Butyl-3-methoxy-2,6-dinitrotoluene / musk ambrette: 4-tert-Butyl-3-methoxy-2,6-dinitrotoluol),
  - Musk Moskene (1,1,3,3,5-Pentamethyl-4,6-dinitroindane / musk moskene: 1,1,3,3,5-Pentamethyl-4,6-dinitroindan),
  - Musk Tibetene (5-tert.-Butyl-1,2,3-trimethyl-4,6-dinitrobenzene / tibetene musk: 1-tert-Butyl-3,4,5-trimethyl-2,6-dinitrobenzol),
  - Musk Ketone (4'-tert-Butyl-2',6'-dimethyl-3',5'-dinitroacetophenone / musk ketone: 4’-tert-Butyl-2‘,6’-dimethyl-3‘,5’-dinitroacetaphenol,

- Hexamethylindanopyran (HHCB; 1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethylcyclopenta-(g)-2benzopyran),
- 1-(5,6,7,8-Tetrahydro-3,5,5,6,8,8,-hexamethyl-2-naphthyl)ethan-1-one (AHTN; 6-Acetyl-1,1,2,4,4,7-hexamethyltetralin),
- Tetramethyl Acetyloctahydronaphthalenes (OTNE; reaction mass of 1-(1,2,3,4,5,6,7,8-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one and 1-(1,2,3,4,6,7,8,8a-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one and 1-(1,2,3,5,6,7,8,8a-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one)

- Hydroxyisohexyl 3-Cyclohexene Carboxaldehyde (3- and 4-(4-Hydroxy-4-methylpentyl) cyclohex-3-ene-1-carbaldehyde; Lyral; HICC,)
- 2,6-Dihydroxy-4-methyl-benzaldehyde (Atranol)
- 3-Chloro-2,6-Dihydroxy-4-methyl-benzaldehyde (Chloratranol; Chloroatranol)
- Butylphenyl Methylpropional (2-(4-tert-Butylbenzyl)propionaldehyde; Lysmeral; Lilial)
- Nanosilver
- Rhodamin B (CI 45170)
- Microplastics
- Formic acid (*****)

(*) Except when used as a stabiliser for bleaching agents in liquid laundry detergent boosters
(**) Except for impurities or stabilisers with concentrations lower than 1.0 % in the raw material and a total concentration in the end product lower than 0.010 %.
(***) Quaternary organic ammonium compounds or the polyquaternium compound must verify their biodegradability in a standard test for ready biodegradability. The 10-day window is not applied in the case of polymers.
(****) Except for impurities of formaldehyde in surfactants based on polyalkoxy compounds up to a concentration of 0.010 % by mass in the ingredient
(*****) Up to a total concentration in the end product of 0.50 % free acids.

Compliance verification

The applicant shall confirm compliance with the requirement in Annex 1.
The applicant shall submit a declaration, which is also supported by declarations from the manufacturers of the substances, that the listed substances are not contained in the end product. In the event that quaternary ammonium salts have been added to the product, the applicant shall submit documentation demonstrating their biodegradability.

3.8 Requirements for specific substances

These special requirements for specific substances are valid in addition to the general requirements for substances.

3.8.1 Biocides

a) The end product may only include biocides in order to preserve the product and in the appropriate dosage for this purpose. This does not refer to surfactants, which may also have biocidal properties.

Compliance verification

The applicant shall confirm compliance with the requirement in Annex 1.
The applicant shall submit the safety data sheets for every preservative added to the product, as well as information about the exact concentrations of these substances in the end product. The manufacturer or supplier of the preservatives shall submit information about the dosage required to preserve the end product.

b) It is prohibited to claim or suggest on the packaging or by any other means that the product has an antimicrobial action.

Compliance verification

The applicant shall confirm compliance with the requirement in Annex 1.
The applicant shall submit the texts and layouts used for each individual type of packaging and/or a sample copy of each individual type of packaging to RAL gGmbH.

c) Biocides, either as part of the formulation or as part of any mixture included in the formulation, that are used to preserve the end product are permitted, but only if their log Pow (octanol-water partition coefficient) is < 3.0 or their experimentally determined bioconcentration factor (BCF) is < 100.

Compliance verification

The applicant shall confirm compliance with the requirement in Annex 1.
The applicant shall submit the log Pow or BCF value for the biocides (Annex 1).

d) Isothiazolinone
2-methyl-4-isothiazolin-3-one (MIT) and 5-chlor-2-methyl-4-isothiazolin-3-one/2-methyl-4-isothiazolin-3-one (CIT/MIT) may only be added up to the maximum permitted limits stated in Annex V (List of preservatives allowed in cosmetic products) of Regulation (EC) No. 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products.
- 5-chlor-2-methyl-4-isothiazolin-3-one/2-methyl-4-isothiazolin-3-one: 0.0015 % by mass.
- 2-methyl-4-isothiazolin-3-one: 0.0015 % by mass.

If the permissible value according to Annex V of Regulation (EC) No. 1223/2009 at the time of application is lower, this lower value applies.
The content of 1,2-benzisothiazol-3(2H)-one (BIT) must not exceed the following content in the product:
- 1,2-benzisothiazol-3(2H)-one: 0.0050 % by mass

Compliance verification

The applicant shall confirm compliance with the requirement in Annex 1.

3.8.2 Fragrances

a) All of the substances added to the end product as fragrances must have been manufactured and/or handled in accordance with the code of practice of the International Fragrance Association (IFRA)[11].
b) Fragrances, which are prohibited according to Annex II of the cosmetics regulation (Regulation (EC) No. 1223/2009), may not be contained in the product in concentrations ≥ 0.010 % (≥ 100 ppm) per substance.
c) Fragrances, which must be specified according to Annex III of the cosmetics regulation (Regulation (EC) No. 1223/2009), may not be contained in the product in concentrations ≥ 0.010 % (≥ 100 ppm) per substance.
d) Products that have been specially designed or advertised as being suitable for children under 3 years old or allergy sufferers are not permitted to contain any fragrances.

Compliance verification

The applicant shall confirm compliance with the requirement in Annex 1.
The applicant shall submit a declaration of compliance with every requirement. For criterion (b), the applicant shall submit a declaration about compliance with this criterion with information about the amount of fragrances contained in the end product. In addition, the applicant shall also submit a declaration from the fragrance manufacturer specifying the content of each of the substances contained in the fragrance which are listed in Annex II and III of Regulation (EC) No. 1223/2009[12], as well as the content of (other) substances which have been assigned the risk phrases H317 and/or H334.

3.8.3 Colouring agents

The end product must not contain any colouring agents that are bioaccumulating.
A colouring agent is considered to be non-bioaccumulating if it has a bioconcentration factor (BCF) < 100 or a log Pow < 3.0. If the values for both the BCF and the log Pow are available, the highest measurement for the BCF is valid. If using colouring agents that have been approved for use in foodstuffs, no documentation about the bioconcentration factor needs to be submitted.

Compliance verification

The applicant shall submit a signed declaration of conformity and, if relevant, supplier declarations or safety data sheets about all colouring agents added to the product and the values for their BCF or log Pow or documentation that verifies that the colouring agent is approved for use in foodstuffs.

3.8.4 Phosphorous

The total phosphorous content (P) of elemental phosphorous must not exceed the following values for the reference dosage.

[11] The code of practice is available on the IFRA website: http://www.ifraorg.org.
[12] OJ L 342 from 22/12/2009

Type of product	Phosphorous content
Heavy-duty laundry detergent, colour-safe laundry detergent	0.030 g/kg laundry
Low-duty laundry detergent	0.030 g/kg laundry
Stain remover	0.0050 g/cleaning cycle
Laundry detergent booster	0.030 g/kg laundry

Compliance verification

The applicant shall confirm compliance with the requirement in Annex 1. In order to calculate the total phosphorous content (P), there is an Excel file available for this purpose on the Blue Angel website (Annex 1).

3.8.5 Enzymes

It is only permitted to add encapsulated enzymes (solid) and enzymes in liquid form or as a suspension.

Compliance verification

The applicant shall submit a signed declaration of conformity and, if relevant, supplier declarations or safety data sheets for the enzymes added to the product.

3.9 Labelling of the end product

a) It is not permitted for the end product to be assigned a H phrase named in Table 2 of Paragraph 3.6 b) in accordance with the CLP Regulation (1272/2008/EC)[13].
b) The end product may not be classified as Skin Corr. 1 H314 "Causes severe skin burns and eye damage" according to Regulation (EC) No. 1272/2008.

Compliance verification

The applicant shall confirm compliance with the requirement in Annex 1.
In addition, the applicant shall submit the exact formulation of the end product in Annex 1, as well as the product label and safety data sheet for the end product.

3.10 Dosage requirements

The dosage of the laundry detergent corresponds to the recommended dosage in g/kg laundry (powder/tablets) or ml/kg laundry (liquids). The recommended dosage for a water hardness level of 2.5 mmol $CaCO_3$/l and for normally soiled textiles (heavy-duty laundry detergents, colour-safe laundry detergents) and lightly soiled textiles (low-duty detergents), respectively, shall be used.
The dosage of the laundry detergent booster corresponds to the recommended dosage in g/kg laundry (powder) or ml/kg laundry (liquid laundry detergent booster).

[13] Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, as well as amending Regulation (EC) No. 1907/2006 (CLP Regulation)

The dosage must not exceed the following maximum limits:

Type of product	Dosage solid/liquid (incl. gel)
Heavy-duty laundry detergent, colour-safe laundry detergent	16.0 g/kg laundry
Low-duty laundry detergent	16.0 g/kg laundry
Laundry detergent booster	7.0 g/kg laundry

If using the recommendations for a prewash and a main washing cycle, the total recommended dosage (prewash and main wash) must not exceed the stated maximum limit.

Compliance verification

The applicant shall declare compliance with the requirement in Annex 1 and submit a product label. The density (g/ml) shall be stated for all products (either on the packaging or in a safety data sheet).

3.11 Fitness for use

The end product must be fit for use and meet the requirements of the consumer. To ensure that this is the case, the tests for assessing the product's fitness for use described in Appendix C must be carried out.

Compliance verification

The applicant shall declare compliance with the requirement in Annex 1 and submit the test results in accordance with the guidelines stated in Appendix C to verify compliance.

3.12 Packaging requirements

a) If the product is delivered in packaging that is part of a take-back system (return and refill) for a product, the product is exempt from the requirements specified in b), e) and g).

b) The weight utility ratio (WUR) of the sales packaging must not exceed the following values:

Type of product	WUR
Solid laundry detergent (e.g. powder)	1.2 g/kg laundry
Liquid or gel laundry detergent	1.2 g/kg laundry
Stain remover	1.2 g/kg laundry
Laundry detergent booster	1.2 g/kg laundry

Sales packaging consisting of more than 80 % recycled post-consumer materials are exempt from this requirement.

Undiluted products in packaging designed for the sole purpose of refilling trigger sprays must meet the packaging requirements for ready-to-use products.

The WUR is only calculated for the sales packaging (including caps, stoppers and hand pumps/spraying devices and label) based on the following formula:

$$WUR = \Sigma((W_i + U_i) / (D_i * R_i))$$

Key for the calculation formula:
W_i: the weight [g] of the sales packaging (i)
U_i: the weight [g] of non-recycled materials in the sales packaging (i). $U_i = W_i$, unless the applicant can verify a different number
D_i: the number of reference doses in the sales packaging (i). In the case of ready-to-use products, D_i = product volume (in litres);
R_i: recycling figure. $R_i = 1$ (if the packaging is not reused for the same purpose) or $R_i = 2$ (if the applicant can verify that the packaging components are used for the same purpose and he/she sells refill packs).

c) Packaging, sleeves, labels or components made of halogenated polymers, e.g. PVC, are not permitted.

d) Paper/cardboard used in the sales packaging must be manufactured using at least 80 % recycled materials. In the case of secondary packaging that also serves as transport packaging, the proportion of recycled materials must be at least 70 %. Packaging materials are considered recycled if product waste (post-consumer waste) has been subjected to a material recycling process.

e) Sales packaging (bottles, canisters) made of PET must be manufactured using at least 70 % PCR plastic (recycled plastic made from post-consumer waste), other plastics (e.g. HDPE) at least 50% PCR. All closures and trigger closures (e.g. removable closures and pump dosers) and foil bags are exempt from this rule.
If the recycled content is stated on the packaging, this must refer to the total weight (body, closure, label/sleeve and trigger closure). In addition, a statement may be added that relates to certain parts of the packaging (e.g. may be stated together: 100% PCR related to body, xy % PCR related to total packaging).

f) Products offered as trigger sprays:
Trigger spray bottles must be refillable and recyclable.

g) Recycling-oriented design (recyclability)
The packaging must be designed so that it has a sorting and recycling infrastructure in the sense of the "Minimum standard for determining the recyclability of packaging subject to system participation pursuant to Section 21 (3) VerpackG (Verpackungsgesetz – Packaging Act)"[14] (see Section 4.1 in conjunction with the Appendix 1). It must be possible to sort and separate the packaging in the sense of the minimum standards (see Section 4.2 in conjunction with Appendix 2) and it is not permitted in the sense of the minimum standards to use any material combinations or substances that could impede successful recycling (see Section 4.3 in conjunction with Appendix 3).
The minimum standard[14] at the time of application applies.

[14] Available at https://www.verpackungsregister.org

No individual or combination of materials or components listed in Table 3 may be contained in the sales packaging. Pump mechanisms (including in sprays) are exempt from this requirement.

Table 3: Materials and components that are excluded from use as a packaging component

Packaging component	**Excluded materials and components (*), (**), (***)**
Printing	<u>For all packaging</u> • Components form the EuPIA list (Exclusion list for printing inks and related products) <u>For PET-bottles</u> • Direct print (disregarding production code and shelf life) ***
Body/Material	<u>For fiber-based packaging</u> • Lacquered surface (excluding clear protective lacquer up to a thickness of ≤ 5 µm) ***[1] • Plastic-coated surface ***[1] • Dyed black, using soot-carbon-based pigments ***[1] • Water-insoluble or non-redispersing adhesive applications where it has not been specifically proven that they can be removed *** <u>Liquid packaging board</u> • Design different from standard structure (no wet-strength cardboard, PE ± aluminium) ***[1] <u>For all plastic packagings</u> • Silicone components *** • Components of glass, metal, EVA ** • Multilayer-design (exept of PE-/ PP-EVOH) ***[1] • Metallisation **[1] • Dyed black, using soot-carbon-based pigments (also for using interior layers) ***[1] • Different type of plastics used on front and back sides ***[1] • Metal pigments (lacquering, coating or embossing) applied on a large scale (taking up > 50 % of the surface) ***[1] <u>For HDPE- or PP-packaging</u> • Components of foamed non-thermoplastic elastomers *** • Non-PO-plastics with a density of < 1 g/cm^3 *** • Plastics and fillers leading to a significant increase in density (> 0.995 g/cm^3) *** • PE-X-components (for PE-packagings) *** <u>For foils/LDPE-packagings</u> • Plastics and fillers leading to a significant increase in density (> 0.995 g/cm^3) *** • PE-X-components*** <u>For PET-bottles</u> • PA-additives (PET-A-Copolymer) for transparent PET-bottles, colourless and „light-blue“ *** • Elastomer components with a density of > 1 g/cm^3 *** • PETG-, PETC-, POM-, PS-, PVC-components **

Packaging component	Excluded materials and components (*), (**), (***)
	<u>For PS-packaging</u> • Foreign plastic types or multilayers with a density between 1.0 - 1.08 g/cm³ *** • Plastics and fillers leading to a significant increase in density ***
Label or Sleeve	<u>For all plastic packagings</u> • Silicone components *** • Large labels (taking up > 50 % of the surface) made with foreign materials ***[1] • Full-sleeve label ***[1] • Metalised and metal-coated labels/sleeves <u>For HDPE- or PP-packaging</u> • PS-label/sleeves • Non-PO plastics (e.g. PET-sleeves) with a density of < 1 g/cm³ *** • Components made of foamed non-thermoplastic elastomers *** • Glued cellulose-based labels that cannot be removed in cold washing *** • PE-X-components (for PE-packaging) *** <u>For foils/LDPE-packaging</u> • Glued cellulose-based labels that cannot be removed in cold washing *** • PE-X-components (for PE-packaging) *** <u>For PET-bottles</u> • Non-removable washable adhesive applications (in water or alkaline at 80° C) *** • PETG-, PETC-, POM-, PS-, PVC-components (e.g. PS labels/sleeves) ** • Elastomer components with a density of > 1 g/cm³ *** • Labels/sleeves connected edgeless with the packaing container (In-Mould-Labelling) <u>For PS-packaging</u> • Foreign plastic types or multilayers with a density between 1.0 - 1.08 g/cm³ *** • Plastics and fillers leading to a significant increase in density *** • Glued cellulose-based labels that cannot be removed in cold washing ***
Closure	<u>For all plastic packagings</u> • Silicone components *** • Components of glass, metal, EVA ** • Metal foils or seals that remain at the bottle or closure after opening the product ** <u>For HDPE- or PP-packaging</u> • PS-componentes • Non-PO-plastics with a density of < 1 g/cm³ *** • Components of foamed non-thermoplastic elastomers *** • PE-X-components (for PE-packaging) *** <u>For PET-bottles</u> • PETG-, PETC-, POM-, PS-, PVC-components ** • Elastomer components with a density of > 1 g/cm³ ***

Packaging component	Excluded materials and components (*), (**), (***)
	For PS-packaging • Other plastics or multilayers with a density between 1.0 - 1.08 g/cm³ ***
Barrier layers	For all plastic packagings • Adhesive layers made of a polymer, functional polyolefins, metallised and light blocking barriers other as the one used for the manufacture of the packaging body For HDPE- or PP-packagings • PA-layers *** • PVDC-layers *** • PE-X-components (for PE-packagings) *** For foils/LDPE-packagings • PA-layers *** • PVDC-layers *** • PE-X-components *** • Non-polymeric layers (except SiOx/AlOx) ** • Further non-PE-polymer layers (exept adhesive promoters, adhesives, PP, EVA and EVOH) *** For PET-bottles • EVOH-layers *** • PA-Monolayers for transparent PET-bottles, colourless and „light-blue" *** • PA-additives (PET-A-Copolymer) for transparent PET-bottles, colourless and „light-blue" PET-bottles *** • Further blended layers ***
(*) EVA — Ethylene vinyl acetate, EVOH — Ethylene vinyl alcohol, HDPE — High density polyethylene, LDPE – Low density polyethylene, PA – Polyamide, PET — Polyethylene terephthalate, PETG — Polyethylene terephthalate, glckol-modified, PETC — crystaline Polyethylene terephthalate, PE-X – crosslinked Polyethylene, PO – Polyolefins, POM – Polyoxymethylene, PP — Polypropylene, PS — Polystyrene, PVC – Polyvinyl chloride, PVDC – Polyvinylidene chloride Functional Polyolefins: the functionalisation results from extrusion with MAH, epoxys or acrylics with polyolefin. Please note: The combination of PP with HDPE as well as the combination of PE with LLDPE, LDPE, HDPE is permitted. (**) Materials and components, that are excluded **partly** in the minimum standard (***) Materials and components, that are excluded in the minimum standard 1 If the criterion applies, an empirical test can be carried out using a standard detection unit - i.e. not with a hand-held scanner - and presented as individual proof that sortability nevertheless exists in the specific case.	

Compliance verification

The applicant shall confirm compliance with the requirement in Annex 1 and submit declarations of the packacking manufacturer or supplier (Annex 2).
In case of a take-back system, the applicant shall submit corresponding documentation showing that a take-back and refill system for the packing has been established.
The applicant shall state the papers, cardboards and/or plastics used, their quantities and their assignments to a material group, subgroup and packaging type according to the "Minimum standard for determining the recyclability".
If paper/cardboard are used, the applicant shall submit a written declaration or a certificate from the supplier verifying the recycled content (Annex 2).
The applicant shall provide in Annex 2 documentation on the traceability of the post-consumer recycled plastics contained through appropriate third party verification. This shall be provided

by 31.12.2023 at the latest for applications submitted by 31.12.2022. To substantiate the verification, certificates from recycling companies according to a certification system in accordance with the EN 15343 standard (e.g. EuCertPlast) and certificates of product manufacture according to a certification system based on a batch mass balance approach (controlled blending) as described in the ISO 22095 standard may be used.
As proof of recyclability, documentation should be submitted that demonstrates compliance with the criteria of the minimum standard as well as Table 3. In justified cases, RAL gGmbH may additionally require a certificate issued by registered experts within the meaning of Section 3 (15) of the Packaging Act or dual systems.
The applicant shall submit a calculation of the WUR for the end product in Annex 1.
The applicant shall submit pictures (photos and/or technical drawings) of the sales packaging.

3.13 Consumer information

3.13.1 Advertising claims

If the product is classified and labelled as hazardous to human health according to Regulation (EC) No. 1272/2008, advertising claims such as "less environmentally damaging", "less hazardous to water", "less hazardous substances" or comparable statements which could be considered to play down the risks are prohibited.

Compliance verification

The applicant shall declare compliance with the requirement in Annex 1 and submit a product label to RAL gGmbH.

3.13.2 Dosage instructions

a) Dosage instructions for laundry detergents
The recommended dosages shall be stated for "lightly", "normally" and "heavily" soiled laundry and the different water hardness levels, as well as the weight of the laundry per load.
The reference dosage used for the washing performance test and the evaluation of compliance with the environmental criteria for the ingredients for heavy-duty laundry detergents and colour-safe laundry detergents must be the same as the recommended dosage on the packaging for "normally soiled" laundry at a water hardness level of 2.5 mmol $CaCO_3$/l.
The reference dosage used for the washing performance test and the evaluation of compliance with the environmental criteria for the ingredients for low-duty laundry detergents must be the same as the recommended dosage on the packaging for "lightly soiled" laundry at a water hardness level of 2.5 mmol $CaCO_3$/l.
A dosing aid must be provided free of charge on request for laundry detergents that need to be measured out by the end consumer. If the dosing aid is not enclosed with every packaging unit or it cannot be stocked at the retail outlet, it must be possible to request it via a free hotline, via email or via the Internet and the subsequent delivery must be completed free of charge.

b) Dosage instructions for laundry detergent boosters
The recommended dosages shall be stated for "normally" and "heavily" soiled laundry per 4.5 kg load of dry laundry.
The reference dosage used for the washing performance test and the evaluation of compliance with the environmental criteria for the ingredients for laundry detergent boosters must be the same as the recommended dosage on the packaging for "normally soiled" laundry.
A dosing aid must be provided free of charge on request for laundry detergent boosters that need to be measured out by the end consumer. If the dosing aid is not enclosed with every packaging unit or it cannot be stocked at the retail outlet, it must be possible to request it via a free hotline, via email or via the Internet and the subsequent delivery must be completed free of charge.

Compliance verification

The applicant shall declare compliance with the requirement in Annex 1 and submit a product label to RAL gGmbH.

3.13.3 Information on the packaging

a) The type of enzyme contained in the product must be stated on the packaging.
b) The packaging must also contain the following or comparable instructions:
- Wash at the lowest possible temperature.
- Fill the drum with maximum possible load for the type of textile.
- Dose the laundry detergent according to the level of soiling and the level of water hardness, follow the dosage instructions to achieve the best possible washing performance with the least amount of detergent.
- Instructions on where information about water hardness can be found.

c) The primary packaging must contain information on reuse, recycling and the proper disposal of the packaging.
d) Information on obtaining a dosage aid (if relevant)

Only the information stated in a), c) and d) is required for laundry detergent boosters and stain removers.

Compliance verification

The applicant shall declare compliance with the requirement in Annex 1 and submit a product label to RAL gGmbH.

3.13.4 Safety Instructions

End products must carry the following safety instructions (or an equivalent text) in either text form or as a pictogram: "Keep away from children!"

Compliance verification

The applicant shall declare compliance with the requirement in Annex 1 and submit a product label to RAL gGmbH.

3.14 Overview of possible future requirements

The following points will be taken into account, where possible, in future revisions of these Basic Award Criteria:

- The separation and traceability of the raw materials (segregation) for palm (kernel) oil used for the manufacturing of surfactants is not possible. As part of the next revision, it will be important to ensure that only certified and segregated palm (kernel) oil is exclusively used in the product from 2030 onwards. In addition, it will be important to ensure that other natural resources e.g. other oil plants or raw materials for the manufacture of citric acid or bioalcohol are integrated into the certification system. Future revisions of the Basic Award Criteria will take into account any further development of the certification systems for sustainable cultivation.
- Extension of the requirements to include social criteria
- The general ready biodegradability of all organic substances
- Checking the introduction of a criterium for the use of regernative carbon for petrochemical raw materials.
- Checking the requirements for the use of recycled materials in the packaging and for the handling of residual cleaning agents in recycling
- Extension of the ban on corrosive products to include products in category 1 that cause serious eye damage (Eye Dam. 1, H318 "Causes serious eye damage").

4 Applicants and Parties Involved

Manufacturers or distributors of final products according to Paragraph 2 shall be eligible for application.

Parties involved in the award process are:

- RAL gGmbH to award the Blue Angel Environmental Label,
- the federal state being home to the applicant's production site,
- Umweltbundesamt (German Environmental Agency) which after the signing of the contract receives all data and documents submitted in applications for the Blue Angel in order to be able to further develop the Basic Award Criteria.

5 Use of the Environmental Label

The use of the Environmental Label by the applicant is governed by a contract on the use of the Environmental Label concluded with RAL gGmbH.

Within the scope of such contract, the applicant undertakes to comply with the requirements under Paragraph 3 while using the Environmental Label.

Contracts on the Use of the Environmental Label are concluded to fix the terms for the certification of products under Paragraph 2. Such contracts shall run until December 31, 2026.
They shall be extended by periods of one year each, unless terminated in writing by March 31, 2026 or March 31 of the respective year of extension.
After the expiry of the contract, the Environmental Label may neither be used for labelling nor for advertising purposes. This regulation shall not affect products being still in the market.

The applicant (manufacturer) shall be entitled to apply to RAL gGmbH for an extension of the right to use the ecolabel on the product entitled to the label if it is to be marketed under another brand/trade name and/or other marketing organisations.

The Contract on the Use of the Environmental Label shall specify:

- Applicant (manufacturer/distributor)
- Brand/trade name, product description
- Distributor (label user), i.e. the above-mentioned marketing organisations.

Appendix A Cited legislations and standards, literature

The currently valid versions of the relevant regulations and standards at the time of application apply, unless reference is made to a particular version of the regulation or standard in the criteria.

Regulation (EC) No. 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/105/EC and 2000/21/EC

Regulation (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, as well as amending Regulation (EC) No. 1907/2006

Recommendation (2011/696/EU) of the European Commission from 18 October 2011 for the definition of nanomaterials

Guidance for identification and naming of substances under REACH and CLP, May 2017, Version 2.1

Regulation (EC) No. 648/2004 on detergents

Regulation (EC) No. 1223/2009 on cosmetic products

DIN EN ISO/IEC 17025:2018-03 General requirements for the competence of testing and calibration laboratories

OECD No. 311 (2006) Anaerobic Biodegradability of Organic Compounds in Digested Sludge: By Measurement of Gas Production

DIN EN ISO 11734:1998-11 Water quality - Evaluation of the "ultimate" anaerobic biodegradability of organic compounds in digested sludge - Method by measurement of the biogas production

ISO 22095:2020(E) Chain of custody-General terminology and models

ECETOC, 1988, European Centre for Ecotoxicological and Toxicological Safety Assessment of Chemicals, Evaluation of Anerobic Biodegradation. Technical Report No. 28, Brussels, Belgium

OECD No. 302 C (2009) Modified MITI Test (II)

OECD No. 302 B (1992) Zahn-Wellens Test / EMPA Test

Minimum standard for determining the recyclability of packaging subject to system participation pursuant to section 21 (3) VerpackG, Stiftung Zentrale Stelle Verpackungsregister

Appendix B Renewable raw materials in surfactants

The amount of carbon from renewable sources in the total carbon in the surfactant system must be at least 50 %.

A declaration from the manufacturer or supplier of the surfactant shall be enclosed with the application as verification for every surfactant (or surfactant raw material) added to the product. (Declaration from the surfactant manufacturer).
In Section 16 of the declaration, the manufacturer or supplier of the surfactant shall certify the amount of carbon from renewable sources in the total carbon for the surfactant or surfactant raw material.
In Annex 1 (Excel file), this value shall be entered in the sheet "Result-3" in column E for every surfactant or surfactant raw material added to the product (value between 0 and 100).
The subsequent calculation is carried out in Annex 1 as follows:

For every surfactant/surfactant raw material added to the product:

- $G(_i)$ = Proportional weight of the surfactant/surfactant raw material i (column C)
- $R(_i)$ = Proportion of renewable carbon in the total carbon for the surfactant or surfactant raw material i (column E)

The amount of carbon from renewable sources (regenerative carbon) in the total carbon in the surfactant system (value in cell F62) is calculated using the following formula:

$$\frac{\Sigma\, G(_i) \times R(_i)}{G(_i)}$$

If the surfactant system in the formulation changes during the term of the contract, an amended Annex 1 and a declaration from the new manufacturer of the surfactant shall be submitted. In the annual production volume, the amount of carbon from renewable sources in the total carbon in the surfactant system must be at least 50 %.

P_1 = Production volume in the calendar year with the "old" surfactant system
P_2 = Production volume in the calendar year with the "new" surfactant system
R_1 = Proportion of renewable carbon in the total carbon in the "old" surfactant system
R_2 = Proportion of renewable carbon in the total carbon in the "new" surfactant system

R_J = Average yearly proportion of renewable carbon in the total carbon (must be ≥50 %)

$R_J = ((P_1 \times R_1) + (P2 \times R2)) / (P1 + P2)$

Appendix C Fitness for use of laundry detergents

The method for testing the fitness for use of laundry detergents or stain removers corresponds to the requirements and criteria in the "Revised EU Ecolabel protocol for testing laundry detergents".

https://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html
https://ec.europa.eu/environment/ecolabel/documents/fitness_performance_LD_2021_06_07.pdf

(Information on the dose of the pre-wash stain remover must be added somewhere. Mrs. Ophüls will propose the amendment)

The method for testing the fitness for use of laundry detergent boosters corresponds to the requirements and criteria in the "Nordic Ecolabelling for Laundry Detergents and Stain Removers; Version 8.2 • 19 December 2019 – 31 December 2024".

https://www.nordic-ecolabel.org/product-groups/group/?productGroupCode=006
https://www.nordic-ecolabel.org/product-groups/group/DownloadDocument/?documentId=5528