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Revision of EU Ecolabel criteria for detergent products

Technical report v. 1. 0

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Abstract

This technical report is intended to provide the background information for the revision of the existing EU Ecolabel criteria for detergent products (Commission Decisions 2017/1216/EU; 2017/1215/EU; 2017/1218/EU; 2017/1219/EU; 2017/1217/EU and 2017/1214/EU). The study has been carried out by the European Commission's Joint Research Centre, being developed for the European Commission's Directorate General for Environment.

The EU Ecolabel criteria for detergent products currently in force were adopted on 23 June 2017and are valid until the 31st December 2026.

This technical report summarises the results of the preliminary analysis of the current criteria and evaluates if any revision of the product groups scope and their associated technical criteria is needed (*still appropriate/up-to-date?*). It discusses how criteria could/should be revised, amended or removed, including the possibility of adding new criteria.

This Technical Report addresses the requirements of Annex I to the EU Ecolabel Regulation (EC) 66/2010 ([1]) for technical evidence, which meets requirements of the standard procedure to inform criteria revision. It sets the scene for the discussions planned to take place at the first ad-hoc working group (1st AHWG) meeting planned on the 12 and 13th of March 2024. This technical report is supported and complemented by the preliminary report, which is published in parallel with this technical report. The preliminary report includes an analysis of the product group scope and definition, a market analysis, and a technical analysis.

This technical report consists of the following main key sections: Summary of the preliminary report (section 2), scope and definition (section 4), assessment and verification (section 5) and new criteria proposals (section 7). In each section the rationale for the proposed changes (*what is changed and why*) are presented.

[1] Regulation (EC) No 66/2010 of the European Parliament and of the Council of 25 November 2009 on the EU Ecolabel (OJ L 27, 30.1.2010, p. 1–19). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32010R0066

1. Introduction

The EU Ecolabel is the official voluntary labelling scheme of the EU that promotes the production and consumption of products (goods and services) with a reduced environmental impact over their life cycle, and is aimed at products with a high level of environmental performance. The EU Ecolabel Regulation (EC) 66/2010 ([2]) provides a framework to establish voluntary ecological criteria aiming at reducing the negative impact on the environment, health, climate and natural resources of production and consumption of the defined product group. The setting of EU Ecolabel criteria aims to target the environmentally top 10 to 20% of products on the market within a defined product group or service. Accordingly, the EU Ecolabel enables suppliers to market their products with a simple label that can be used as an accurate, non-deceptive and science-based proof of the excellent environmental performance of their products.

Established in 1992, the EU Ecolabel has become a key policy instrument within the European Commission's Sustainable Consumption and Production and Sustainable Industrial Policy (SCP/SIP) Action Plan (see COM(2008) 397) and the Roadmap for a Resource-Efficient Europe (see COM/2011/0571). It has also links with other policy instruments, such as Green Public Procurement (GPP, see COM(2008) 400), the Eco-Management and Audit Scheme (EMAS) (see Regulation (EC) No 1221/2009 and Regulation (EU) No 2018/2026) and the Ecodesign Directive (see Directive 2009/125/EC). In addition, the EU Ecolabel was mentioned as having an important role in the new Circular Economy Action Plan (CEAP) from March 2020, being regarded as an important tool whose criteria will be developed in synergy with future Ecodesign measures. As a part of the circular economy package, the European Commission submitted a proposal for the Directive on empowering consumers for the green transition (see COM 2022/0092). This Directive, along with the EU Ecolabel, shares the goal of promoting sustainability and empowering consumers to make environmentally conscious choices. The empowering consumers for the green transition Directive is closely linked to the Directive on Green Claims (COM 2023/0085), which promotes reliable claims on the environmental performance of products reducing the risk of greenwashing, and with the Ecodesign for Sustainable Products Regulation (COM 2022/0095). .These initiatives in line with the principles of the EU Ecolabel seek to establish a coherent policy framework to help the EU produce sustainable goods, transform consumption patterns in a more sustainable direction, and significantly reduce the environmental footprint of products to contribute to the EU's policy objective of climate neutrality by 2050.

This Technical Report (TR1) addresses the requirements of Annex I to the EU Ecolabel Regulation (EC) 66/2010 ([3]) for technical evidence, which meets requirements of the standard procedure to inform criteria revision. It sets the scene for the discussions planned to take place at the first ad-hoc working group (1st AHWG) meeting planned on the 12 and 13th of March 2024 for the revision of the EU Ecolabel criteria for Detergent product groups.

The revision process takes the existing legal documents (EU Commission Decisions) as the starting point and seeks to analyse its validity, taking into account technological and economic changes in the European market, relevant legislative changes and improved scientific knowledge of the following product groups:

- Dishwasher detergents, hereinafter DD (Commission Decision 2017/1216/EU) ([4]);
- Industrial and institutional dishwasher detergents, hereinafter IIDD (Commission Decision 2017/1215/EU) ([5]);
- Laundry detergents, hereinafter LD (Commission Decision 2017/1218/EU) ([6]);

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2 Regulation (EC) No 66/2010 of the European Parliament and of the Council of 25 November 2009 on the EU Ecolabel (OJ L 27, 30.1.2010, p. 1–19). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32010R0066

3 Regulation (EC) No 66/2010 of the European Parliament and of the Council of 25 November 2009 on the EU Ecolabel (OJ L 27, 30.1.2010, p. 1–19). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32010R0066

4 Commission Decision (EU) 2017/1216 of 23 June 2017 establishing the EU Ecolabel criteria for dishwasher detergents (OJ L 180, 12.7.2017, p. 31–44) https://eur-lex.europa.eu/legal-content/EN/TXT/?toc=OJ%3AL%3A2017%3A180%3ATOC&uri=uriserv%3AOJ.L_.2017.180.01.0031.01.ENG

5 Commission Decision (EU) 2017/1215 of 23 June 2017 establishing the EU Ecolabel criteria for industrial and institutional dishwasher detergents (OJ L 180, 12.7.2017, p. 16–30) https://eur-lex.europa.eu/legal-content/EN/TXT/?toc=OJ%3AL%3A2017%3A180%3ATOC&uri=uriserv%3AOJ.L_.2017.180.01.0016.01.ENG

6 Commission Decision (EU) 2017/1218 of 23 June 2017 establishing the EU Ecolabel criteria for laundry detergents (OJ L 180, 12.7.2017, p. 63–78) https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32017D1218&qid=1678703370910

— Industrial and institutional laundry detergents, hereinafter IILD (Commission Decision 2017/1219/EU) ([7]);

— Hard surface cleaning products, hereinafter HSC (Commission Decision 2017/1217/EU) ([8]);

— Hand dishwashing detergents, hereinafter HDD (Commission Decision 2017/1214/EU) ([9]).

Bringing together the information in the associated Preliminary Report (PR) on the assessment of the current scope, market analysis and technical aspects, including life-cycle analysis (LCA) considerations, a proposal for a set of revised EU Ecolabel criteria is presented in this Technical Report. The entire life cycle of the product is considered (Raw material acquisition->Manufacturing->Use->End-of-life). The EU Ecolabel may define criteria that target environmental impacts from any of these life cycle phases, with the aim being to tackle those of greatest importance (life cycle hot spots).

Similarly to the PR, this TR1 analyses the six product group horizontally, while if deemed necessary, focusing on the areas that are specific to each product group. Consequently, the simultaneous revision of the six product groups is looked at holistically, thus enhancing harmonisation of the criteria sets while focusing on the most relevant environmental aspects

An important part of the process for developing or revising EU Ecolabel criteria is the involvement of stakeholders through their consultation on draft criteria proposal and technical reports. This is carried out via Ad-Hoc Working Group meetings, conference calls, email exchanges, forum discussions and written comments submitted via an online platform. The criteria development process involves engagement with stakeholders, namely technical experts, non-governmental organisations (NGOs), Member State representatives and industry stakeholders.

Indeed, to facilitate stakeholders' involvement, this TR1 has been uploaded to the BATIS platform to streamline their comments. In addition, each report (PR & TR1) can also be found in PDF format on the BATIS platform and on the project's website (https://susproc.jrc.ec.europa.eu/product-bureau/product-groups/411/documents).

The study has been carried out by the European Commission's Joint Research Centre (JRC), Unit B.5 – Circular Economy and Sustainable Industry, being developed for the European Commission's Directorate General for Environment.

For better reading and interpretation of this TR1, the legal text is presented in boxes which display the text of the existing criterion text (EUEL criteria in force) together with the new proposals (additions/changes) highlighted in blue colour font. Any text deletion is also marked in blue font and with strikethrough style. Note that the legal texts presented in these boxes correspond with the consolidated legal text versions of each of the EU Ecolabel criteria for detergents product groups (LD, IILD, DD, IIDD, HDD, HSC), exactly matching the content and order in which the text is presented in these EU Commission Decisions. To avoid redundancy, if the same legal text is applicable to several product groups, then it is cited only once and it is indicated which products groups share this particular text.

The rationale accompanying each criterion/section presents and discusses the evidences leading to changes in the existing criteria. Generally, rationales start with their aim, disclose LCA related considerations to then fully disclose the scientific/technical rationale, which is structured according to relevant aspects addressed in the revision of that particular (sub-)criterion. In some cases, when stakeholders feedback is sought, the rationale ends with a box containing numbered questions, whose responses aim to contribute improving (sub-)criterion proposals (e.g. setting a particular quantitative threshold).

[7] Commission Decision (EU) 2017/1219 of 23 June 2017 establishing the EU Ecolabel criteria for industrial and institutional laundry detergents (OJ L 180, 12.7.2017, p. 79–96). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32017D1219&qid=1678704095676

[8] Commission Decision (EU) 2017/1217 of 23 June 2017, establishing the EU Ecolabel criteria for hard surface cleaning products (OJ L 180, 12.7.2017, p. 45–62) https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32017D1217&qid=1678704194237

[9] Commission Decision (EU) 2017/1214 of 23 June 2017 establishing the EU Ecolabel criteria for hand dishwashing detergents (OJ L 180, 12.7.2017, p. 1–15) https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32017D1214&qid=1678704405604

2. Summary of Preliminary Report

This section provides a summary of the findings of the Preliminary Report (PR) for the revision of EU Ecolabel criteria for detergents, thus outlining main background information supporting new criteria proposals.

2.1. Background information

Prior to the start and during the EUEL criteria revision process, different stakeholders participate by providing relevant feedback which help shaping and improving the final technical criteria (e.g. data/information provision; comments on criteria proposals).

The previous revision took place between 2014—2017, resulting in the existing criteria structure:

Table 1. Structure of the current EU Ecolabel criteria for the detergent product groups

Criterion	LD	IILD	DD	IIDD	HSC	HDD
1	Dosage requirement	Toxicity to aquatic organisms	Dosage requirement	Toxicity to aquatic organisms	Toxicity to aquatic organisms	Toxicity to aquatic organisms
2	Toxicity to aquatic organisms	Biodegradability	Toxicity to aquatic organisms	Biodegradability	Biodegradability	Biodegradability
3	Biodegradability	Sustainable sourcing of palm oil, etc.	Biodegradability	Sustainable sourcing of palm oil, etc.	Sustainable sourcing of palm oil, etc.	Sustainable sourcing of palm oil, etc.
4	Sustainable sourcing of palm oil, etc.	Restricted substances	Sustainable sourcing of palm oil, etc.	Restricted substances	Restricted substances	Restricted substances
5	Restricted substances	Packaging	Restricted substances	Packaging	Packaging	Packaging
6	Packaging	Fitness for use	Packaging	Fitness for use	Fitness for use	Fitness for use
7	Fitness for use	Automatic dosing systems	Fitness for use	Automatic dosing systems	User information	User information
8	User information	User information	User information	User information	Information on EU Ecolabel	Information on EU Ecolabel
9	Information on EU Ecolabel	Information on EU Ecolabel	Information on EU Ecolabel	Information on EU Ecolabel	n.a.	n.a.

Source: Boyano et al, 2016 ([10]).

The current EUEL criteria revision has considered the directions provided by stakeholders from the adoption of the existing criteria until now (See PR, *Chapters 2 & 3*). These included:

- Consider expanding the scope (e.g. in-wash removers) and modifying definitions (e.g. impurities).
- Consider reducing (e.g. preservatives), eliminating (e.g. fragrances in professional HSC) or substituting (E.g. Endocrine disruptors) "problematic" substances.

[10] European Commission, Joint Research Centre, Boyano, A.; Kaps, R.; Medyna, G.; Wolf, O, 2016. Revision of six EU Ecolabel criteria for detergents and cleaning products. Final Technical Report. Available at https://susproc.jrc.ec.europa.eu/product-bureau/sites/default/files/contentype/product_group_documents/1581681262/Technical%20background%20report.pdf (Accessed 10/07/23)

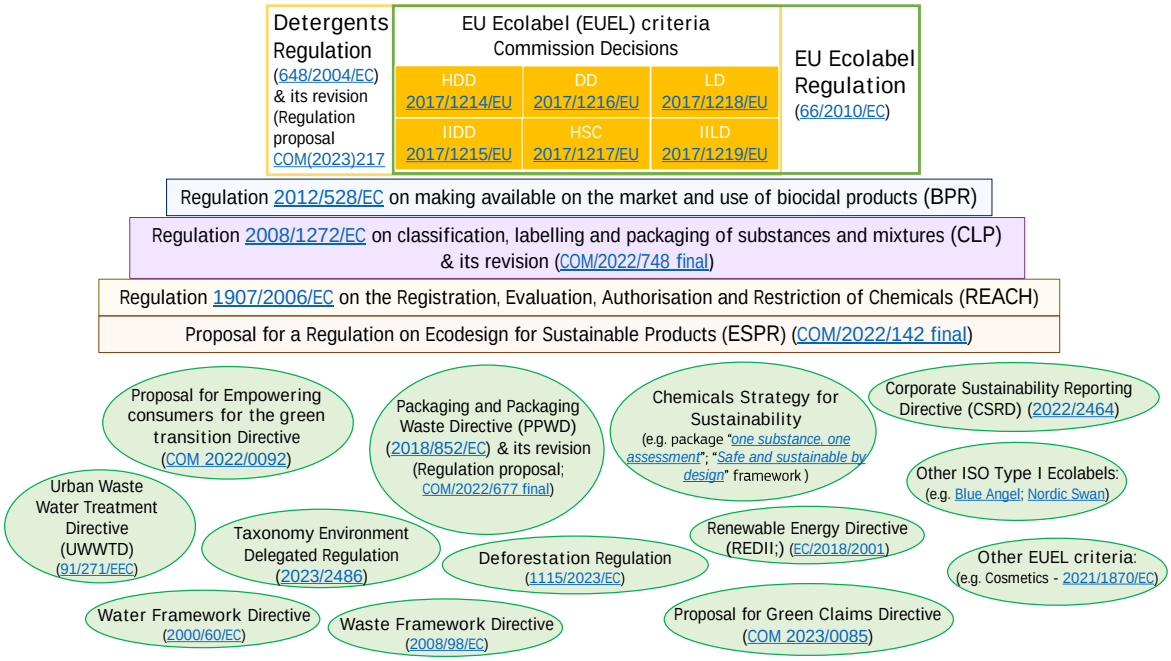
— Consider improving requirements associated to packaging (e.g. design for recycling).

Those aspects related to scope and definitions were assessed in more detail in the PR while those related to particular criteria aspects are mentioned, if relevant, here in this TR1 within each criterion rationale.

Overall, stakeholders considered adequate the scope and definitions of existing EUEL criteria and, if revision was suggested, this focused mostly on LD and HSC product groups. Some of the key definitions suggested for improvement were: *"nanomaterials", "microplastics", "impurities"* and *"in-going substances"*.

Detergents and cleaners products, including their ingredients, are subject to sector-specific as well as horizontal (non-specific) EU legislation. Many of these legislation are under revision or has been revised since the last revision of the EUEL criteria for detergents concluded (See Figure 1). The most relevant one is the revision of the Detergent Regulation ([11]), currently in proposal stage ([12]).

Figure 1. Illustration of EU relevant legislative context to the EU Ecolabel criteria for detergent products



Relevant sustainability standards and ecolabelling schemes were consulted to understand better the categorization and relevant sustainability standards applicable to detergent and cleaning products. Special focus was placed on other consolidated, trusted and widely adopted European ISO Type I labels, as Blue Angel and Nordic Swan, since the comparison with EUEL criteria can highlight also areas for consideration during the revision.

The thematic scope areas identified as relevant given the previous streams of information focused on LD and HSC product groups dealt around the inclusion (or not) of fabric softeners, in-was stain removers, products containing microorganisms, products effective at low (20C) temperature and Ready-to-Use (RTU) products. Further details on these topics are shared as part of this TR section on Scope.

[11] Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents. (OJ L 104, 8.4.2004, p. 1–35). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0648

[12] COM(2023)217 - Proposal for a regulation of the European Parliament and of the Council on detergents and surfactants, amending Regulation (EU) 2019/1020 and repealing Regulation (EC) No 648/2004. https://single-market-economy.ec.europa.eu/publications/com2023217-proposal-regulation-detergents-and-surfactants_en

2.2. Market analysis

The product groups considered for the purposes of the market analysis (See PR *chapter 4*) were:

- LD Laundry Detergents (including Industrial and Institutional Laundry Detergents).
- DD Dishwasher Detergents (including Industrial and Institutional Dishwasher Detergents).
- HDD Hand Dishwashing Detergents.
- HSC Hard surface Cleaning Products.

The assumption made was that the scope (and market segmentation) of product groups in existing criteria would largely remain valid, even considering the few potential scope changes in LD and HSC highlighted in the preliminary scope analysis.

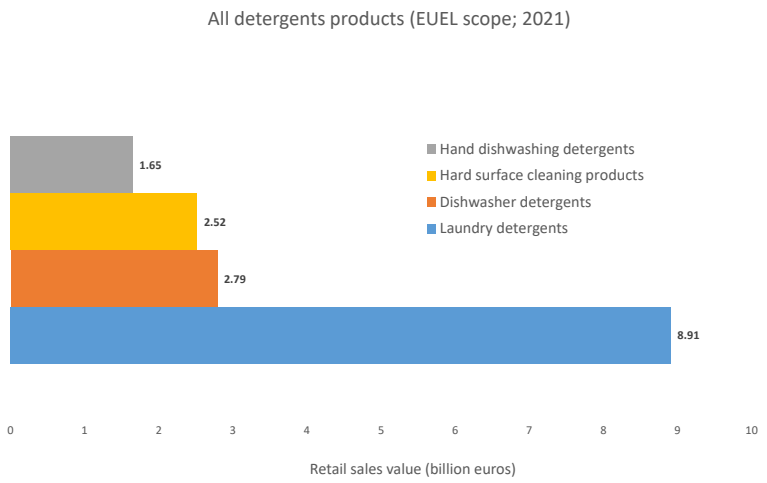
The market analysis aimed to characterise the potential market share attributable to all detergent and cleaning products and to products falling under EUEL scope (thus only EUEL ecolabelled detergent and cleaning products), inclusive of some relevant market segmentations.

PRODCOM data was used as a proxy and for the purposes of understanding the potential market of all detergent and cleaning products (whether falling under EUEL scope or not). Since PRODCOM mostly stands on products composition and/or form but not on other aspects such as functionality or end-user, it does not allow its processing into meaningful categories (categorisation) with regards to the EU ecolabel products scope. Consequently, to understand the potential market of EUEL ecolabelled products, data from Euromonitor International, Home Care, 2022 was used and processed (where necessary) to allow meaningful categorisation according to EUEL scope. The periods considered for the market data analysis are the last 5 years (historic; 2018-2022) and the next 5 years (forecasting; 2023 -2027).

The use (thus market shares) of detergent and cleaning products have been and is expected to continue growing worldwide. In the European market in the last 5 years, an increasing trend was observed, probably owing to an activation of the market due to COVID pandemic effects. The foresight (modelled data) shown that this increase is expected, to highest or lowest extend, to keep increasing. However, whilst the product group potential market share can increase, particular segments could be phasing out (e.g. In LD, decrease/substitution of powder LD format for liquid and tablets).

The most relevant product group resulting from the market analysis were LD and HSC (particularly All-purpose cleaners). In 2021 and in terms of the potential market for EU Ecolabel products by value (billion euros; See Figure 2), LD is the most successful product (56%), followed by HDD (18%) and HSC (16%). Similarly, in terms of the potential market for EU Ecolabel products by volume (tonnes), LD is also the most successful (49%) followed by HSC (32%).

Figure 2 – Estimation of the potential EU Ecolabel market size for detergent product groups in EU28



Source: Euromonitor

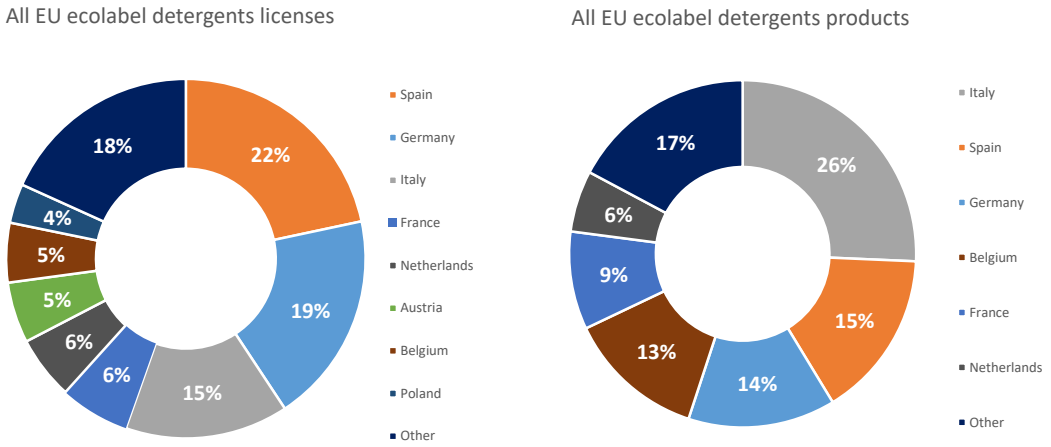
In addition to market analysis (figures and segmentation), relevant trends on innovative products, consumer behaviour and EU Ecolabel uptake were assessed and presented.

Descriptors of the main identified sustainability product innovations are: *Ingredients substitution; Efficient manufacturing; Concentrated products; Biobased products; Refill systems; Enzymes, Microbial containing products; "cold" wash.* Some trends are relevant to all product groups (e.g. ingredients substitution; concentrated products) while others are more important for particular product groups (e.g. "cold" wash for LD).

The main driver for **consumers' behaviour** is functionality, understanding as such primarily cleaning but also contribution to hygiene. Then, under similar price per product (cost as modulator), there is a clear push for more environmentally friendly products ("eco"-products).

The uptake of EU Ecolabel for detergent products has increased steadily for all product groups, especially HSC (+25 licences, +233 products) in the period March 23 – September 23. All EU Ecolabel detergent product groups pooled together represent 34.1% of the total number of licenses (of which 14.6% correspond to the top product group - HSC) and 13.5% of the total number of ecolabelled products. The Member States with the highest share of awarded licences and ecolabelled products for detergents product groups are Spain, Italy, Germany, Belgium and France (See Figure 3).

Figure 3 – Share of EU Ecolabel detergents licenses (A) and products (B) arranged by EU Member State as on September 23 (Total number of licenses = 2584; Total number of ecolabelled products = 88921).



2.3. Technical analysis

The ingredients of detergent and cleaning products need to meet multiple selection criteria such as cost, sustainability, human health, environmental safety and performance. Most of these ingredients are common to all EU Ecolabel product groups, differing each in the type and proportions that are used in their formulation and being: surfactants, preservatives, enzymes, builders, dyes, bleaching agents, fragrances and solvents. Other ingredients are specific to particular product groups (e.g. opacifiers in HDD). Surfactants play a very significant role due to their key role in washing/cleaning mechanisms (thus they are almost ubiquitously present detergent and cleaning product formulations). Consequently, the environmental impacts associated with surfactants is a commonly discussed topic, especially regarding their nature (e.g. degradability) and feedstock source (petrochemical versus oleochemical origin and, more recently, microbial origin).

The manufacturing process for detergent and cleaning products is quite different depending on whether the final product is in a powder or a liquid format. Liquid products are general just about mixing the ingredients in the correct sequence under controlled conditions and in a reproducible manner. Powder products require the formation of a slurry by mixing dry or wet ingredients with water before rapid drying to form granules in a spray drying tower. If there are any temperature sensitive ingredients (e.g. enzymes), then these are added to the already dried powder afterwards. The manufacturing of laundry detergent sheets is also a fundamentally different process.

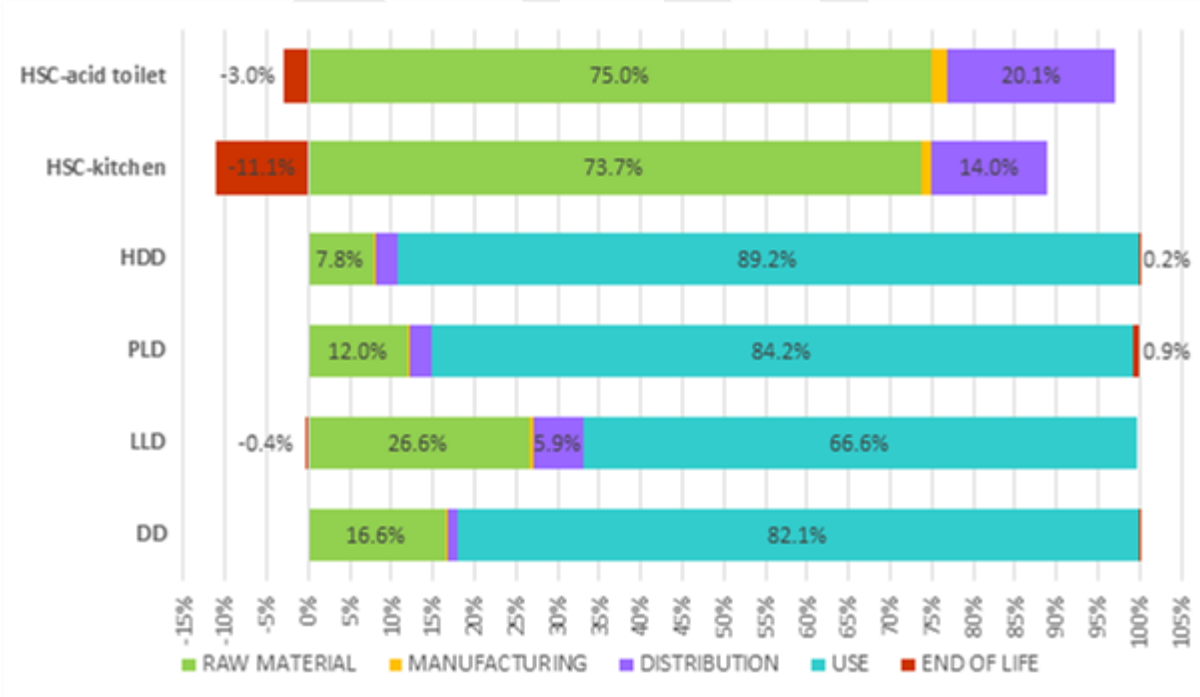
The environmental impacts associated with detergent products from an LCA perspective were evaluated first of all via a comprehensive screening of LCA literature available in the public domain. In total, 45 different papers and reports were screened and scored and a summary of findings were split into: (i) laundry detergents; (ii) dishwasher detergents; (iii) hand dishwashing detergents; (iv) hard surface cleaners; (v) packaging, and (vi) detergent ingredients (especially palm oil and microbial-based biosurfactants). The most relevant literature, both in terms of context and in terms of being able to compare results, were the four reports published by Arendorf et al., (2014a, 2014b, 2014c and 2014d).

The assessment of LCA-based environmental impacts was continued in the preliminary research by carrying out a number of screening studies using PEF methodology and EF datasets. Details of the PEF methodology are set out in Commission Recommendation (EU) 2021/2279 and this involves some of the following factors, amongst others:

- Default life cycle stages of: raw materials and pre-processing; manufacturing; distribution; use and End of life.
- Reporting characterised results for climate change fossil, climate change biogenic, climate change land use and land use change and for the other 15 impact categories in the associated units.
- Reporting normalised results, which are generated by multiplying characterised results by preset normalisation factors.
- Reporting normalised and weighted results as a single PEF score, generated by multiplying normalised results by preset weighting factors and adding them together.
- Using a circular footprint formula for dealing with the use of recycled content and end of life recycling or reuse.

Following the PEF method, the results of screening studies for 6 different detergent products can be compared below in a simplified manner (See Figure 4).

Figure 4. Comparison of relative life cycle stage contributions to overall PEF scores for six different detergent products (PLD means Powder Laundry Detergent and LLD means Liquid Laundry Detergent)



The varying importance of the use stage: From the spread of data above, the relative importance of the use stage can be seen to vary a huge amount between the different product groups. Use stage impacts were expected to be high for DD products, due to the typically higher washing cycle temperatures used (e.g. 60°C), and for LD products, due to wash cycle temperatures typically being 40°C. An even larger share of use stage impacts can be expected for industrial LD and DD products since cycle temperatures tend to be higher due to the need for faster washing and the added importance of sanitation and hygiene in these contexts. However,

use stage impacts may be offset in the industrial setting if dosing is optimised and appliances are also fully loaded for economical reasons.

It was surprising to see the relatively large use stage impacts for the HDD product life cycle. This was because warm water was assumed to be used for manual dishwashing (40°C) and because the detergent formulation has a generally low impact (ca. 94% water).

At the other extreme, use stage impacts were virtually zero with the two HSC products because no energy was needed to heat water and negligible water consumption was also assumed. Any consumption or degradation of auxiliary cleaning materials (cloths, scourers, mop heads etc.) were excluded from the scope.

The varying importance of the raw material stage: this stage consisted of both ingredients and packaging material production. It is interesting to note the relatively higher raw material impacts associated with LLD compared to PLD products, since for these products, the wash cycle energy consumption assumptions were the same. A closer look at the breakdown of detergent ingredients between LLD and PLD products would be necessary in order to be more certain of any improvement potentials.

While some real formulation data was made available for PLD products for this study, the LLD data essentially comes from the PEFCR study, published in 2019 (and formulation data will have been provided several years before 2019). The more formulations that can be provided for a given detergent product type and sub-category, the more accurate and useful will be any improvement potential analysis in the next draft of this PR.

As the use stage influence decreases, other stages come to the fore: A clear pattern emerges of the distribution and end-of-life stages becoming more significant as the use stage becomes less significant. Transport assumptions in the distribution stage can be reduced by minimising the transport of the product, which is mainly water. Distribution impacts can be reduced either by selling in more local and regional markets, or only shipping concentrated formulations.

Oleochemical vs petrochemical origin of surfactants: There has been big effort to shift towards bio-based or plant-based ingredients for detergent products and this is a common green claim made by manufacturers. However, the expected benefits of reduced fossil resource depletion need to be compared against the expected increased impacts that will be associated with land use to product the plant-based oils. The same reports by Arendorf et al., (2014a, 2014b, 2014c, 2014d) showed the following effects of such a change.

Table 2. Effect of changing from petrochemical to oleochemical sources (CO-Coconut Oil or PKO-Palm Kernel Oil) on cradle-to-grave LCA results of selected impact categories for different detergent products. Sources: Arendorf et al., 2014a, 2014b, 2014c and 2014d.

Impact category*	Laundry Detergent		Dishwasher Detergent		Hand Dishwashing Detergent		Hard Surface Cleaner		
	Petro-	Oleo-	Petro-	Oleo-	Petro-	Oleo-	Petro-	Oleo-CO	Oleo-PKO
POF	100%	100.0%	100%	100.0%	100%	101.3%	100%	110.3%	96.6%
PMF	100%	100.9%	100%	100.0%	100%	100.0%	100%	115.4%	100.0%
TEcoT	100%	157.0%	100%	149.8%	100%	1850.6%	100%	8750.0%	10000.0%
ALO	100%	111.7%	100%	102.8%	100%	284.7%	100%	456.3%	1437.5%
NLT	100%	99.9%	100%	100.0%	100%	665.8%	100%	110.0%	3100.0%
MD	100%	100.0%	100%	100.0%	100%	103.6%	100%	121.7%	117.4%
FD	100%	98.0%	100%	100.0%	100%	95.9%	100%	94.7%	94.7%

* The impact category abbreviations stand for: Photochemical Oxidant Formation (POF); particulate Matter Formation (PMF); Terrestrial Ecotoxicity (TEcoT); Agricultural Land Occupation (ALO); Natural Land Transformation (NLT); Mineral resource Depletion (MD); and Fossil resource Depletion (FD)

All other impact categories not mentioned above had only minor changes between petro- and oleo-chemically sourced surfactants. In general, the changes in impacts caused by moving to oleochemical sources were largest with the Terrestrial EcoToxicity impacts, followed by Natural Land Transformation and the Agricultural Land Occupation. These impacts are clearly linked to potential deforestation impacts caused by palm oil and palm kernel oil production in Indonesia and Malaysia in particular.

Another pattern can be observed when comparing particular impact categories across the different detergent products. Impacts were greatest with HSC products, then HDD products and then, at much less extreme levels, with LD and DD products. This trend follows the pattern of a progressively less energy intensive use phase. As the use phase becomes less significant, the ingredients stage becomes relatively more important, a thus so does the effect of changing the surfactant precursor origin.

However, in terms of benefits of shifting from petrochemical to oleochemical precursors, only a marginal (ca. 5%) benefit was found in reducing fossil resource depletion. These findings should be carefully examined in the in-house LCA studies to be conducted and will also need to be considered when dealing with rationale for any criteria relating to palm oil or requirements for bio-based or plant-based ingredients.

The promise of microbial-based biosurfactants: There is a wealth of literature about the production, properties and potential applications of microbial-based biosurfactants that are generally produced via fermentation processes. One of the main potential applications is use in detergent products. However, very little information is publicly available about the environmental impacts from an LCA perspective and primary data is of low quality and representativeness since the few studies available are focused at laboratory or pilot scale. Despite the lack of data, there is a great potential for environmental improvements, especially if biosurfactants can be co-produced together with other products like enzymes or fatty acids.

The preliminary research also looked at non-LCA environmental impacts, which generally meant an assessment of the human health and environmental hazards associated with detergent ingredients. This involved a review of the CDV values for substances listed on the DID List (currently under revision) and a closer look at preservatives (because they have necessary inherent toxicity hazards) and fragrances (because they are not well covered by the DID list).

Finally, the preliminary research concluded with an outline assessment of the improvement potential, at least from an LCA perspective, if certain factors are changed (e.g. wash cycle temperature, recycled content of packaging etc.). However, in order for the improvement potential to be most accurate, there is a need to have more accurate assumptions for energy consumption in the manufacturing stage (especially with PLD) and to have a better idea of representative product formulations on the market today (which are more concentrated than even just a few years ago). Furthermore, a cross-check of the suitability of proxy dataset entries for ingredients where there was no exact match in the EF datasets is needed. So it is proposed to revise the LCA screening studies and subsequent sensitivity and improvement potential analyses once suitable input has been received.

3. Product group names

Existing product group names	
DD	Dishwasher detergents
HDD	Hand dishwashing detergents
HSC	Hard surface cleaning products
IIDD	Industrial and institutional dishwasher detergents
IILD	Industrial and institutional laundry detergents
LD	Laundry detergents
Proposed product group names	
DD	Dishwasher detergents
HDD	Hand dishwashing detergents
HSC	Hard surface cleaning products
IIDD	Professional ~~Industrial and institutional~~ dishwasher detergents
IILD	Professional ~~Industrial and institutional~~ laundry detergents
LD	Laundry detergents

Rationale for the proposed scope text

The EU Ecolabel product group names should be both as easily comprehensible and as concise as possible, and in line with the terms used in the Detergents Regulation (648/2004/EC) ([13]), including its revised proposal([14]), where possible. In both legislation the following relevant definitions to the EU Ecolabel product group names and scopes are present:

- '*consumer laundry detergent*' means a detergent for laundry placed on the market for use by non-professionals, including in public laundrettes;
- '*consumer automatic dishwasher detergent*' means a detergent placed on the market for use in automatic dishwashers by non-professionals

However, the text of the following definition "*a detergent for cleaning outside the domestic sphere, carried out by specialised personnel using specific products*" is the same in both legislation but in the Detergent Regulation was defined as "*Industrial and Institutional*" while in the revised proposal is quoted as "*Professional detergent*"

The topic on whether to include the terms "*consumer*" and "*professional*" as part of the EUEL product group names was discussed in the previous EUEL criteria revision and the conclusion was that, in general, using these terms would not properly reflect the whole range of products falling under the scope, the conditions of

[13] Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents. (OJ L 104, 8.4.2004, p. 1–35). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0648

[14] COM(2023)217 - Proposal for a regulation of the European Parliament and of the Council on detergents and surfactants, amending Regulation (EU) 2019/1020 and repealing Regulation (EC) No 648/2004. https://single-market-economy.ec.europa.eu/publications/com2023217-proposal-regulation-detergents-and-surfactants_en

their use (e.g. dishwasher) and the end-users involved ([15]). From these perspective, the current product group names in the EU Ecolabel (EUEL) criteria for detergent products could be deemed as fit for purpose, aspect reflected by the lack of stakeholder feedback in the preliminary questionnaire suggesting their modification.

However, in the previous revision it was also highlighted that that the terms "Industrial and institutional" might be unfamiliar to the general public and that the major trade body was shifting to using the term "*professional*", thus considering whether to use the term "*Professional*" instead. Also, the use of "*professional*" would be aligned with the revised Detergent Regulation proposal terminology.

In view of the former, it **is proposed to substitute: "***Industrial and Institutional***"** by **"***Professional***"** in EU Ecolabel for detergent product group names are proposed

Points for discussion 1 - Product group names

Stakeholders are invited to reply the following consultation question:

— Question 1 (Q1) **–** Would you support the substitution of the term "*Industrial and Institutional*" by "*Professional*"? If not, why?

[15] Boyano, A.; Kaps, R.; Medyna, G.; Wolf, O, 2016. Revision of six EU Ecolabel criteria for detergents and cleaning products. Final Technical Report. European Commission, Joint Research Centre, Available at https://susproc.jrc.ec.europa.eu/product-bureau/sites/default/files/contentype/product_group_documents/1581681262/Technical%20background%20report.pdf

4. Scope and definitions

4.1. Scopes

Existing scopes	
DD	The product group 'dishwasher detergents' shall comprise any detergent for dishwashers or rinse aid falling under the scope of Regulation (EC) No 648/2004 of the European Parliament and of the Council[16] which is marketed and designed to be used exclusively in household dishwashers and in automatic dishwashers for professional use of the same size and usage as that of household dishwashers.
HDD	The product group 'hand dishwashing detergents' shall comprise any detergent falling under the scope of Regulation (EC) No 648/2004 of the European Parliament and of the Council[17] on detergents which is marketed and designed to be used to wash by hand items such as glassware, crockery and kitchen utensils including cutlery, pots, pans and ovenware. The product group shall comprise products for both private and professional use. The products shall be a mixture of chemical substances and shall not contain micro-organisms that have been deliberately added by the manufacturer
HSC	The product group 'hard surface cleaning products' shall comprise any all-purpose cleaner, kitchen cleaner, window cleaner or sanitary cleaner falling under the scope of Regulation (EC) No 648/2004 of the European Parliament and of the Council[18] which is marketed and designed to be used as one of the following: — all-purpose cleaners, which shall include detergent products intended for the routine indoor cleaning of hard surfaces such as walls, floors and other fixed surfaces, — kitchen cleaners, which shall include detergent products intended for the routine cleaning and degreasing of kitchen surfaces such as countertops, stovetops, kitchen sinks and kitchen appliance surfaces, — window cleaners, which shall include detergent products intended for the routine cleaning of windows, glass and other highly polished surfaces, — sanitary cleaners, which shall include detergent products intended for the routine removal, including by scouring, of dirt or deposits in sanitary facilities, such as laundry rooms, toilets, bathrooms and showers. The product group shall cover products for both private and professional use and sold either in ready-to-use or undiluted form. Products shall be mixtures of chemical substances. Products for private use shall not contain micro-organisms that have been deliberately added by the manufacturer.
IIDD	The product group 'industrial and institutional dishwasher detergents' shall comprise any dishwasher detergent, rinse or pre-soak agent falling under the scope of Regulation (EC) No 648/2004 of the European Parliament and of the Council[19] which is marketed and designed to be used by specialised personnel in professional dishwashers. This product group includes multi-component systems comprised of more than one component used

[16] Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents. (OJ L 104, 8.4.2004, p. 1–35). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0648

[17] Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents. (OJ L 104, 8.4.2004, p. 1–35). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0648

[18] Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents. (OJ L 104, 8.4.2004, p. 1–35). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0648

[19] Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents. (OJ L 104, 8.4.2004, p. 1–35). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0648

	to build up a complete detergent. Multi-component systems may incorporate a number of products such as pre-soak and rinsing agents, and they shall be tested as a whole. This product group shall not comprise dishwasher detergents designed for household dishwashers, detergents intended to be used in washers of medical devices or in special machines for the food industry. Sprays not dosed via automatic pumps are excluded from this product group.
IILD	The product group 'industrial and institutional laundry detergents' shall comprise any laundry detergent falling under the scope of Regulation (EC) No 648/2004 of the European Parliament and of the Council[20] which is marketed and designed to be used by specialised personnel in industrial and institutional facilities. This product group includes multi-component systems comprised of more than one component used to build up a complete detergent or a laundering programme for an automatic dosing system. Multi-component systems may incorporate a number of products such as fabric softeners, stain removers and rinsing agents, and they shall be tested as a whole This product group shall not comprise products which induce textile attributes such as water repellency, waterproofness or fire retardancy. Furthermore, the product group shall not comprise products that are dosed by carriers such as sheets, cloths or other materials, or washing auxiliaries used without subsequent washing such as stain removers for carpets and furniture upholstery. Laundry detergents to be used in household washing machines are excluded from the scope of this product group.
LD	The product group 'laundry detergents' shall comprise any laundry detergent or pretreatment stain remover falling under the scope of Regulation (EC) No 648/2004 of the European Parliament and of the Council[21] which is effective at 30 °C or below and is marketed and designed to be used for the washing of textiles principally in household machines, but not excluding its use in public laundrettes and common laundries. Pre-treatment stain removers include stain removers used for direct spot treatment of textiles before washing in the washing machine but do not include stain removers dosed in the washing machine and stain removers dedicated to other uses besides pre-treatment. This product group shall not comprise fabric softeners, products that are dosed by carriers such as sheets, cloths or other materials or washing auxiliaries used without subsequent washing such as stain removers for carpets and furniture upholstery.
Proposed scopes	
DD	The product group 'dishwasher detergents' shall comprise any detergent for dishwashers or rinse aid falling under the scope of Regulation (EC) No 648/2004 of the European Parliament and of the Council[22] which is marketed and designed to be used exclusively in household dishwashers and in automatic dishwashers for professional use of the same size and usage as that of household dishwashers.
HDD	The product group 'hand dishwashing detergents' shall comprise any detergent falling under the scope of Regulation (EC) No 648/2004 of the European Parliament and of the Council[23] on

[20] Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents. (OJ L 104, 8.4.2004, p. 1–35). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0648

[21] Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents. (OJ L 104, 8.4.2004, p. 1–35). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0648

[22] Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents. (OJ L 104, 8.4.2004, p. 1–35). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0648

[23] Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents. (OJ L 104, 8.4.2004, p. 1–35). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0648

	detergents which is marketed and designed to be used to wash by hand items such as glassware, crockery and kitchen utensils including cutlery, pots, pans and ovenware. The product group shall comprise products for both private and professional use. The products shall be a mixture of chemical substances and shall not contain micro-organisms that have been deliberately added by the manufacturer
HSC	The product group 'hard surface cleaning products' shall comprise any all-purpose cleaner, kitchen cleaner, window cleaner or sanitary cleaner falling under the scope of Regulation (EC) No 648/2004 of the European Parliament and of the Council[24] which is marketed and designed to be used as one of the following: — all-purpose cleaners, which shall include detergent products intended for the routine indoor cleaning of hard surfaces such as walls, floors and other fixed surfaces, — kitchen cleaners, which shall include detergent products intended for the routine cleaning and degreasing of kitchen surfaces such as countertops, stovetops, kitchen sinks and kitchen appliance surfaces, — window cleaners, which shall include detergent products intended for the routine cleaning of windows, glass and other highly polished surfaces, — sanitary cleaners, which shall include detergent products intended for the routine removal, including by scouring, of dirt or deposits in sanitary facilities, such as laundry rooms, toilets, bathrooms and showers. The product group shall cover products for both private and professional use and sold either in ready-to-use or undiluted form. Products shall be mixtures of chemical substances. Products for private use shall not contain micro-organisms that have been deliberately added by the manufacturer.
IIDD	The product group 'industrial and institutional dishwasher detergents' shall comprise any dishwasher detergent, rinse or pre-soak agent falling under the scope of Regulation (EC) No 648/2004 of the European Parliament and of the Council[25] which is marketed and designed to be used by specialised personnel in professional dishwashers. This product group includes multi-component systems comprised of more than one component used to build up a complete detergent. Multi-component systems may incorporate a number of products such as pre-soak and rinsing agents, and they shall be tested as a whole. This product group shall not comprise dishwasher detergents designed for household dishwashers, detergents intended to be used in washers of medical devices or in special machines for the food industry. Sprays not dosed via automatic pumps are excluded from this product group.
IILD	The product group 'industrial and institutional laundry detergents' shall comprise any laundry detergent falling under the scope of Regulation (EC) No 648/2004 of the European Parliament and of the Council[26] which is marketed and designed to be used by specialised personnel in industrial and institutional facilities. This product group includes multi-component systems comprised of more than one component used to build up a complete detergent or a laundering programme for an automatic dosing system. Multi-component systems may incorporate a number of products such as fabric softeners, stain removers

[24] Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents. (OJ L 104, 8.4.2004, p. 1–35). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0648

[25] Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents. (OJ L 104, 8.4.2004, p. 1–35). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0648

[26] Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents. (OJ L 104, 8.4.2004, p. 1–35). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0648

	and rinsing agents, and they shall be tested as a whole This product group shall not comprise products which induce textile attributes such as water repellency, waterproofness or fire retardancy. Furthermore, the product group shall not comprise products that are dosed by carriers such as sheets, cloths or other materials, or washing auxiliaries used without subsequent washing such as stain removers for carpets and furniture upholstery. Laundry detergents to be used in household washing machines are excluded from the scope of this product group.
LD	The product group 'laundry detergents' shall comprise any laundry detergent or pretreatment stain remover falling under the scope of Regulation (EC) No 648/2004 of the European Parliament and of the Council[27] which is effective at ~~30~~ 20 °C or below and is marketed and designed to be used for the washing of textiles principally in household machines, but not excluding its use in public laundrettes and common laundries. Pre-treatment stain removers include stain removers used for direct spot treatment of textiles before washing in the washing machine but do not include stain removers dosed in the washing machine and stain removers dedicated to other uses besides pre-treatment. This product group shall not comprise fabric softeners, products that are dosed by carriers such as sheets, cloths or other materials or washing auxiliaries used without subsequent washing such as stain removers for carpets and furniture upholstery.

Rationale for the proposed scope text

The scope aims to clearly delimit which products are included within the EUEL criteria and which are not, mostly on the grounds of product commonalities but especially on the basis of sharing a common function. In the case of the EUEL criteria for detergent products this function is washing/cleaning.

The main streams of information that have informed about potential directions for scope revision are:

- Product innovation – New products and/or product formats that have entered in the market since the last revision and that fall/could potentially fall under the scope of a particular EUEL product group (e.g. laundry sheets; LD).
- Legislative changes – particular pieces of legislation, especially Regulations that by changing could affect (widen/restrict) the scope of products eligible for the EU Ecolabel award. A clear example the Detergents Regulation (648/2004/EC) ([28]), that in its revision ([29]) included microorganisms as part of the definition of "*detergent*".
- Stakeholders' feedback – which could also highlight innovations and legislative changes, but that mainly suggest and provide reasoning behind scope changes, normally requesting expansion to further products and/or formats. In this case, the main structured stream considered was the preliminary questionnaire held prior to the start of the current EUEL criteria revision.

The PR provides in their initial chapters a wide outlook at the background information supporting the EUEL criteria revision process, especially with regards to "*Scope and definitions*". Some of the aspects suggested by stakeholders' that have not been brought forward for further analysis are:

[27] Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents. (OJ L 104, 8.4.2004, p. 1–35). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0648

[28] Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents. (OJ L 104, 8.4.2004, p. 1–35). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0648

[29] COM(2023)217 - Proposal for a regulation of the European Parliament and of the Council on detergents and surfactants, amending Regulation (EU) 2019/1020 and repealing Regulation (EC) No 648/2004. https://single-market-economy.ec.europa.eu/publications/com2023217-proposal-regulation-detergents-and-surfactants_en

- Biocidal products-> as some HSC products specifically aimed at "killing" (decreasing the number of) microorganisms. Any product having a biocidal effect (as primary aim/claim) is not allowed to be awarded the EU Ecolabel as it would fall under the scope of the Biocidal Product Regulation (BPR) ([30]).
- Mono-ingredient products -> Products that are not chemical mixtures (e.g. vinegar) can only be differentiate on the basis of the manufacturing stage and not based on the product characteristics, which is precisely for what the EUEL criteria was designed for.
- Outdoor/Special cleaning products -> these products address a very specific and, normally, out-of-routine-cleaning purpose or context (e.g. outdoor cleaning products; only for specific surfaces or uses). Examples – car/boat wash; wooden/metal floors; Oven cleaners. These conditions are out of the ones for which the EUEL criteria was designed for (indoor, routine cleaning), thus product formulations might be different and environmental impacts would not be addressed properly (lack of LCA reference data). However, note that products awarded with the EU Ecolabel can still be used outdoors by consumers as long as their use is indoor and their primary claim is cleaning.

The conclusion of the PR preliminary scope analysis outlined the following areas for scope revision, mainly relevant to LD and HSC product groups:

- Inclusion of fabric softeners
- Inclusion of in-wash stain removers
- Temperature of laundry efficiency
- Use of detergents that contains microorganisms
- The exclusion of the RTU products

On what follows, each of these proposals for scope change, together with any relevant information, are discussed in section dedicated to each EUEL product group.

Fabric enhancers (softeners) - LD

Stakeholders requested the inclusion of softeners arguing that:

- this product hold a significant share of the detergent products by market value (18% versus 63.3% for LD in 2021) ([31]);
- given the former, counting with environmentally friendlier versions would result in net positive environmental gains.

However, the main reasons against the inclusion of softeners are that:

1. their function is not cleaning (core to EUEL product groups) and, even if contributing to it, their main function is aesthetic.
2. Innovations have decreased their toxicity profile but it is still difficult to assess how much and, especially, whether there is a differential profile for eco-label formulations to those that are not.

The full background details to understand the arguments in favour and against the inclusion of fabric softeners, including previous EUEL revision ones, are presented in the PR sub-chapter *Preliminary scope analysis*.

In the focused questionnaire carried by the JRC, several questions targeted obtaining information from softeners which could clarify whether there had been significant changes since the last revision so as to

[30] Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products. (OJ L 167, 27.6.2012, p. 1–123). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32012R0528

[31] AISE 2022. International Association for Soaps, Detergents and Maintenance Products (AISE) Activity & Sustainability report 2021-22. https://www.aise.eu/cust/documentrequest.aspx?UID=5783b16f-3bc7-4f65-98df-7f910337c371 (Accessed 22/05/2023)

justify the inclusion of softeners as part of the EU Ecolabel criteria. These information contributes to answer point 2 (See earlier) on differentiated ecolabel profile. Unfortunately, the answer to point 1 (function) requires relevant stakeholders discussion and agreement on whether function expansion should be considered. The full analysis of the responses and the data/information inputs provided by respondents is ongoing at the time of writing this TR1 but the questions related to softeners and some preliminary highlights on responses obtained are:

— *2.5) Do you produce softeners/fabric enhancers?*

Approximately, ¼ of the respondents (21/82) replied "*Yes*"

— *2.6) Could you share details of your softener product formulation? Alternatively/in addition, could you share details of a reference ("typical") softener formulation?*

Most of respondents producing softeners (18/82) replied to this question. Full formulations were not shared but the type of ingredient and a typical range (X-Y%) yes, shown in Table 3:

Table 3 – Summarise outline of softener products formulation details shared by respondents in the focused stakeholders profile carried out by JRC as part of the revision of the EUEL criteria for detergents.

Ingredient	*Range (%)*	*Remarks*
Surfactant (cationic)	3-25	10% quoted as market standard; Commonly, esterquats, which may include fatty acids, C10-20 and C16-18-unsaturated
Surfactant (non-ionic)	0.2-1<	
Solvents	<5	e.g. isopropyl alcohol <1%; alcohol<1%
Fragrances	<1	
Preservatives	<0.5	
Salts	1<	e.g. calcium chloride <0.01%
Others (colorants, optical brighteners, viscosity modifiers, defoaming agents, pH regulators)	Variable	Silicones can be added as functional additives for fibred protection/easy ironing.
Water	Variable	Up to complete 100% composition

Source: JRC

— *2.7) Could you share details on cationic surfactants used in your product formulations? Please, specify the class and chemical substance(s), ideally with CAS number.*

Most of respondents producing softeners (19/82 replied to this question. An outline of results is presented in Table 4.

Table 4 – Preliminary results of CAS numbers associated with cationic surfactants used in softeners formulation details shared by respondents in the focused stakeholders carried out by JRC as part of the revision of the EUEL criteria for detergents.

CAS number	*ECHA entry*	*Remarks*
91995-81-2	Fatty acids, C10-20 and C16-18-unsatd., reaction products with triethanolamine, di-Me sulfate-quaternized	DID (2016) n°2304 [di C16-18 Esterquats]
94095-35-9	9-Octadecenoic acid (Z)-, reaction products with triethanolamine, di-Me sulfate-quaternized	DID (2016) n°2304 [di C16-18 Esterquats]

1335202-88-4	Esterification products of fatty acids, C16-18 (even numbered) and C18 (unsaturated) with triethanolamine, dimethyl sulphate-quaternized	
157905-74-3	Ethanaminium, 2-hydroxy-N,N-bis(2-hydroxyethyl)-N-methyl-, esters with C16-18 and C18-unsatd. fatty acids, Me sulfates (salts)	

Source: JRC

— *2.8) Have you reduced the share of cationic surfactants in your product formulation in the last 5 years? If yes, could you share data (e.g. % cationic surfactant) and details of any technological improvement driving this change?*

Most of respondents producing softeners (15/82) replied to this question. An outline of results is presented in Table 5.

Table 5 – Summarise outline of the reduction of cationic surfactants in softener products formulation and associated technological improvements motivating it as shared by respondents in the focused stakeholders profile carried out by JRC as part of the revision of the EUEL criteria for detergents.

Was cationic surfactant share reduced in the last 5 years?	*Responses (n)*	*Reduction range quoted (%)*	*Remarks/reasoning*
Yes	4	8.3-30	Increase of specific polymers and perfumes
No	11	Not applicable	Because other materials are not comparatively better with regards to C/Organic content / Because we aim to make products as concentrated as possible
NA	1		

Source: JRC

— *2.10) Could you share any quantitative data or qualitative information on environmental improvements associated to softerners use?*

Half of the respondents producing softeners (10/82) replied to this question, most of them negatively. An outline of results is presented in Table 6

Table 6 – Summarise outline of the reduction of cationic surfactants in softener products formulation and associated technological improvements motivating it as shared by respondents in the focused stakeholders profile carried out by JRC as part of the revision of the EUEL criteria for detergents.

Environmental improvement shared?	*Responses (n)*	*Environmental improvements quoted /Remarks*
Yes	5	— Elimination of microplastics in encapsulated fragances — Enzyme addition (fabric care function) — Raw material substitution (vegetal instead of animal) — Cationic surfactants used with a cold process (does not require heating before use)

		— Exclusion of H411, H410, H400 surfactants — Reduced surfactant/fragrances content — Reduced product dosage
No	5	— Because other materials are not comparatively better with regards to C/Organic content. — Because we aim to make products as concentrated as possible

Source: JRC

Please, note that this is not the full analysis of the responses and the data/information inputs provided by respondents but a focused analysis on particular aspects made at the time of writing this TR1, thus whilst accurate results should still be interpreted in the context of all the responses provided.

Nevertheless, the preliminary analysis of this focused stakeholders questionnaire appears as being aligned with the findings shared in the PR (chapter *preliminary scope analysis)*. Considering this and the formerly quoted results from the **stakeholders' questionnaire**, some relevant concluding remarks are:

— Amongst quaternary ammonium cations (quats), a very relevant cationic surfactant category, esterquats still remain as prevalently used.

— The responses received allowed to generate a generic softener formulation profile, which did not differed widely from that identified in other sources (e.g. literature). However, detailed full formulations were not shared with JRC (so far).

— In some cases, respondents confirmed that there have been a reduction in the last 5 years in cationic surfactant share in softeners formulation (8.3 – 30%). However, most respondents (11/15) indicated that no reduction had happened.

— Some of the environmental improvements quoted by few respondents appear as suitable for consideration as part of a hypothetic EU ecolabel softener profile, mostly from the perspective of tackling significant environmental impacts, as it would replace hazardous ingredients and reduce the content and dosage used against a market standard product.

All previous findings leads JRC to, at this stage, not consider expanding the scope of LD to include softeners.

The main reasons are that the arguments that led to softeners inclusion in the previous revision still remain valid/actual and that new evidences that could support its inclusion, for example via environmental improvements identified, are not available to JRC (e.g. full softeners formulation), thus not being possible to assess the appropriateness of supporting such case. Also, this decision would be in line with stakeholders opposing to its inclusion as it does not fulfil an essential functionality.

In-wash removers -LD

The entry that describes in-wash stain removers in the definition of detergents in the revised proposal for the Detergents Regulation ([32]) is: "*a mixture intended for soaking (pre-washing), rinsing or bleaching fabrics or dishes".*

[32] COM(2023)217 - Proposal for a regulation of the European Parliament and of the Council on detergents and surfactants, amending Regulation (EU) 2019/1020 and repealing Regulation (EC) No 648/2004. https://single-market-economy.ec.europa.eu/publications/com2023217-proposal-regulation-detergents-and-surfactants_en

The full background details to understand the arguments in favour and against the inclusion of fabric softeners, including previous EUEL revision ones, are presented in the PR sub-chapter *Preliminary scope analysis*.

The main argument against the inclusion of in-wash stain removers is that they add additional and potentially unnecessary chemical load compared to when they are applied as pre-wash treatment. On the other side we find that they can enhance cleaning performance, which would avoid additional washes (thus wastage of resources such as energy) to reach the same cleaning efficiency in the washing of clothes. To reach robust conclusions, information on in-wash stain removers' dosage and formulation profile is required.

In the focused questionnaire carried by the JRC, two questions targeted obtaining information about in-wash stain removers, helping to understanding their current formulation profile. The full analysis of the responses and the data/information inputs provided by respondents is ongoing at the time of writing this TR1 but the questions related to in-wash stain removers and some preliminary highlights on responses obtained are:

— *2.11) Do you produce in-wash stain removers*?

Approximately, ¼ of the respondents (18/82) replied "*Yes*", even more (28/82) said "No" and the remaining leave it in blank.

— *2.12) Could you provide details on the formulation of your in-wash stain removers? Alternatively, could you share information about the bleaching agent in the formulation*?

Most of respondents producing in-wash stain removers (17/82) replied to this question. Full formulations were not shared but the type of ingredient and a typical range (X-Y%) yes, which is shown in Table 7:

Table 7 – Example of in-wash products formulation details shared by respondents in the focused stakeholders profile carried out by JRC as part of the revision of the EUEL criteria for detergents.

Ingredient	*Range (%)*	*Remarks*
Surfactant (all)	7-25	Anionic>Non-ionic
Solvents	5-10	
Sequestering agents	5-10	
Enzymes	<1	
Water	Variable	Up to complete 100% composition

Source: JRC

Other aspects of interest mentioned by respondents related to in-was stain removers were:

— Substances/ingredients mentioned:

Bleaching agents used in Industrial and institutional -> sodium hypochlorite, hydrogen peroxide, peracetic acid, sodium percarbonate + Tetraacetylethylenediamine (TAED)+ and phtaloimidoperoxyhexanoic acid (PAP)

In those without bleaching agents -> enzymes.

With no further clarification in the response-> Sodium percabonate; hydrogen peroxide; 6-(Phthalimid) peroxyhexane acid (PAP); Bile soap;

— CAS numbers: 7681-52-9 (Reaction mass), 2893-78-9 (Troclosene sodium), 50-00-0 (formaldehide), 7722-84-1 (Hydrogen peroxide).

— Clarifications according to product format:

LD gel -> added as detergency and enzymatic boost.

LD liquid-> Hydrogen peroxide

LD powder-> Percarbonate+ Tetraacetylethylenediamine (TAED)+catalyst

All previous findings leads JRC to, at this stage, to not consider inclusion of in-wash stain removers. Shall new evidences that could support its inclusion be available to JRC (e.g. full in-wash stain removers formulation), to assess the appropriateness of supporting such case, then this will be revised.

Microbial containing products – LD

The scope of EUEL criteria for detergent product is highly influenced by the Detergents Regulation to which it makes reference in the scope of its different product groups. Given this, the revision of this Regulation ([33]) can affect the scope (and other aspects) of the EUEL criteria and, indeed, the inclusion of microorganism as part of the detergents definition opens the possibility to expand the use of microorganisms in other EUEL product groups besides HSC (only professional products) as in existing criteria. The questions are to which product groups and, especially, why to do so (which are the environmental improvements.

The full background details to understand the arguments in favour and against the inclusion of fabric softeners, including previous EUEL revision ones, are presented in the PR sub-chapter *Preliminary scope analysis*.

Summarily, the action of microorganisms substitute that of chemical ingredients whilst maintaining cleaning performance. This could even be maintained throughout time, thus having a legacy effect contributing to the break-down and mobilisation of organic matter (dirt; stains) attached to surfaces This, in principle, lead to products with decreased environmental footprint and/or impacts (e.g. highest degradability). However, the presence of these microorganisms and/or their metabolic activity by-products could pose affect negatively the heath of those exposed to them in households and/or manufacturing sites. Consequently, the discussion to conclude about the inclusion of this type of products should also be centred on product (biological) safety.

Focusing on the products groups, HSC and only for professional products allow the use of microorganisms. The other product group where evidences have been found on the use of microorganisms is LD. These were not based on the results of focused stakeholders questionnaire, where most replies indicated that responded did not had products containing microorganisms within their portfolio (and if so, they were HSC), but rather on bilateral exchanges with stakeholders. Summarised conclusions on the evidences that JRC had access are:

- Laundry detergent containing microorganisms are already in the market globally yet, as it is an ongoing innovation, many products are under development.
- The production process for detergent and cleaning products containing microorganisms does not differ apart from the step on adding these biological agents.
- A positive effect of using microorganisms is found at the end-of-life of the laundry detergent product, as the (organic) load to wastewater treatment plants is lower and, in principle, more easily treated.

All previous findings leads JRC to, at this stage, to consider expanding the scope of LD to include microorganisms.

The main reasons are that regulatory changes (revision of Detergent Regulation) include these ingredient as part of detergent products and that, in principle, it is possible to achieve environmental gains by substituting chemical by biological agents whilst maintaining cleaning performance (thus aligned with EUEL goals). However, the inclusion it is not proposed on the basis of full certainty about the safety of these products, thus this remain an aspect for further JRC work in order to clarify the specific requirements that would guarantee safety and performance. For this, further data and information is required (e.g. formulation profile of

[33] COM(2023)217 - Proposal for a regulation of the European Parliament and of the Council on detergents and surfactants, amending Regulation (EU) 2019/1020 and repealing Regulation (EC) No 648/2004. https://single-market-economy.ec.europa.eu/publications/com2023217-proposal-regulation-detergents-and-surfactants_en

microorganism containing products versus those without microorganisms). In any case, JRC considers that leaving microorganism out of the scope would preclude the possibility of relevant innovations in the field to happen, thus the proposal to include microorganisms as valid ingredients in LD.

Points for discussion 2 – Scope (LD – Microorganisms)

Stakeholders are invited to reply the following consultation question:

- Question 2 (Q2) – Would you support the inclusion of microorganisms in the scope of LD? If not, why?
- Question 3 (Q3) – Should the text of LD scope be modified to reflect that microorganism are included in the scope?

Temperature of laundry efficiency

The full background details to understand the arguments in favour and against the inclusion of fabric softeners, including previous EUEL revision ones, are presented in the PR sub-chapter *Preliminary scope analysis*.

Summarily, ensuring detergent products are effective with "cold" (30C ≤) water could result in environmental savings associated with reduced energy consumption in the heating of the washing water. However, there might be trade-offs (additional chemical load; impact on performance) which should be accounted for. On top of this, consumer behaviour is key, being the assumption that products are used according to manufacturer's recommendations, as otherwise environmental benefits might not be achieved.

To better understand the existence and relevance of laundry detergent products effective at lower temperatures than 30C (target 20C or below) the following questions, addressed to different type of stakeholders (Competent Bodies; Licence holders/Industry), were included in the focused questionnaire. A preliminary analysis of the responses obtained is also included.

- *2.3) Please, could you share details of the number of licenses/ ecolabelled products claiming washing performance below 30C (either 20 or 15C) in the "Information appearing on the EU Ecolabel" criterion*?

The total number of responses received from Competent Bodies were 12/82, with five out of them confirming the presence of licenses/products claiming efficiency at 20C or below.

- *2.4) Do you have any product (ecolabelled or not) claiming washing performance below 30C (either 20 or 15C)? If yes, please specify the product group, the number in your portfolio and how many are EU Ecolabelled products*

The total number of responses received from industry (EUEL license holders or not) were 35/82, with 14/82 responses indicating that there were products effective at temperature below 30C. Most of them referred to LD products (10/82) while some referred to other products, mainly HSC, products (4/82).Amongst positive responses, two respondents specifically referred to ecolabelled LD products and another two respondents to non-ecolabelled effective at 30C or lower temperature.

The former responses to the focused questionnaire confirms that there are already products in the market effective at temperatures lower than 30C (even lower than 20C). However, further aspect need to be considered such as the relationship of the primary function (cleaning) with any secondary function (sanitising) and especially the trade-offs, especially with regards to performance (*does it compromise achieving equivalent performance as market "best-in-class"?*

High(er) temperatures contribute to achieving greater "pathogen reduction/killing" (e.g. >40-60C) but washing at lower temperatures (30C<) might imply higher numbers of viable pathogenic microorganisms remaining in washing machines and/or fabrics.(Abney et al., 2021) ([34]). In principle, most of the detergent and cleaning products in the domestic sphere target stains/dirt typical of routine cleaning, which mostly focus on

[34] Abney, S.E., M.K. Ijaz, J. McKinney, and C.P. Gerba, 'Laundry Hygiene and Odor Control: State of the Science', Edited by C.A. Elkins, Applied and Environmental Microbiology, Vol. 87, No. 14, June 25, 2021, pp. e03002-20. DOI 10.1128/AEM.03002-20

dislodging, breaking-down and mobilising organic matter but do not necessarily require achieving sanitation (which could be the need in particular household conditions). This is different in Industrial and Institutional contexts, where the desired cleaning function might deemed as performant when such sanitisation is achieved (e.g. hospital clothing washing). In addition, washing at higher temperatures facilitates effectiveness of the detergency effect, thus being possible to achieve desired performance within shorter cleaning cycles, and ensures being well above the point where surfactants start to crystalize (Krafft Temperature), thus loosing surface activities as dispersion, emulsification, and critical micelle-formation abilities (Perfumo, Banat, and Marchant, 2018)([35]). However, this comes at the expense of higher resource consumption, especially energy during the use phase, which is one of the main hotspots identified.

Recent technological advances (e.g. biosurfactants) could overcome the negative aspects of formulating detergent products operating at lower temperature ranges. Biosurfactants might have both cleaning and bactericidal effect, as they contribute to eliminate bio-structures (biofilms), thus offering a suitable solution to achieve effective cleaning (and sanitation) at lower (than 30C) temperatures (Perfumo, Banat, and Marchant, 2018) ([36]). Also, they could offer a greater degree of tolerance to a temperature reduction from 25C to 10C than chemical surfactants alone, thus probably improving their operating range at lower temperatures (REF, previous).

The question that still remains is how to verify/prove that actually the efficiency of cleaning, via testing methods, is confirmed. For example, (Laitala and Jensen, 2010) ([37]) proved that the cleaning efficiency at 40 and 30C was pretty similar. However, JRC has not find similar evidences to assess performance implications of moving the minimum recommended temperature from 30C to 20C. In this sense, JRC expects to reach a conclusion via a dedicated smaller consultation working group on the revision aspects related to the *fitness for use* criterion.

Given the former statements, there are technical/scientific arguments supporting the feasibility of formulations designed to be effective at temperatures lower than 30C, in this particular case at 20C or lower. Also, the responses from the stakeholders focused questionnaire suggest that there already products in the market (ecolabelled and not) effective at this lower temperature range.

Consequently, JRC proposes for the effective temperature of the laundry washing process to be lower than 30C (in this case targeting 20C) conditioned to products being effective (regarding it washing/cleaning function) at this temperature, so performance is not negatively impacted while environmental benefits are realised.

Points for discussion 3 – Scope (LD – Temperature of laundry efficiency)

Stakeholders are invited to reply the following consultation question:

— Question 4 (Q4) – Current scope states that laundry detergents gave to be effective at 30 °C or below. Would you support lowering this temperature (e.g. 20 °C). If not, why? If yes, down to which temperature?

The exclusion of the RTU products - HSC

The full background details to understand the arguments in favour and against the inclusion of fabric softeners, including previous EUEL revision ones, are presented in the PR sub-chapter *Preliminary scope analysis*.

[35] Perfumo, A., I.M. Banat, and R. Marchant, 'Going Green and Cold: Biosurfactants from Low-Temperature Environments to Biotechnology Applications', Trends in Biotechnology, Vol. 36, No. 3, March 2018, pp. 277–289. DOI 10.1016/j.tibtech.2017.10.016

[36] Perfumo, A., I.M. Banat, and R. Marchant, 'Going Green and Cold: Biosurfactants from Low-Temperature Environments to Biotechnology Applications', Trends in Biotechnology, Vol. 36, No. 3, March 2018, pp. 277–289. DOI 10.1016/j.tibtech.2017.10.016

[37] Laitala, K., and H.M. Jensen, 'Cleaning Effect of Household Laundry Detergents at Low Temperatures', Tenside Surfactants Detergents, Vol. 47, No. 6, November 1, 2010, pp. 413–420. DOI: 10.3139/113.110096

Briefly, the exclusion of ready-to-use (RTU) products from EU Ecolabel may reduce eligible products and net environmental benefits achieved at EU market level. However, despite their user-friendliness, RTU products have associated transport and health concerns. Solutions include selling undiluted (more concentrated) products and/or refills and implementing aerosol reduction mechanisms. However, undiluted products need careful consideration against EU Ecolabel regulation chemical requirements.

The aspect that JRC is considered crucial and for which it needs to have understanding are:

- Ecolabelled products market reality with regards to RTU/undiluted products share (*which is the magnitude of the potential impact of RTU ban?*);
- Granularity - details about product sub-groups (*which concentrates higher EUEL share?*),
- Knowledge about their formulations (*which are their chemical profile and the potential associated environmental impacts*).
- Potential and feasibility of implementing new provisions (*how RTU should/can be penalised ; how undiluted should/can be favoured?)*

In the focused questionnaire carried by the JRC, several questions targeted obtaining information from the HSC product group (and its sub-categories). The following question is particularly useful to provide further insights on the proportion of RTU versus undiluted products within the EUEL market:

- *2.20) Could you indicate the share of RTU and/or undiluted products you have produced in the last 5 years?*

Note that the full analysis of the responses and the data/information inputs provided by respondents, including other question related to HSC, is ongoing at the time of writing this TR1. Nevertheless, an outline of the responses obtained by industry stakeholders is presented in Table 8.

Table 8 – Outline of the responses to the focused questionnaire question *"2.20) Could you indicate the share of RTU and/or undiluted products you have produced in the last 5 years?"* carried out by JRC as part of the revision of the EUEL criteria for detergents.

RTU (% reported)	*RTU (number of responses)*	*Undiluted (% reported)*	*Undiluted (number of responses)*
20	4	80	1
0.5	1		
25	1		
80	1		
100	1		
1<	1		
5	1		
14%	1		
		85	1
50	2	50	2
62.3	1		
61.5	1		
41	1		

Source: JRC

The fine interpretation of these data is difficult as there is no notion about how many products and/licenses do these percentages represent within each of the response provided by the participants and which is the particular geographical coverage. In spite of this, it can be observed that still there is data suggesting RTU being having similar or higher share than undiluted. This is in line with the market analysis observations made in the PR, where HSC product was the group most successful by number of ecolabelled products and also the second in importance by market value (billion €), especially All-purpose-cleaners (APC).

Some further relevant observation shared by focused questionnaire respondents to this question are:

- (In a non-ecolabelled portfolio) The RTU/undiluted share is approximately 90%/10%, respectively.

— Customers prefer using RTU to save time i.e. our portfolio is predominantly undiluted but most of our sales are RTU product.

— RTU products are mandatory if in the format of spray in the French market.

In addition to the previous statements supporting the importance of keeping RTU products, interaction with Member States representatives in the EU Ecolabelling board acknowledged the importance of RTU products within the HSC category, which if banned would imply a significant reduction in the HSC licences/ecolabelled products, thus not realising the benefits of having environmentally friendlier alternatives being used.

At this stage and with the evidences analysed so far, JRC do not propose to ban/exclude RTU from the scope of RTU products. Instead, alternative provisions enhancing achievable environmental benefits (e.g. favouring more concentrated forms) will be explored as part of this revision.

Points for discussion 4 – Scope (HSC – The exclusion of RTU

Stakeholders are invited to reply the following consultation question:

— Question 5 (Q5) – Do you support maintaining RTU products as part of HSC scope? If not, why?

696 ## 4.2. Definitions

Existing definitions		
Product group(s)	Definitions	Legal text
ALL	Not applicable	*For the purpose of this Decision, the following definitions shall apply:*
DD, HDD	Ingoing substances	*'ingoing substances' means substances intentionally added, by-products and impurities from raw materials in the final product formulation (including water-soluble foil, where used);*
HSC, IIDD, IILD, LD		*'ingoing substances' means substances intentionally added, by-products and impurities from raw materials in the final product formulation (including water-soluble foil, if used)*
ALL	Primary packaging	*'primary packaging' means:* *(a) for single doses in a wrapper that is intended to be removed before use, the individual dose wrapping and the packaging conceived so as to constitute the smallest sales unit of distribution to the final user or consumer at the point of purchase, including label where applicable;* *(b) for all other types of products, packaging conceived so as to constitute the smallest sales unit of distribution to the final user or consumer at the point of purchase, including label where applicable;*
ALL	Microplastic	*'microplastic' means particles with a size of below 5 mm of insoluble macromolecular plastic, obtained through one of the following processes:* *(a) a polymerisation process such as polyaddition or polycondensation or a similar process using monomers or other starting substances;* *(b) chemical modification of natural or synthetic macromolecules;* (c) *microbial fermentation*
ALL	Nanomaterial	*'nanomaterial' means a natural, incidental or manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for 50 % or more of the particles in the number size distribution, one or more external dimensions is in the size range 1-100 nm*[38]*.*
HSC	Undiluted product	*'undiluted product' means a product that should be diluted in water prior to use;*
HSC	Ready-to-use (RTU) product	*'ready-to-use (RTU) product' means a product not to be diluted in*

[38] Commission Recommendation 2011/696/EU of 18 October 2011 on the definition of nanomaterial (OJ L 275, 20.10.2011, p. 38). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022H0614(01)

		water before use;
LD	Heavy-duty detergents	*(2) 'heavy-duty detergents' means detergents used for ordinary washing of white textiles at any temperature;*
LD	Colour-safe detergents	*(3) 'colour-safe detergents' means detergents used for ordinary washing of coloured textiles at any temperature;*
LD	Light-duty detergents	*(4) 'light-duty detergents' means detergents intended for delicate fabrics;*
LD	Not applicable	*2. For the purposes of paragraph 1(2) and (3), a detergent shall be considered either a heavy-duty detergent or a colour-safe detergent except where the detergent packaging explicitly states that the product is intended for use on delicate fabrics (i.e. light-duty detergent).*
Proposed definitions		
Product group(s)	Definitions	Legal text
ALL	Not applicable	*For the purpose of this Decision, the following definitions shall apply:*
~~DD, HDD~~	~~Ingoing substances~~	~~*'ingoing substances' means substances intentionally added, by-products and impurities from raw materials in the final product formulation (including water-soluble foil, where used);*~~
~~HSC, IIDD, IILD, LD~~		~~*'ingoing substances' means substances intentionally added, by-products and impurities from raw materials in the final product formulation (including water-soluble foil, if used)*~~
ALL	Ingoing substances	*'ingoing substances' means all substances in the detergent/cleaner product, including additives (e.g. preservatives and stabilisers) in the raw materials. Substances known to be released from ingoing substances (e.g. formaldehyde from preservatives and arylamine from azodyes and azopigments) shall also be regarded as ingoing substances. Unintended constituents (residuals, pollutants, contaminants, by-products, etc.) from production, incl. production of raw materials, that remain in the raw materials ≥ 1 000 ppm (≥ 0,1000 %w/w ≥ 1 000 mg/kg) are always regarded as ingoing substances, regardless of the concentration in the final product;* *Foil that is not removed before use of the product and that is water soluble is considered as part of the formulation/recipe.*
ALL	Impurities	*'impurities' means unintended constituents (residuals, pollutants, contaminants, by-products, etc.) from production, incl. production of raw materials, that remain in the raw material/ingredient and/or in the in the final product in concentrations less than 100 ppm (0,0100 % w/w, 100 mg/kg) and that were not intentionally added.*
ALL	Packaging	*'packaging' means 'items of any materials that are intended to be used for the containment, protection, handling, delivery or presentation of products and that can be differentiated into packaging formats based on their function, material and design, including:*

		(a) items that are necessary to contain, support or preserve the product throughout its lifetime without being an integral part of the product which is intended to be used, consumed or disposed of together with the product; (b) components of, and ancillary elements to, an item referred to in point (a) that are integrated into the item; (c) ancillary elements to an item referred to in point (a) that are hung directly on, or attached to, the product and that performs a packaging function without being an integral part of the product which is intended to be used, consumed or disposed of together with the product; (d) items designed and intended to be filled at the point of sale, provided that they perform a packaging function; (e) disposable items sold, filled or designed and intended to be filled at the point of sale, provided that they perform a packaging function; *In the context and for compliance with this EU Ecolabel criteria, items potentially falling under clause (a) definition that are part of a single dose unit (product and wrappers/films (or equivalent)), that are water-soluble and that are not removed prior to the product use for washing/cleaning purposes, shall not be regarded as packaging but rather as part of the product formulation. Conversely, items potentially falling under clause (a) definition that are part of a single dose unit (product and wrappers/films (or equivalent)), that are water-insoluble and that are removed prior to the product use for washing/cleaning purposes, shall be regarded as packaging but not as part of the product formulation*
ALL	~~Primary packaging~~ Sales packaging	*'~~sales packaging~~', also known as '~~primary packaging~~', means:* ~~(a) (a) for single doses in a wrapper that is intended to be removed before use, the individual dose wrapping and the packaging conceived so as to constitute the smallest sales unit of distribution to the final user or consumer at the point of purchase, including label where applicable;~~ (b) ~~(b) for all other types of products,~~ packaging conceived so as to constitute the smallest sales unit of ~~distribution~~ products and packaging to the final user or consumer at the point of sale ~~purchase, including label where applicable~~;
ALL	~~Secondary packaging~~ Grouped packaging	*'grouped packaging', also known as '~~secondary packaging~~', is packaging conceived so as to constitute a grouping of a certain number of sales unit at the point of sale ~~purchase~~ whether the latter is sold as such to the end user or ~~a grouping of a certain number of sales units and~~ it serves only as a means to replenish the shelves at the point of sale or create a stock-keeping or distribution unit; and which ~~it~~ can be removed from the product without affecting its characteristics.*
ALL	~~Tertiary packaging~~ *Transport packaging*	*'transport packaging', also known as 'tertiary packaging' means ~~is~~ packaging conceived so as to facilitate handling and transport of a number of sales units or grouped packag~~esing~~, including e-commerce packaging but excluding road, rail, ship and air containers, in order to prevent physical handling and transport damage. ~~Transport packaging does not include road, rail, ship and~~*

		~~*air containers.*~~
ALL	Composite packaging	*'composite packaging' means a unit of packaging made of two or more different materials, excluding materials used for labels, closures and sealing, which cannot be separated manually and therefore form a single integral unit;*
ALL	Polymer	*'Polymer' means a substance consisting of molecules characterised by the sequence of one or more types of monomer units. Such molecules must be distributed over a range of molecular weights wherein differences in the molecular weight are primarily attributable to differences in the number of monomer units. A polymer comprises the following: (a) a simple weight majority of molecules containing at least three monomer units which are covalently bound to at least one other monomer unit or other reactant; (b) less than a simple weight majority of molecules of the same molecular weight. In the context of this definition, a 'monomer unit' means the reacted form of a monomer substance in a polymer, as defined in Regulation (EC) No 1907/2006*
ALL	Synthetic polymers	*'synthetic polymers' means macromolecular substances intentionally obtained either by:* *(a) a polymerisation process such as polyaddition or polycondensation or a similar process using monomers or other starting substances;* *(b) chemical modification of natural or synthetic macromolecules;* *(c) microbial fermentation*
ALL	Microplastic (Synthetic polymer microparticles)	~~*'microplastic' means particles with a size of below 5 mm of insoluble macromolecular plastic, obtained through one of the following processes:*~~ ~~*(a) a polymerisation process such as polyaddition or polycondensation or a similar process using monomers or other starting substances;*~~ ~~*(b) chemical modification of natural or synthetic macromolecules;*~~ ~~*(c) microbial fermentation*~~
		'microplastic' means polymers that are solid and which fulfil both of the following conditions: *a) are contained in particles and constitute at least 1 % by weight of those particles; or build a continuous surface coating on particles;* *b) at least 1 % by weight of the particles referred to in point (a) fulfil either of the following conditions*:* *i) all dimensions of the particles are equal to or less than 5 mm;* *ii) the length of the particles is equal to or less than 15 mm and their length to diameter ratio is greater than 3.* **Where the concentration of synthetic polymer microparticles covered by this entry cannot be determined by available analytical methods or accompanying documentation, in order to verify the compliance with the concentration limit referred to in*

		paragraph 1, only the particles of at least the following size shall be taken into account: *(a) 0,1 µm for any dimension, for particles where all dimensions are equal to or smaller than 5 mm;* *(b) 0,3 µm in length, for particles that have a length that is equal to or smaller than 15 mm and a length to diameter ratio greater than 3.* *The following polymers are excluded from this designation:* *a) polymers that are the result of a polymerisation process that has taken place in nature, independently of the process through which they have been extracted, which are not chemically modified substances;* *b) polymers that are degradable as proved in accordance with Appendix 15;* *c) polymers that have a solubility greater than 2 g/L as proved in accordance with Appendix 16;* *d) polymers that do not contain carbon atoms in their chemical structure."*
ALL	Nanomaterial	*'nanomaterial' means a natural, incidental or manufactured material ~~containing~~ consisting of solid particles that are present, either on their own or as identifiable constituent particles in ~~an unbound state or as an~~ aggregates or ~~as an~~ agglomerates, and where~~, for~~ 50 % or more of these particles in the number-based size distribution fulfil at least one of the following conditions:~~, one or more external dimensions is in the size range 1-100 nm~~* *(a) one or more external dimensions of the particle are in the size range 1 nm to 100 nm;* *(b) the particle has an elongated shape, such as a rod, fibre or tube, where two external dimensions are smaller than 1 nm and the other dimension is larger than 100 nm;* *(c) the particle has a plate-like shape, where one external dimension is smaller than 1 nm and the other dimensions are larger than 100 nm.* *In the determination of the particle number-based size distribution, particles with at least two orthogonal external dimensions larger than 100 µm need not be considered.* *However, a material with a specific surface area by volume of < 6 m^2/cm^3 shall not be considered a nanomaterial.*
ALL	Substances identified to have endocrine disrupting properties (endocrine distruptors)	*'substances identified to have endocrine disrupting properties', also referred to as endocrine distruptors, means substances which have been identified to have endocrine disrupting properties (human health and/or environment) according to Article 57(f) of Regulation (EC) No 1907/2006 (candidate list of substances of very high concern for authorisation), or Regulation (EU) No 528/2012 of the European Parliament and of the Council or Regulation (EC) No 1107/2009 of the European Parliament and of the Council , or Regulation (EC) No 1272/2008 of the European Parliament and of the Council.*
HSC	Undiluted product	*'undiluted product' means a product that should be diluted in water*

		prior to use;
HSC	Ready-to-use (RTU) product	*'ready-to-use (RTU) product' means a product not to be diluted in water before use;*
LD	Heavy-duty detergents	*(2) 'heavy-duty detergents' means detergents used for ordinary washing of white textiles at any temperature;*
LD	Colour-safe detergents	*(3) 'colour-safe detergents' means detergents used for ordinary washing of coloured textiles at any temperature;*
LD	Light-duty detergents	*(4) 'light-duty detergents' means detergents intended for delicate fabrics;*
LD	Not applicable	*2. For the purposes of paragraph 1(2) and (3), a detergent shall be considered either a heavy-duty detergent or a colour-safe detergent except where the detergent packaging explicitly states that the product is intended for use on delicate fabrics (i.e. light-duty detergent).*

Rationale for the proposed definitions

Definitions were updated and/or added in order enhance their clarity, to align with the latest ISO type I ecolabels, standardisation and legislative developments.

The following definitions were updated: *Microplastic, Ingoing substances, Primary packaging, Secondary packaging, Tertiary packaging, Nanomaterials.*

The following definitions were added: *Impurities*; *Polymer*, *Synthetic polymer*, *Packaging*, *Composite packaging, Substances identified to have endocrine disrupting properties*.

The following definitions remained unchanged:

- HSC -> "*Undiluted product*"; "*Ready-to-use (RTU) product".*
- LD ->"*Heavy-duty detergents*", "*Colour-safe detergents*", "*Light-duty detergents*"

The summarised rationales behind the new/updated definitions are:

- ***"Substances identified to have endocrine disrupting properties (EDs)"***: this definition addition is related to the addition of a new hazard class ('*Endocrine disruptors for human health and the environment'*) in sub-criterion 7.6.2 *Hazardous Substances.* Endocrine disruptors are chemicals that may interfere with the hormonal system and thereby produce harmful effects in both humans and wildlife, being these effects evident only evident after some delay (eg impaired reproduction; cancer) ([39]). The different pieces of legislation mentioned in this definition have different procedures to identify such EDs. Some EU Member states are sharing efforts in collating and presenting different lists on the status of EDs identified or under evaluation ([40])
- **"***Ingoing* ***substances"***: updated to provide clarity about which type of substances should comply with the EU Ecolabel criteria requirements, including a clarification on whether foil should be considered as part of the formulation or not.
- **"***Impurities***"**: added to clarify the concentration threshold upon which EU Ecolabel criteria requirements are not applicable. In addition, the wording aims to clearly highlight and differentiate that such impurities might be present but due to unintentional action, following stakeholders

[39] https://echa.europa.eu/hot-topics/endocrine-disruptors (Accessed 19/12/23)
[40] https://edlists.org/the-ed-lists (Accessed 19/12/23)

feedback and inspired in Blue Angel/EU definitions, being these ultimately based on the main chemical regulatory framework (REACH/CLP) definitions ([41]).

- **"*Microplastics*"**: it is updated based on the microplastics restriction adopted by the European Commission ([42]). It aims to be compatible with other EU Ecolabel criteria as well as other type I ISO label schemes (Nordic Swan; Blue Angel), being potentially more comprehensive and accurate. By adopting it, it should be clearer which "plastics" (synthetic polymers) fall under its scope (thus excluded) and which others are not (thus to be addressed elsewhere within the EU Ecolabel criteria for detergent product groups). For complementarity, the definition *"Polymer"* was added, being aligned with the EU Ecolabel criteria for Absorbent Hygiene Products and Reusable Mentrual cups ([43]), itself being based on REACH definition (European Chemicals Agency., 2023)([44]). Under the same logic, the definition of "*synthetic polymer"* is also added

- Definitions related to packaging ("***packaging"; "primary packaging"; "sales packaging"; "grouped packaging", "transport packaging", "composite packaging***"): their update/addition aims to ease the articulation and interpretation of sub-criterions under section 7.7 *Packaging*. Another objective is providing further clarity on what which components of the products exerting packaging functions should be assessed under this criterion (as packaging) or rather under other criteria (as product formulation). For these, they are primarily aligned with the terminology in the revised Packaging and Packaging Waste Directive ([45]).

- **"*Nanomaterials*"**: is updated in line with the latest EU Commission recommendation on the definition of nanomaterial- 2022/C229/01 ([46]). Other EU Ecolabel schemes use a nanomaterial definition that originates in an older EU recommendation - 2011/696/EU ([47]). The latest recommendation supersedes previous ones with regards to the definition of nanomaterials. The chemical regulatory framework (REACH/CLP/BPR) uses the latest recommendation. Given the former, it is proposed to align with this updated definition However, note that this would not be aligned with EUEL criteria for Cosmetics which originates in its parental Regulation (1223/2009/EC) ([48]) where the definition in the Recommendation has been predated to enhance the importance of some relevant properties (insolubility; biopersistence). Irrespective of the former, both actual and previous definitions for nanomaterials are quite alike, being the most recent more detailed/comprehensive.

Points for discussion 5 – Definitions

Stakeholders are invited to reply the following consultation question:

[41] Guidance for identification and naming of substances under REACH and CLP, Version 2.1 May 2017, Chapter 2.2, P. 15, https://op.europa.eu/o/opportal-service/download-handler?identifier=0b782022-fdc0-11e8-a96d-01aa75ed71a1&format=pdf&language=en&productionSystem=cellar&part=)

[42] Commission Regulation (EU) 2023/2055 of 25 September 2023 amending Annex XVII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards synthetic polymer microparticles. OJ L 238, 27.9.2023, p. 67–88 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AJOL_2023_238_R_0003&qid=1695804976302

[43] Commission Decision (EU) 2023/1809 of 14 September 2023 establishing the EU Ecolabel criteria for absorbent hygiene products and for reusable menstrual cups (notified under document C(2023) 6024). OJ L 234, 22.9.2023, p. 142–189. http://data.europa.eu/eli/dec/2023/1809/oj

[44] European Chemicals Agency., Guidance for Monomers and Polymers: February 2023 : Version 3.0., Publications Office, LU, 2023. DOI 10.2823/933

[45] Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on packaging and packaging waste, amending Regulation (EU) 2019/1020 and Directive (EU) 2019/904, and repealing Directive 94/62/EC. COM/2022/677 final. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022PC0677

[46] Commission Recommendation of 10 June 2022 on the definition of nanomaterial (Text with EEA relevance) 2022/C 229/01. OJ C 229, 14.6.2022, p. 1–5 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.C_.2022.229.01.0001.01.ENG&toc=OJ%3AC%3A2022%3A229%3ATOC

[47] Commission Recommendation of 18 October 2011 on the definition of nanomaterial Text with EEA relevance. OJ L 275, 20.10.2011, p. 38–40. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32011H0696

[48] Regulation (EC) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products. OJ L 342, 22.12.2009, p. 59–209. https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32009R1223

- Question 6 (Q6 – Ingoing substances) – Do support the proposed definition? In particular, a) do you support the thresholds mentioned and; b) is the wording used clear?
- Question 7 (Q7 – Impurities) – This definition is complementary to "*Ingoing substances* and aims to provide clarity in its interpretation. Do you support its addition (fit for purpose)? In particular, a) do you support the thresholds mentioned.
- Question 8 (Q8 – Packaging) – This definition is aligned with the revised PPWD (currently proposal for a Regulation) and aims to bring clarity to define what is considered as packaging (and what not) for the purposes of compliance with EUEL criteria for Detergents. Do you support its addition (fit for purpose)? In particular, a) would you reduce the level of detail of the definitions?; b) do you consider useful the clarification made on what is packaging/product formulation?
- Question 9 (Q9 – Nanomaterials) – Do you support the current proposal (alignment with latest EU Commission recommendation)? If not, please could you indicate: a) reasons against this alignment; b) whether you would you consider best to align with the definition in the EUEL criteria for Cosmetics?
- Question 10 (Q10– Microplastics) – This definition follows regulatory updates but also implied the addition of complementary terms as *"Polymers"* and *"Synthethic polymers"* All together, these definitions clarify very accurately what is considered as "*microplastics*" but also might imply further complexity in the interpretation. In this sense, do you support the proposed *"microplastics"* (and associated) definitions? If you do - which details should be in the legal text and which in the User manual (if any)? If you don't, - which would the definition you advocate for?

773 5. Assessment and verification

Existing assessment and verification	
ALL	(a) Requirements The specific assessment and verification requirements are indicated within each criterion. Where the applicant is required to provide to competent bodies with declarations, documentation, analyses, test reports, or other evidence to show compliance with the criteria, these may originate from the applicant and/or their supplier(s), as appropriate. Competent bodies shall preferentially recognise attestations which are issued by bodies accredited in accordance with the relevant harmonised standard for testing and calibration laboratories and verifications by bodies that are accredited in accordance with the relevant harmonised standard for bodies certifying products, processes and services. Accreditation shall be carried out in accordance with Regulation (EC) No 765/2008 of the European Parliament and of the Council[49]. Where appropriate, test methods other than those indicated for each criterion may be used if the competent body assessing the application accepts their equivalence. Where appropriate, competent bodies may require supporting documentation and may carry out independent verifications or site visits. As a prerequisite, the product shall meet all applicable legal requirements of the country or countries in which the product is intended to be placed on the market. The applicant shall declare the product's compliance with this requirement. The 'Detergent ingredient database' list (DID list), available on the EU Ecolabel website, contains the most widely used ingoing substances in detergents and cosmetics formulations. It shall be used for deriving the data for the calculations of the critical dilution volume (CDV) and for the assessment of the biodegradability of the ingoing substances. For substances not present on the DID list, guidance is given on how to calculate or extrapolate the relevant data. The list of all ingoing substances shall be provided to the competent body, indicating the trade name (if existing), the chemical name, the CAS No, the DID No, the ingoing quantity, the function and the form present in the final product formulation (including water-soluble foil, if used). Preservatives, fragrances and colouring agents shall be indicated regardless of concentration. Other ingoing substances shall be indicated at or above the concentration of 0,010 % weight by weight. All ingoing substances present in the form of nanomaterials shall be clearly indicated in the list with the word 'nano' written in brackets. For each ingoing substance listed, the safety data sheets (SDSs) in accordance with Regulation (EC) No 1907/2006 of the European Parliament and of the Council[50] shall be provided. Where an SDS is not available for a single substance because it is part of a mixture, the applicant shall provide the SDS of the mixture.
ALL	(b) Measurement thresholds Compliance with the ecological criteria is required for all ingoing substances as specified in Table

[49] Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EEC) No 339/93 (OJ L 218, 13.8.2008, p. 30). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32008R0765

[50] 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 (OJ L 396, 30.12.2006, p. 1). https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32006R1907

1.

Table 1. Threshold levels applicable to ingoing substances by criterion (% weight by weight)

Criterion name		Surfactants	Preservatives	Colouring agents	Fragrances	Other (e.g. enzymes)
Toxicity to aquatic organisms		≥ 0,010	no limit (*1)	no limit (*1)	no limit (*1)	≥ 0,010
Biodegradability	Surfactants	≥ 0,010	N/A	N/A	N/A	N/A
	Organics	≥ 0,010	no limit (*1)	no limit (*1)	no limit (*1)	≥ 0,010
Sustainable sourcing of palm oil		≥ 0,010	N/A	N/A	N/A	≥ 0,010
Excluded or limited substances	Specified excluded and limited subst.	no limit (*1)	no limit (*1)	no limit (*1)	no limit (*1)	no limit (*1)
	Hazardous subst.	≥ 0,010	≥ 0,010	≥ 0,010	≥ 0,010	≥ 0,010
	SVHCs	no limit (*1)	no limit (*1)	no limit (*1)	no limit (*1)	no limit (*1)
	Fragrances	N/A	N/A	N/A	no limit (*1)	N/A
	Preservatives	N/A	no limit (*1)	N/A	N/A	N/A
	Colouring agents	N/A	N/A	no limit (*1)	N/A	N/A
	Enzymes	N/A	N/A	N/A	N/A	no limit (*1)

(*1) 'no limit' means: regardless of the concentration (analytical limit of detection) for all ingoing substances with the exception of by-products and impurities from raw materials, which can be present up to a concentration of 0,010 % by weight in the final formulation

N/A not applicable

HSC

(c) Product group specificities

If a product can be found both in RTU and undiluted form and both forms are sold as part of a single lot (e.g. one bottle of RTU product and a refill bottle of undiluted product), both types of products shall meet the requirements set out in all the criteria for their respective types.

Undiluted products in packaging designed for the sole purpose of refilling trigger sprays shall meet the packaging requirements for RTU products.

Proposed assessment and verification

ALL

The EU Ecolabel criteria target the best detergent and cleaning products on the market, in terms of environmental performance. The criteria focus on the main environmental impacts associated with the life cycle of these products and promote circular economy aspects."

(a) Requirements

For the EU Ecolabel to be awarded to a specific product, the product shall comply with each requirement. The applicant shall provide a written confirmation stating that all the criteria are fulfilled.

~~The s~~Specific assessment and verification requirements are indicated within each criterion.

Where the applicant is required to provide ~~to competent bodies with~~ declarations, documentation, analyses, test reports, or other evidence to show compliance with the criteria, these may originate

	from the applicant, his/her supplier(s) and/or their supplier(s), as appropriate. Competent bodies shall preferentially recognise attestations which are issued by bodies accredited in accordance with the relevant harmonised standard for testing and calibration laboratories and verifications by bodies that are accredited in accordance with the relevant harmonised standard for bodies certifying products, processes and services. ~~Accreditation shall be carried out in accordance with Regulation (EC) No 765/2008 of the European Parliament and of the Council[51].~~ Where appropriate, test methods other than those indicated for each criterion may be used if the competent body assessing the application accepts their equivalence. Where appropriate, competent bodies may require supporting documentation and may carry out independent verifications or site ~~visits~~ inspections to check compliance with these criteria. Changes in suppliers and production sites pertaining to products to which the EU Ecolabel has been granted shall be notified to competent bodies, together with supporting information to enable verification of continued compliance with the criteria. As a prerequisite, the product shall meet all applicable legal requirements of the country or countries in which the product is intended to be placed on the market. The applicant shall declare the product's compliance with this requirement. The 'Detergent ingredient database' list (DID list), available on the EU Ecolabel website, contains the most widely used ingoing substances in detergents and cosmetics formulations. It shall be used for deriving the data for the calculations of the critical dilution volume (CDV) and for the assessment of the biodegradability of the ingoing substances. For substances not present on the DID list, guidance is given on how to calculate or extrapolate the relevant data. The latest version of the DID list is available from the EU Ecolabel website (1) or via the websites of the individual competent bodies. The list of all ingoing substances shall be provided to the competent body, indicating the trade name (if existing), the chemical name, the CAS No, the DID No (2) (if existing), ~~the ingoing quantity, the~~ its function, ~~and the~~ form and concentration in mass percentage ~~present~~ regardless of concentration in the final product formulation ~~(including water-soluble foil, if used)~~. ~~Preservatives, fragrances and colouring agents shall be indicated regardless of concentration. Other ingoing substances shall be indicated at or above the concentration of 0,010 % weight by weight.~~ All ingoing substances present in the form of nanomaterials shall be clearly indicated ~~i~~on the list with the word 'nano' written in brackets. For each ingoing substance listed, the safety data sheets (SDSs) in accordance with Regulation (EC) No 1907/2006 of the European Parliament and of the Council[52] shall be provided. Where an SDS is not available for a single substance because it is part of a mixture, the applicant shall provide the SDS of the mixture. Notes: [1] https://circabc.europa.eu/rest/download/933af4c0-1eda-4467-8b4d-22c9e0236bc1?ticket= [2] DID No is the number of the ingoing substance on the DID list.
ALL	(b) Measurement thresholds Compliance with the ecological criteria is required for all ingoing substances as specified in Table

[51] Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EEC) No 339/93 (OJ L 218, 13.8.2008, p. 30). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32008R0765

[52] 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 (OJ L 396, 30.12.2006, p. 1). https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32006R1907

	1. Table 1. Threshold levels applicable to ingoing substances by criterion (% weight by weight)

Criterion name		Surfactants	Preservatives	Colouring agents	Fragrances	Other (e.g. enzymes)
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Biodegradability	Surfactants	≥ 0,010	N/A	N/A	N/A	N/A
	Organics	≥ 0,010	no limit (*1)	no limit (*1)	no limit (*1)	≥ 0,010
Sustainable sourcing of palm oil		≥ 0,010	N/A	N/A	N/A	≥ 0,010
Excluded or limited substances	Specified excluded and limited subst.	no limit (*1)	no limit (*1)	no limit (*1)	no limit (*1)	no limit (*1)
	Hazardous subst.	≥ 0,010	≥ 0,010	≥ 0,010	≥ 0,010	≥ 0,010
	SVHCs	no limit (*1)	no limit (*1)	no limit (*1)	no limit (*1)	no limit (*1)
	Fragrances	N/A	N/A	N/A	no limit (*1)	N/A
	Preservatives	N/A	no limit (*1)	N/A	N/A	N/A
	Colouring agents	N/A	N/A	no limit (*1)	N/A	N/A
	Enzymes	N/A	N/A	N/A	N/A	no limit (*1)

(*1) 'no limit' means: regardless of the concentration (analytical limit of detection) for all ~~ingoing~~ substances with the exception of ~~by products and~~ impurities ~~from raw materials~~, which can be present up to a concentration of 0,010 % by weight in the final formulation

N/A not applicable

ALL	(c) Product group specificities If a product can be found both in RTU and undiluted form and both forms are sold as part of a single lot (e.g. one bottle of RTU product and a refill bottle of undiluted product), both types of products shall meet the requirements set out in all the criteria for their respective types. Undiluted products in packaging designed for the sole purpose of refilling trigger sprays shall meet the packaging requirements for RTU products.

Rationale for the proposed assessment and verification

The assessment and verification text appearing at the beginning of the legal Annex generally refers to the different types of evidence (e.g. declarations, test reports) that the competent body shall recognise as relevant proof of compliance for criteria. This text is necessary in order to establish the framework and general rules for verification procedures so that they do not need to be repeated in every individual assessment and verification text. Such text is included at the beginning of the legal Annex for all EU Ecolabel new or revised criteria. The proposed text is valid for all product groups, either grouped in one Annex or in several according to a relevant categorisation (to be discussed) as household/domestic and professional (instead of Industrial and Institutional) could be.

The text highlights that when evidence is required from tests or analyses, these should preferentially be carried out by laboratories that are accredited in accordance with relevant harmonised (ISO or EN) standards.

However, this may not always be possible and in some cases it may be satisfactory to accept evidence from in-house testing or testing by third parties that are only accredited with relevant national standards. The

same situation applies to test reports. When evidence is required from the supply chain, it is possible for the evidence to be submitted directly by the supplier to the competent body (this may be important when the proof requires information that may be commercially sensitive). When a test method is specified in the assessment and verification text for a particular EU Ecolabel criterion, this method should be followed unless the applicant can demonstrate to the competent body that they have used another method that produces equivalent results. In such cases, the justification for equivalence must be clearly demonstrated.

The text has been modified aiming to improve it by being more comprehensive, simplified and aligned with other relevant EU Ecolabel criteria, namely Cosmetics and Animal Products([53]) and/or Absorbent Hygienic Products and Reusable Menstrual cups ([54]). The main changes/additions made to this section compared to the existing criteria are:

- Addition of introductory test prior to *a) Requirements*, introducing EUEL criteria target.
- Explicitly requiring compliance with all requirements, being this supported by an applicant's declaration.
- Explicitly requiring notification upon suppliers change to ensure the feasibility of continuous verification.
- All substances regardless of concentration in the final product should be listed.

[53] Commission Decision (EU) 2021/1870 of 22 October 2021 establishing the EU Ecolabel criteria for cosmetic products and animal care products (notified under document C(2021) 7500). OJ L 379, 26.10.2021, p. 8–48. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021D1870

[54] Commission Decision (EU) 2023/1809 of 14 September 2023 establishing the EU Ecolabel criteria for absorbent hygiene products and for reusable menstrual cups (notified under document C(2023) 6024). OJ L 234, 22.9.2023, p. 142–189. http://data.europa.eu/eli/dec/2023/1809/oj

802 # 6. Reference dosage

<table>
<tr><th colspan="3">Existing reference dosage</th></tr>
<tr><td>DD, HDD, HSC, IIDD</td><td colspan="2">The following dosage shall be taken as the reference dosage for the calculations aiming at documenting compliance with the EU Ecolabel criteria and for testing of cleaning ability.</td></tr>
<tr><td>IILD, LD</td><td colspan="2">The following dosage shall be taken as the reference dosage for the calculations aiming at documenting compliance with the EU Ecolabel criteria and for testing of washing ability:</td></tr>
<tr><td>DD</td><td colspan="2"><table>
<tr><td>Dishwasher detergent</td><td>Highest dosage recommended by the manufacturer to wash 12 normally soiled place settings under standard conditions (‘wash’), as laid down in EN 50242 (indicated in g/wash or ml/wash).</td></tr>
<tr><td>Rinse aid</td><td>3 ml/wash</td></tr>
</table></td></tr>
<tr><td>HDD</td><td colspan="2">The highest dosage recommended by the manufacturer for 1 litre of washing water for cleaning normally soiled dishes (indicated in g/l of washing water or ml/l of washing water).</td></tr>
<tr><td>HSC</td><td colspan="2"><table>
<tr><td>Ready-to-use (RTU) products</td><td>1 litre of RTU product</td></tr>
<tr><td>Undiluted products</td><td>Highest dosage recommended by the manufacturer for preparing 1 litre of cleaning solution for cleaning normally soiled surfaces (indicated in g/l of cleaning solution or ml/l of cleaning solution)</td></tr>
</table></td></tr>
<tr><td>IIDD</td><td colspan="2">The highest dosage recommended by the manufacturer to produce 1 litre of washing solution (indicated in g/l of washing solution or ml/l of washing solution) for three degrees of water hardness (soft, medium, hard).</td></tr>
<tr><td>IILD</td><td colspan="2">the highest dosage recommended by the manufacturer to wash one kilogram of dry laundry (indicated in g/kg of laundry or ml/kg of laundry) for three degrees of soiling (light, medium and heavy) and water hardness (soft, medium, hard).
All products in a multi-component system shall be included with the worst case dosage when assessments of the criteria are made.
Examples of degree of soiling<table>
<tr><td>Soling</td><td>Degree of soiling</td></tr>
<tr><td>Light</td><td>Hotels: bed linen, bedclothes and towels, etc. (towels may be considered heavily soiled)
Cloth hand towel rolls</td></tr>
<tr><td>Medium</td><td>Work clothes: institutions/retail/service, etc.
Restaurants: tablecloths, napkins, etc.
Mops and mats</td></tr>
<tr><td>Heavy</td><td>Work clothes: industry/kitchen/butchering, etc.
Kitchen textiles: clothes, dish towels, etc.
Institutions such as hospitals: bed linen, bedclothes, contour sheets, patient clothing, doctor's coat or scrubs/overall, etc.</td></tr>
</table></td></tr>
<tr><td>LD</td><td colspan="2"><table>
<tr><td>Heavy-duty</td><td>Dosage recommended by the manufacturer for one kilogram of normally</td></tr>
</table></td></tr>
</table>

	detergent, colour-safe detergent	soiled dry laundry (indicated in g/kg of laundry or ml/kg of laundry) calculated on the basis of the dosage recommended for a load of 4,5 kg at a water hardness of 2,5 mmol CaCO3/l.
	Light-duty detergent	Dosage recommended by the manufacturer for one kilogram of normally soiled delicate laundry (indicated in g/kg of laundry or ml/kg of laundry) calculated on the basis of the dosage recommended for a load of 2,5 kg at a water hardness of 2,5 mmol CaCO3/l.
	Stain remover (pre-treatment only)	Dosage recommended by the manufacturer for one kilogram of dry laundry (indicated in g/kg of laundry or ml/kg of laundry) calculated on the basis of 6 applications for a load of 4,5 kg.
ALL	*Assessment and verification*: the applicant shall provide the product label or user instruction sheet that includes the dosing instructions.	
Proposed reference dosage		
DD, HDD, HSC, IIDD	The following dosage shall be taken as the reference dosage for the calculations aiming at documenting compliance with the EU Ecolabel criteria and for testing of cleaning ability.	
IILD, LD	The following dosage shall be taken as the reference dosage for the calculations aiming at documenting compliance with the EU Ecolabel criteria and for testing of washing ability:	
DD	Dishwasher detergent	Highest dosage recommended by the manufacturer to wash 12 normally soiled place settings under standard conditions ('wash'), as laid down in EN 60436:2020 ~~EN 50242~~ (indicated in g/wash or ml/wash).
	Rinse aid	3 ml/wash
HDD	The highest dosage recommended by the manufacturer for 1 litre of washing water for cleaning normally soiled dishes (indicated in g/l of washing water or ml/l of washing water).	
HSC	Ready-to-use (RTU) products	1 litre of RTU product
	Undiluted products	Highest dosage recommended by the manufacturer for preparing 1 litre of cleaning solution for cleaning normally soiled surfaces (indicated in g/l of cleaning solution or ml/l of cleaning solution)
IIDD	The highest dosage recommended by the manufacturer to produce 1 litre of washing solution (indicated in g/l of washing solution or ml/l of washing solution) for three degrees of water hardness (soft, medium, hard).	
IILD	~~t~~The highest dosage recommended by the manufacturer to wash one kilogram of dry laundry (indicated in g/kg of laundry or ml/kg of laundry) for three degrees of soiling (light, medium and heavy) and water hardness (soft, medium, hard). All products in a multi-component system shall be included with the worst case dosage when assessments of the criteria are made. Examples of degree of soiling	
	Soling	Degree of soiling
	Light	Hotels: bed linen, bedclothes and towels, etc. (towels may be considered heavily soiled)

			Cloth hand towel rolls
		Medium	Work clothes: institutions/retail/service, etc. Restaurants: tablecloths, napkins, etc. Mops and mats
		Heavy	Work clothes: industry/kitchen/butchering, etc. Kitchen textiles: clothes, dish towels, etc. Institutions such as hospitals: bed linen, bedclothes, contour sheets, patient clothing, doctor's coat or scrubs/overall, etc.
LD		Heavy-duty detergent, colour-safe detergent	Dosage recommended by the manufacturer for one kilogram of normally soiled dry laundry (indicated in g/kg of laundry or ml/kg of laundry) calculated on the basis of the dosage recommended for a load of 4,5 kg at a water hardness of 2,5 mmol CaCO3/l.
		Light-duty detergent	Dosage recommended by the manufacturer for one kilogram of normally soiled delicate laundry (indicated in g/kg of laundry or ml/kg of laundry) calculated on the basis of the dosage recommended for a load of 2,5 kg at a water hardness of 2,5 mmol CaCO3/l.
		Stain remover (pre-treatment only)	Dosage recommended by the manufacturer for one kilogram of dry laundry (indicated in g/kg of laundry or ml/kg of laundry) calculated on the basis of 6 applications for a load of 4,5 kg.
ALL	*Assessment and verification*: the applicant shall provide the product label or user instruction sheet that includes the dosing instructions.		

<u>*Rationale for the proposed reference dosage*</u>

The reference dosage refers to the quantity that manufacturers recommended for a specific application, as described in the Ecolabel text, of their product. It is used to perform calculations that show compliance with its criteria. In the previous revision this criterion was added to ensure there was uniformity in the way in which units and reference dosages should be used for the purpose of assessing criteria compliance (See Table 9).

Table 9 – Outline of texts related to functional unit and reference dosage discussed during the previous EUEL criteria for detergents revision in the final technical report.

Product group	*Functional unit*	*Reference dosage*
DD	Quantity of product required to wash 12 place settings with a standard soil.	Quantity necessary for normally soiled dishes and 12 place settings.
HDD	(Not specific)	Quantity necessary for 1l of washing water for normally soiled dishes.
HSC	(Not specific)	Quantity necessary for 1l of washing water (undiluted products) or 100g (ready-to-use products).
IIDD	grams per litre washing solution (g/l washing solution)	(Not specific)
IILD	grams per kilogram laundry (g/kg laundry)	(Not specific)
LD	grams per kilogram wash (g/kg wash)	Quantity recommended by the manufacturer necessary for: — 4,5kg load (heavy duty detergent) — 2,5kg load (low duty detergent)

Source: Boyano et al. 2016 ([55])

This criterion is pretty much left unchanged, with a minor change in DD product group consisting in updating to the standard EN 60436:2020 which superseded all EN 50242 standard series. The main significant technical changes from EN 50242:2016/EN 60436:2016 ([56]) to EN 60436:2020 ([57]) are:

- new test load with a bigger variety of materials and shapes, including pots, mugs, plastic items and more bowls;
- new phosphate-free reference detergent reflecting more market relevant composition of ingredients;
- more precise soiling procedure;
- new reference materials;
- new definitions and measurement procedures for low power modes.

None of the above changes refers to recommended dosage, so it is reasonable to assume that recommendations for detergent use remain similar.

Nevertheless, further details on the recent standard are subsequently provided. EN60436:2020 is the adaption to a European standard of the international standard IEC 60436 ([58]). In these standards, the quantity it recommends is as per manufacturer's recommendations but not more *8g + 1 g per place setting* (meaning that in the absence of manufacturer's recommendation this is considered the maximum amount allowed).

[55] European Commission, Joint Research Centre, Boyano, A.; Kaps, R.; Medyna, G.; Wolf, O, 2016. Revision of six EU Ecolabel criteria for detergents and cleaning products. Final Technical Report. Available at https://susproc.jrc.ec.europa.eu/product-bureau/sites/default/files/contentype/product_group_documents/1581681262/Technical%20background%20report.pdf (Accessed 10/07/23)

[56] EN 50242:2016/EN 60436:2016 (IEC 60436:2004, modified + A1:2009 , modified + A2:2012 , modified) Electric dishwashers for household use - Methods for measuring the performance. CENELEC.

[57] EN 60436:2020 Electric dishwashers for household use - Methods for measuring the performance (IEC 60436:2015 , modified). CENELEC.

[58] IEC 60436 standard (Ed 4.0; 2015) Electric dishwashers for household use – Methods for measuring the performance. International Electrotechnical Commission (IEC). ISBN 978-2-8322-2970-5.

7. Criteria proposals

This chapter describes current and proposed changes on the structure of the different existing EU Ecolabel criteria for detergents and cleaners product groups.

The proposals for criteria revision are presented by criterion, with dedicated sub-chapters for each of them. Each criterion can also be split into sub-criteria outlining requirements for relevant specific aspects. For each (sub-)criterion the existing legal text, the newly proposed one and the accompanying rationale are presented. The legal text and the rationale have dedicated sections for each detergent product group for which a particular (sub-criterion) is of application. To visualise the changes introduced, these are marked in blue across the document.

7.1. Existing EU Ecolabel criteria structure and proposed changes on it

The aims of this sub-chapter are to add clarity to the applicability of the criteria, to align with proposed changes (eg recent scope and product group names changes) and to simplify the structure of the criteria.

The structure of the existing EU Ecolabel criteria for detergents is presented in Table 10. Within these criteria, *Excluded and restricted substances* and *Packaging* criteria present the legal text and accompanying rationales by sub-criterion, addressing there relevant aspects (See Table 11).

Table 10 – Existing EU Ecolabel criteria structure for each EUEL criteria detergent product group ([59]).

Criterion number			Criterion
DD, LD	*HDD, HSC*	IIDD, IILD	
1	NA	NA	Dosage requirements
2	1	1	Toxicity to aquatic organisms
3	2	2	Biodegradability
4	3	3	Sustainable sourcing of palm oil, palm kernel oil and their derivatives
5	4	4	Excluded and restricted substances
6	5	5	Packaging
7	6	6	Fitness for use
NA	NA	7	Automatic dosage system
8	7	8	User information
9	8	9	Information appearing on the EU Ecolabel

NA – Not applicable (this criterion is not part of the criteria of the product groups indicated)

Table 11 –Existing EU Ecolabel sub - criteria structure each EUEL criteria detergents product group ([60]).

Criterion	Sub-criterion
Excluded and restricted substances	*Specified excluded and restricted substances*
	Hazardous substances
	Substances of very high concern (SVHCs)
	Fragrances
	Preservatives
	Colouring agents
	Enzymes
	Corrosive properties (Only for HDD)
	Micro-organisms (Only for HSC)
Packaging	*Weight/Utility ration (WUR)*

[59] DD – Dishwasher detergents; LD – Laundry detergents; HDD – Hand-dishwashing detergents; HSC – Hard surface cleaning products; IIDD – Industrial and institutional dishwasher detergents; IILD – Industrial and institutional laundry detergents;

[60] DD – Dishwasher detergents; LD – Laundry detergents; HDD – Hand-dishwashing detergents; HSC – Hard surface cleaning products; IIDD – Industrial and institutional dishwasher detergents; IILD – Industrial and institutional laundry detergents;

	Design for recycling
	Products sold in spray bottles (Only for HSC)
	Packaging take-back systems (Only for HSC, IIDD, IILD)

Irrespective of the newly proposed changes and for the sake of clarity, this TR1 follows the existing product group names (DD, HDD, HSC, IIDD, IILD, LD) and criteria structure, just highlighting the proposals made. The following draft version (TR2) will be amended accordingly to the changes discussed and agreed with stakeholders (eg after 1st AHWG).

7.2. Dosage requirements

<table>
<tr><th colspan="2">Existing criterion (x) dosage requirements</th></tr>
<tr><td>DD, LD</td><td>The reference dosage shall not exceed the following amounts:</td></tr>
<tr><td>DD</td><td>
<table>
<tr><th>Product type</th><th>Dosage (g/wash)</th></tr>
<tr><td>Single-function dishwasher detergent</td><td>19,0</td></tr>
<tr><td>Multi-function dishwasher detergent</td><td>21,0</td></tr>
</table>
Rinse aids are exempted from this requirement.
</td></tr>
<tr><td>LD</td><td>
<table>
<tr><th>Product type</th><th>Dosage (g/kg of laundry)</th></tr>
<tr><td>Heavy-duty detergent, colour-safe detergent</td><td>16,0</td></tr>
<tr><td>Light-duty detergent</td><td>16,0</td></tr>
<tr><td>Stain remover (pre-treatment only)</td><td>2,7</td></tr>
</table>
</td></tr>
<tr><td>DD, LD</td><td>Assessment and verification: the applicant shall provide the product label that includes the dosing instructions and documentation showing the density (g/ml) of liquid and gel products.</td></tr>
<tr><th colspan="2">Proposed criterion (x) dosage requirements</th></tr>
<tr><td>DD, LD</td><td>The reference dosage shall not exceed the following amounts:</td></tr>
<tr><td>DD</td><td>
<table>
<tr><th>Product type</th><th>Dosage (g/wash)</th></tr>
<tr><td>Single-function dishwasher detergent</td><td><s>19,0</s> 16.0</td></tr>
<tr><td>Multi-function dishwasher detergent</td><td><s>21,0</s> 18.0</td></tr>
</table>
Rinse aids are exempted from this requirement.
</td></tr>
<tr><td>LD</td><td>
<table>
<tr><th>Product type</th><th>Dosage (g/kg of laundry)</th></tr>
<tr><td>Heavy-duty detergent, colour-safe detergent</td><td><s>16,0</s> 12.2</td></tr>
<tr><td>Light-duty detergent</td><td><s>16,0</s> 12.2</td></tr>
<tr><td>Stain remover (pre-treatment only)</td><td>2,7</td></tr>
</table>
</td></tr>
<tr><td>DD, LD</td><td>Assessment and verification: the applicant shall provide the product label that includes the dosing instructions and documentation showing the density (g/ml) of liquid and gel products.</td></tr>
</table>

Rationale for the proposed dosage requirements

The importance of dosing correctly, from the perspective of how this criterion was designed, lies in using the right amount of detergent and cleaning products so as to achieve desired function with minimal resources consumed and impacts to the environment. In this sense, overdosing uses more raw materials and enhances ecotoxicity impacts while under dosing could lead to similar outcome but consuming higher due an extra re-wash step being required.

To ease proper dosage, the EU Ecolabel ensure that relevant information for the realisation of the environmental benefits reaches end-user (criterion *User information*), including via products' label. Then, is up to the users to dose according to manufacturer's recommendations. Precisely this aspect is the one targeted

in this criterion *dosage requirements*, aiming to set a maximum dosage than can be recommended end-users. It limits to LD and DD product groups because the disparity of applications, thus dosages (e.g. professional products) and/or user habits (e.g. HDD). Also, the recommended dosages are set for medium water hardness (2.5 mmol of $CaCO_3$/l,).

Several projects focused on resource efficiency in the detergent sector, as setting lower recommended dosages in LD products, have been the focus of the International Association for Soaps Detergents and Maintenance Products (AISE) ([61]). The compaction of detergent doses is a clear example and something that AISE has been promoting for the last 20+ years for laundry detergents ([62]). More compact laundry detergent products lead to reductions in environmental impacts associated with the packaging and transport stages of the detergent product life cycle. However, in product formats that can be variably dosed (i.e. liquid and powder products, not capsules or pods) there is an increased risk of overdosing of the more compact laundry detergent products. This would especially be the case when consumers are still familiar with using less compact laundry detergents.

A sensitivity analysis of the effect of varying the dosage of laundry detergent in the initial draft PEF screening studies for liquid laundry detergent at 30°C showed that each 5% overdose of the laundry detergent prompted an approximate 1.8% increase in the single PEF score for normalised and weighted environmental impacts. For higher temperature wash cycles, the effect of overdosing would be less significant as use phase electricity consumption takes a greater overall share. Conversely, the adverse impact of overdosing becomes more significant when washing at temperatures below 30°C.

The second "Product resource efficiency project" for laundry liquid detergents (*PREP-L2*) project carried by AISE ([63]) stated as a compaction commitment to set the standard recommended dose for liquid (heavy and light duty) detergents to 55 mL/wash. Considering this and the reference dosage (assuming 4.5 kg laundry per wash), this leads to a reduced threshold of 12.2 mL/kg laundry, lower than existing LD criterion limit.

With regards to comparison with other ISO Type I ecolabel schemes, EUEL criteria thresholds are the same as Blue Angel and are less stringent than Nordic Swan (NS), except for pre-treatment stain removers which is equal (See Annex I). In terms of LD products, Nordic Swan limits are set for soft water, meaning that the 11.0 g/kg wash for heavy and light duty detergents would be equivalent to 14.3 g/kg wash for medium hardness water (130% of NS limit), lower than EUEL threshold (16 g/kg laundry). In terms of DD products, NS limits are 18.0 and 20.0 g/wash for single and multifunction products, respectively, which are lower than EUEL ones by 1 g/wash (19.0 and 21.0 g/wash, respectively).

Another source of information to revise existing thresholds was the focused questionnaire carried by the JRC. In it, the following question were included in order to understand the recommended dosage of both ecolabelled and non-ecolabelled products:

- *3.1) Could you provide data on the dosage requirements of your EU Ecolabelled products? Please report by product group and/or by product categories.*
- *3.2) Could you provide data/information on the recommended dosage (or typical range) by the manufacturer for non-EU Ecolabelled products? Please restrict to LD, DD, IIDD, IILD, HDD & HSC and/or their product categories but including any format type (e.g. pods/tablets/capsules/sheets).*

The full analysis of the responses and the data/information inputs provided by respondents is ongoing at the time of writing this TR1 but a preliminary analysis was carried aiming at informing on direction for revision of this criterion. For the purposes of this preliminary analysis on this focused questionnaire responses, for the conversion of volumetric (e.g. millilitre; mL) to mass (e.g. gram; g) units the density is assumed to be 1 g/mL (thus being equivalent). This is performed in order to have common units in the responses received, which some instances reported mL/kg laundry and in others g/kg laundry. If the response quoted "per wash", then

[61] https://www.aise.eu/our-activities/sustainable-cleaning-78/resource-efficiency.aspx (Accessed 19/01/24)
[62] https://www.aise.eu/documents/document/20190410111600-aise_factsheet-2019_compaction_def.pdf
[63] https://www.aise.eu/documents/document/20200703154538-prep-l2_closeout_report_final_1july2020.pdf (Accessed 19/01/24)

this was transformed into kg laundry by using the reference dosage (4.5 kg laundry per wash). The preliminary conclusions are:

— Laundry detergent (LD)

- Question 3.1 -> In total, 24/82 participants replied to this question. From these, 7/82 provided LD data which ranged between 6.1 – 16 g/kg laundry, being most of the values reported values being closer to the high end (existing EUEL criterion limit)
- Question 3.2 -> In total, 28/82 participants replied to this question. From these, 6/82 provided LD data, which ranged between 6.67 - 22 g/kg laundry

— Dishwasher detergent (DD)

- Question 3.1-> In total, 24/82 participants replied to this question. From these, 6/82 provided DD data which range between 15 – 18 g/wash.
- Question 3.2-> -> In total, 28/82 participants replied to this question. From these, 4/82 provided DD data which ranged between 16 – 25 g/wash.

Acknowledging that each case have to be assessed specifically for accurate conclusions, in general terms the recommended dosage within the same product group and format for non-ecolabelled products was higher than ecolabelled ones, normally in a ratio (Non-ecolabelled/ecolabelled) ranging from 1.15 to 1.40 (thus 15-40% higher). Considering this, the feedback provided by stakeholders about ecolabelled products (question 3.1) will be preferably consider for the purposes of revising this criterion thresholds.

The answers to question 3.1 suggest that there are products already in the market recommended dosages as low as 6.1 g/kg laundry. However, most of the reported by value by questionnaire participants suggest that currently the recommended dosages are skewed towards existing EUEL criterion limit (16 g/kg laundry). However, AISE's compaction project is a substantial prove that confirms the potential feasibility of the detergents sector of achieving a recommended dosage of 55 mL/wash (equivalent to 12.2 g/kg laundry assuming 4.5 kg laundry/wash). Furthermore, there seem to be more room to decrease the recommended dosage in LD, surely via concentrated formats (e.g.. pods) but also in liquid ones. This assumption is based on the fact that few years have passed since this project was completed, thus market could have evolved and decreased further the recommended dosage, and also given bilateral exchanges with key industry players, which suggested that lower recommended dosages for ecolabelled product formulation could be achieved. Given all the previous statements, it is proposed to **use AISE's recommended dosage as reference** 12.2 g/kg laundry. This recommended dosage is within the feasibility range reported by stakeholders whilst significantly tightening criterion ambition.

The picture for DD products is not as clear as for LD products, merely based on the outcomes of the preliminary analysis. Nevertheless, there are useful observations, such as that the lowest range reported for non-ecolabelled products products is below existing threshold (16 g/wash versus 19 [single function] or 21 [multi-function] g/wash). This suggest that there is room for making the criterion more stringent. However, different formats might present different recommended dosage ranges (i.e. gel versus tablets) aspect for which there are not enough evidences at this stage. Given the former, the thresholds proposed are 19.0 g/wash for multifunctional DD products and 16.0 g/wash for single-function. These values are within the reported feasible range for ecolabelled products profile but with lower feasibility for non-ecolabelled products to comply with. Specific inputs will be requested and discussed with regards to DD thresholds set in order to understand their compliance feasibility and also compatibility of different formats with it.

Finally, the inclusion of highly concentrated formats (e.g. pods; LD sheets) is not considered because the risk of overdosing is deemed lower (e.g. monodoses; pre-cut LD sheets) and the ability to modify the recommended dose range is more limited.

Points for discussion 6 – Dosage requirements

Stakeholders are invited to reply the following consultation question:

— Question 11 (Q11) – Do you support proposed thresholds? If not, why?

— Question 12 (Q12) – Should any additional product group/format be considered for addition? If so, why?

7.3. Toxicity to aquatic organisms

Existing criterion (x) toxicity to aquatic organisms

ALL

The critical dilution volume ($CDV_{chronic}$) of the product shall not exceed the following limits for the reference dosage.

DD

Product type	Limit CDV (l/wash)
Single-function dishwasher detergents	22 500
Multi-function dishwasher detergents	27 000
Rinse aid	7 500

HDD

Product type	Limit CDV (l/l of washing water)
Hand dishwashing detergents	2 500

HSC

Product type	Limit CDV (l/l of cleaning solution)
All-purpose cleaners, RTU	350 000
All-purpose cleaners, undiluted	18 000
Kitchen cleaners, RTU	600 000
Kitchen cleaners, undiluted	45 000
Window cleaners, RTU	48 000
Window cleaners, undiluted	18 000
Sanitary cleaners, RTU	600 000
Sanitary cleaners, undiluted	45 000

IIDD

Water hardness Product type	Soft (< 1,5 mmol $CaCO_3$/l) (l/l of washing solution)	Medium (1,5-2,5 mmol $CaCO_3$/l) (l/l of washing solution)	Hard (> 2,5 mmol $CaCO_3$/l) (l/l of washing solution
Pre-soaks	2 000	2 000	2 000
Dishwasher detergents	3 000	5 000	7 000
Multi-component systems	3 000	4 000	5 000
Rinse aids	3 000	3 000	3 000

IILD

Soft water (< 1,5 mmol $CaCO_3$/l) (l/kg of laundry)

Degree of soiling Product type	Light	Medium	Heavy
Powder	30 000	40 000	50 000
Liquid	50 000	60 000	70 000
Multi-component system	50 000	70 000	90 000

Medium water (< 1,5-2,5 mmol $CaCO_3$/l) (l/kg of laundry)

Degree of soiling Product type	Light	Medium	Heavy
Powder	40 000	60 000	80 000
Liquid	60 000	75 000	90 000
Multi-component system	60 000	80 000	100 000

Soft water (> 2,5 mmol $CaCO_3$/l) (l/kg of laundry)

	<table><tr><th>Degree of soiling Product type</th><th>Light</th><th>Medium</th><th>Heavy</th></tr><tr><td>Powder</td><td>50 000</td><td>75 000</td><td>90 000</td></tr><tr><td>Liquid</td><td>75 000</td><td>90 000</td><td>120 000</td></tr><tr><td>Multi-component system</td><td>75 000</td><td>100 000</td><td>120 000</td></tr></table>
LD	<table><tr><th>Product type</th><th>Limit CDV (l/kg of laundry)</th></tr><tr><td>Heavy-duty detergent, colour-safe detergent</td><td>31 500</td></tr><tr><td>Light-duty detergent</td><td>20 000</td></tr><tr><td>Stain remover (pre-treatment only)</td><td>3 500</td></tr></table>
ALL	*Assessment and verification*: the applicant shall provide the calculation of the $CDV_{chronic}$ of the product. A spreadsheet for calculating the $CDV_{chronic}$ value is available on the EU Ecolabel website.
DD, HDD, IIDD, IILD, LD	The $CDV_{chronic}$ is calculated for all ingoing substances (i) in the product using the following equation:
HSC	The $CDV_{chronic}$ is calculated for all ingoing substances (i) in the product, except micro-organisms, using the following equation:
ALL	$$CDV_{chronic} = \sum CDV(i) = 1000 \cdot \sum dosage(i) \cdot \frac{DF(i)}{TF_{chronic}(i)}$$ Where: $dosage(i)$: weight (g) of the substance (i) in the reference dose; $DF(i)$: degradation factor for the substance (i); $TF_{chronic}(i)$: chronic toxicity factor for the substance (i);
DD, HDD, HSC, LD	The values $DF(i)$ and $TF_{chronic}(i)$shall be as given in the most updated Part A of the DID list. If an ingoing substance is not included in Part A, the applicant shall estimate the values following the approach described in Part B of that list and attaching the associated documentation.
IIDD, IILD	The values $DF(i)$and $TF_{chronic}(i)$shall be as given in the most updated Part A of the DID list. If an ingoing substance is not included in Part A, the applicant shall estimate the values following the approach described in the Part B of that list and attaching the associated documentation.
IILD	Because of the degradation of certain substances in the wash process, separate rules apply to the following: — hydrogen peroxide (H_2O_2) — not to be included in calculation of CDV, — peracetic acid — to be included in the calculation as 'acetic acid', — ε-phthalimido-peroxy-hexanoic acid (PAP) — to be included in the calculation as ε-phthalimido hexanoic acid (PAC). The values to be used to calculate the CDV[*chronic*] for ε-phthalimido hexanoic acid (PAC) shall be as follows: $DF(i)$= 0,05 $TF_{chronic}(i)$= 0,256 mg/l Aerobic = R Anaerobic = O

Proposed criterion (x) toxicity to aquatic organisms

ALL

The critical dilution volume ($CDV_{chronic}$) of the product shall not exceed the following limits for the reference dosage.

DD

Product type	Limit CDV (l/wash)
Single-function dishwasher detergents	~~22 500~~ 20000
Multi-function dishwasher detergents	~~27 000~~ 24000
Rinse aid	~~7 500~~ 5000

HDD

Product type	Limit CDV (l/l of washing water)
Hand dishwashing detergents	~~2 500~~ 1500

HSC

Product type	Limit CDV (l/l of cleaning solution)
All-purpose cleaners, RTU	350 000
All-purpose cleaners, undiluted	18 000
Kitchen cleaners, RTU	600 000
Kitchen cleaners, undiluted	45 000
Window cleaners, RTU	48 000
Window cleaners, undiluted	18 000
Sanitary cleaners, RTU	600 000
Sanitary cleaners, undiluted	45 000

IIDD

Water hardness Product type	Soft (< 1,5 mmol $CaCO_3$/l) (l/l of washing solution)	Medium (1,5-2,5 mmol $CaCO_3$/l) (l/l of washing solution)	Hard (> 2,5 mmol $CaCO_3$/l) (l/l of washing solution
Pre-soaks	2 000	2 000	2 000
Dishwasher detergents	~~3 000~~ 1800	~~4 000~~ 3000	~~5 000~~4200
Multi-component systems	~~3 000~~ 1800	~~4 000~~ 2400	~~5 000~~3000
Rinse aids	3 000	3 000	3 000

IILD

Soft water (< 1,5 mmol $CaCO_3$/l)
(l/kg of laundry)

Degree of soiling Product type	Light	Medium	Heavy
Powder	~~30 000~~ 22500	~~40 000~~ 30000	~~50 000~~ 37500
Liquid	~~50 000~~ 37500	~~60 000~~ 45000	~~70 000~~ 52500
Multi-component system	~~50 000~~ 37500	~~70 000~~ 52500	90 000

Medium water (< 1,5-2,5 mmol $CaCO_3$/l)
(l/kg of laundry)

Degree of soiling Product type	Light	Medium	Heavy
Powder	~~40 000~~ 30000	~~60 000~~ 45000	~~80 000~~ 60000
Liquid	~~60 000~~ 45000	~~75 000~~ 56250	~~90 000~~ 67500
Multi-component system	~~60 000~~ 45000	~~80 000~~ 60000	~~100 000~~ 75000

~~Soft~~ Hard water (> 2,5 mmol $CaCO_3$/l)
(l/kg of laundry)

Degree of soiling	Light	Medium	Heavy

<table>
<tr><td></td><td>
<table>
<tr><th>Product type</th><th></th><th></th><th></th></tr>
<tr><td>Powder</td><td>~~50 000~~ 37500</td><td>~~75 000~~ 56250</td><td>~~90 000~~ 67500</td></tr>
<tr><td>Liquid</td><td>~~75 000~~ 56250</td><td>~~90 000~~ 67500</td><td>~~120 000~~ 90000</td></tr>
<tr><td>Multi-component system</td><td>~~75 000~~ 56250</td><td>~~100 000~~ 75000</td><td>~~120 000~~ 90000</td></tr>
</table>
</td></tr>
<tr><td>LD</td><td>
<table>
<tr><th>Product type</th><th>Limit CDV (l/kg of laundry)</th></tr>
<tr><td>Heavy-duty detergent, colour-safe detergent</td><td>~~31 500~~ 23625</td></tr>
<tr><td>Light-duty detergent</td><td>~~20 000~~ 15000</td></tr>
<tr><td>Stain remover (pre-treatment only)</td><td>3 500</td></tr>
</table>
</td></tr>
<tr><td>ALL</td><td>Assessment and verification: the applicant shall provide the calculation of the $CDV_{chronic}$ of the product. A spreadsheet for calculating the $CDV_{chronic}$ value is available on the EU Ecolabel website.</td></tr>
<tr><td>DD, HDD, IIDD, IILD, ~~LD~~</td><td>The $CDV_{chronic}$ is calculated for all ingoing substances (i) in the product, except abrasive substances, using the following equation:</td></tr>
<tr><td>LD, HSC</td><td>The $CDV_{chronic}$ is calculated for all ingoing substances (i) in the product, except abrasive substances and micro-organisms, using the following equation:</td></tr>
<tr><td>ALL</td><td>$$CDV_{chronic} = \sum CDV(i) = 1000 \cdot \sum dosage(i) \cdot \frac{DF(i)}{TF_{chronic}(i)}$$
Where:
$dosage(i)$: weight (g) of the substance (i) in the reference dose;
$DF(i)$: degradation factor for the substance (i);
$TF_{chronic}(i)$: chronic toxicity factor for the substance (i);</td></tr>
<tr><td>DD, HDD, HSC, LD</td><td>The values $DF(i)$ and $TF_{chronic}(i)$shall be as given in the most updated Part A of the DID list. If an ingoing substance is not included in Part A, the applicant shall estimate the values following the approach described in Part B of that list and attaching the associated documentation.</td></tr>
<tr><td>IIDD, IILD</td><td>The values $DF(i)$and $TF_{chronic}(i)$shall be as given in the most updated Part A of the DID list. If an ingoing substance is not included in Part A, the applicant shall estimate the values following the approach described in the Part B of that list and attaching the associated documentation.</td></tr>
<tr><td>IILD</td><td>Because of the degradation of certain substances in the wash process, separate rules apply to the following:
— hydrogen peroxide (H_2O_2) — not to be included in calculation of CDV,
— peracetic acid — to be included in the calculation as ‘acetic acid’,
— ε-phthalimido-peroxy-hexanoic acid (PAP) — to be included in the calculation as ε-phthalimido hexanoic acid (PAC).
The values to be used to calculate the CDV[chronic] for ~~ε-phthalimido-hexanoic acid (~~PAC~~)~~ shall be as follows:
$DF(i)$= 0,05
$TF_{chronic}(i)$= 0,256 mg/l
Aerobic = R
Anaerobic = O</td></tr>
</table>

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Rationale for the proposed toxicity to aquatic organisms

The Critical dilution volume (CDV) is used in the EU Ecolabel as an indicator to assess the toxicity of products with respect to the aquatic environment. This criterion is especially relevant for those products which are released to water during the use phase or after use, as is the case for detergent and cleaning products.

The CDV represents a risk-based parameter that combines the amount used, the (aerobic) biodegradability and the aquatic toxicity of all substances present in the formulation of detergent and cleaning products. The CDV expresses the amount of water needed for the hypothetical dilution of a product down to a harmless concentration for the aquatic environment. The unit is expressed in litres per functional unit. It is calculated based on the chronic toxicity and chronic safety factors. If no chronic test results are available, the acute toxicity and safety factor must be used.

As mentioned, the CDV values are dominated by two properties of the ingredients in detergent products: their biodegradability and their aquatic toxicity. These two properties are highly relevant to detergent products given that they all end up going directly or indirectly (via sewerage network and wastewater treatment plant) into natural watercourses. Both properties need to combine in order to create an adverse environmental impact in natural watercourses. For example, if a substance does not biodegrade but is not toxic to aquatic life, it will reach the natural watercourse but not create toxic effects for aquatic life. Conversely, if a substance is toxic, but also biodegrades quickly, it will be unlikely that it reaches the natural watercourse if having to pass through a wastewater treatment plant.

The CDV thresholds have been revised based on the latest available updates to the DID list (DID2016) and on available market data from current licence holders and other national schemes. Note that in the latter case, data is generally skewed towards EU Ecolabelled products, as these data is available readily to Competent Bodies, testing institutes and industry. Nevertheless, the threshold included in this 1st proposal aim to increase the stringency of the EU Ecolabel, thus reflecting the evolvement of the market.

In terms of LCA related findings (See PR; Chapter *Technical analysis)* and regarding the PEF methodology, the impact category that relates to aquatic toxicity (and thus to CDV criteria) is "Ecotoxicity", which refers to toxicity in freshwater ecosystems and is based on the USETox model, with some adaptations.

According to the initial draft PEF screening studies, ecotoxicity was consistently one of the top 3 normalised environmental impact categories for all of the detergent product groups studied (LLD, PLD, DD, HDD, HSC-kitchen cleaner and HSC-acid toilet cleaner).

The importance of the CDV value in LCA results is reflected by the size of ecotoxicity impacts associations in the disposal stage. Although normalised impacts between different product groups cannot be compared due to the different functional units involved, in relative terms, the most significant contributions to ecotoxicity in the disposal stage (i.e. wastewater) were HDD (ca. 71%), PLD (ca. 52%), LLD (ca. 44%) and DD (ca. 23%). However, it should be noted that these shares are highly sensitive to the ingredients and their concentrations in detergent formulations. As more data is received, representative formulations could change and so might the relative importance of Ecotoxicity impacts and thus CDV criteria ambition level,

One of the main aspects proposed by stakeholders is lowering the CDV thresholds, as a way to better reflect market reality in terms of product composition and, especially, to ensure achieving the stringiest environmental ambition. Two streams of evidences (comparison with other ecolabelling schemes & focused questionnaire data) suggested that effecting this changes was feasible.

In general terms, the thresholds set in other ISO Type I Ecolabels (Blue Angel; Nordic Swan) are stricter than those existing in current EUEL criteria (See Annex I). Some of these variations could be originated in using different updates of the DID list. Nevertheless, both schemes have revised their limits more recently than EUEL criteria, thus providing a more-up-to-date view of products in the market with regards to CDV.

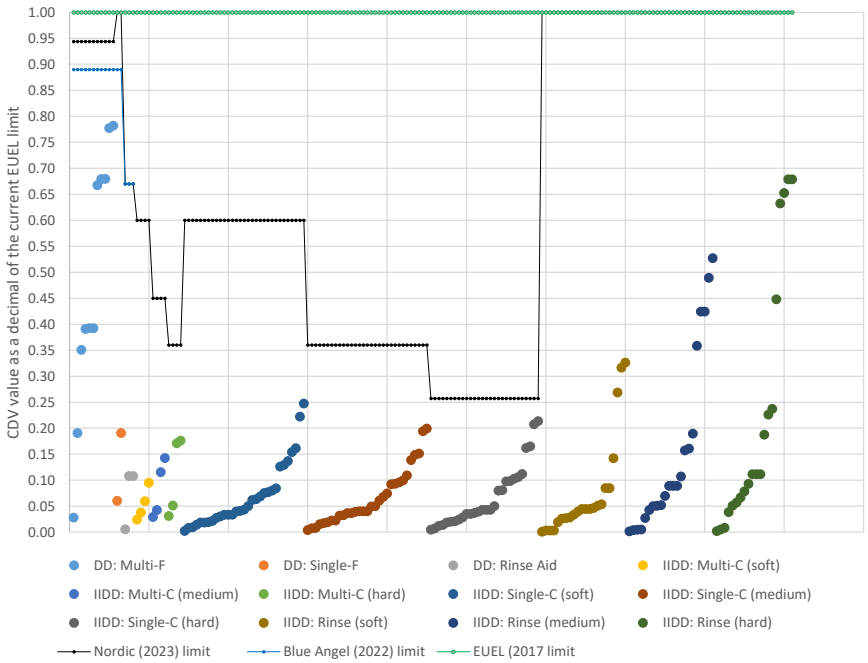
The preliminary analysis of the data received as a results of the focused questionnaire highlights that the current formulation profile corresponding to ecolabelled products in the market presents CDV values that, particularly for some product groups (e.g. LD), are considerably lower than the threshold set (e.g. LD - heavy duty ranging approximately 13000 – 18:000 versus 31500 l/kg laundry).

The former is based on an analysis made on the anonymised data provided by Competent Bodies for actual CDV values of different detergent products that have been awarded the EU Ecolabel, which allowed for a

broad analysis and comparison to the current EUEL limits. In order to facilitate the side-by-side comparison of different categories and sub-categories of products, the CDV results were divided by the applicable EUEL limit to create a unitless coefficient of between 0 and 1 for each data point. These points can then be compared to the EUEL limit, or the limits for Blue Angel (BA) and the Nordic Swan (NS), which are represented by lines. Data points are also arranged in ascending order to allow for a better distinction between data sets and to see better how the data is spread vertically. Relevant observations, including mentioning to BA and NS thresholds, are made for each product (sub-group) groups, including suggestion for criterion's threshold revision. Before commenting further, it has to be clarified that the data gathered so far is just a fraction of the total number of EU ecolabelled products and thus it is unclear if this data is fully representative of the other ecolabelled products in these categories. This is precisely why further input and stakeholders confirmation on the validity of the proposed thresholds is capital. Nevertheless, the analysis is robust in providing a clear direction for the revision (decreasing the limits) being only susceptible to change how much that reduction should be per product (sub-groups).

For DD and IIDD products, the data collected can be represented in Figure 5..

Figure 5. Plot of CDV values for different sub-categories of DD and IIDD products that have been awarded the EU Ecolabel



First of all, comparing the limits for CDV of the three ISO type I ecolabel schemes (the green, black and blue lines) shows that both the Blue Angel and especially the Nordic Swan are more ambitious than the EUEL in the following ways:

- For DD multi-function products, Blue Angel limits were 11% lower and Nordic Swan were 5.6% lower (24000 and 25500 versus 27500 for EUEL). The proposal is to decrease the threshold to 24000, thus aligning with Blue Angel.
- For DD single-function products, Blue Angel limits were 11% lower and Nordic Swan were equal to the EUEL (20000 and 22500 versus 22500 for EUEL). The proposal is to decrease the threshold to 20000, thus aligning with Blue Angel. However, plotted data suggest that decreasing the threshold by 20% (18000) could be potentially feasible (all data points below 0.8 in the unit-less scale).
- For DD rinse aids, both the Blue Angel and Nordic Swan limits were 33% lower (5000 versus 7500 for EUEL). The proposal is to set CDV threshold at 5000, thus aligning with BA and NS.
- For IIDD multi-component products, the Nordic Swan limits were much lower in general (a single limit of 1800 for Nordic Swan versus limits of 3000, 4000 and 5000 for soft, medium and hard

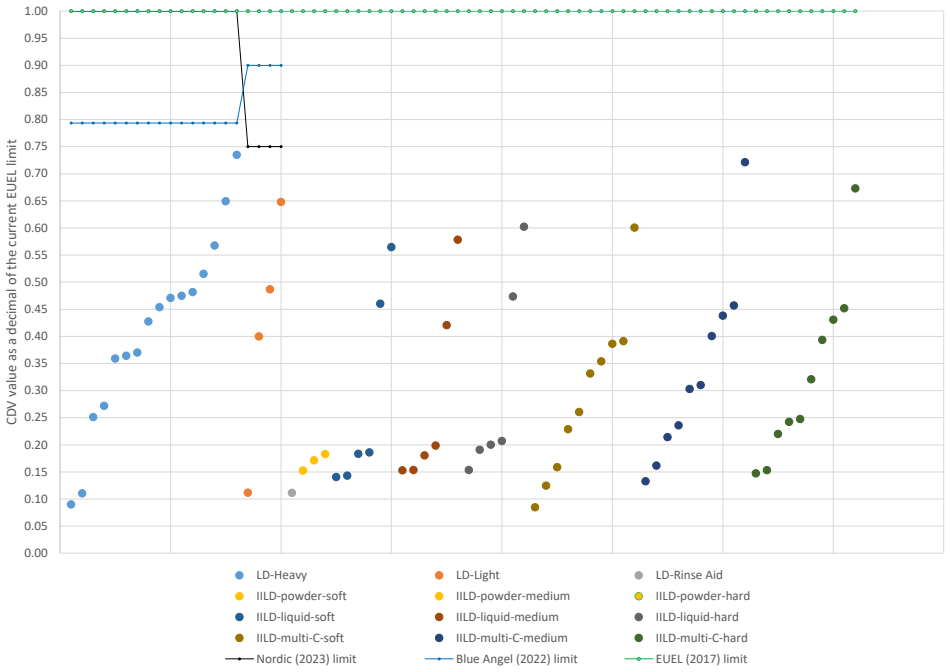
water for EUEL). Data points were under 0.2 in the unit-less scale, being equivalent to a 1000 threshold. Due to few data points available a conservative approach is taken and the proposal is to align the soft water threshold with that of NS (1800), then being the thresholds for medium (2400) and hard water (3000) proportionally higher.

- For IIDD single-component products, the Nordic Swan limits were much lower in general (a single limit of 1800 for Nordic Swan versus limits of 3000, 5000 and 7000 for soft, medium and hard water for EUEL). The logic followed for the proposal of revised CDV threshold is analogous to that described for IIDD multi-component – EUEL soft water threshold matching NS threshold. This lead to the following limits: soft (1800), medium.
- For Rinse aids, data suggest that most rinse aids products, irrespective of water hardness, would be compliant with a CDV threshold of 1650, decreasing current EUEL limit (3000) by 45%. However, further data/feedback would be required to confirm the suitability of this proposal. Also, NS and BA present similar threshold as EUEL ecolabel. Hence, threshold remain unchanged until new evidences are sourced.

There were especially only very few data points for the DD products (n= 2 for single function DD and n=3 for rinse aid DD). Nevertheless, the plots of individual data points for all of the DD and IIDD products imply that, overall, there is a large room for improvement in increasing the ambition level of CDV limits. For example, all CDV limits for IILD products could be reduced by 45% and only 4 of the 20 IILD rinse aid (hard water) data points would not comply. With DD products, the CDV limit could be lowered by 20% and all data points would still comply. Much larger reductions could potentially be made for DD single-function and DD rinse aid products, but current data is too limited to be sure.

For LD and IILD products, the data collected can be represented in Figure 6..

Figure 6. Plot of CDV values for different sub-categories of LD and IILD products that have been awarded the EU Ecolabel (EUEL data points assumed a normal degree of soiling)



First of all, comparing the limits for CDV of the three ISO type I ecolabel schemes (the green, black and blue lines) shows that both the Blue Angel and the Nordic Swan are more ambitious than the EUEL in the following ways:

- For LD heavy duty products, Blue Angel limits were 20.7% lower and Nordic Swan 0% lower (25000 and 31500 versus 31500 for EUEL).

- For LD light duty products, Blue Angel limits were 10% lower and Nordic Swan 25% lower (18000 and 15000 versus 20000 for EUEL).
- A comparison of limits for LD rinse aids was not made due to the different terms used (e.g. “stain removers in-wash” and “stain removers pre-treatment” in Nordic Swan and “stain remover” and “laundry detergent booster” in Blue Angel).
- A comparison of ecolabel limits for IILD products was not made either because Blue Angel does not cover this type of products and because the way limits are defined in the Nordic Swan and EUEL are quite different.

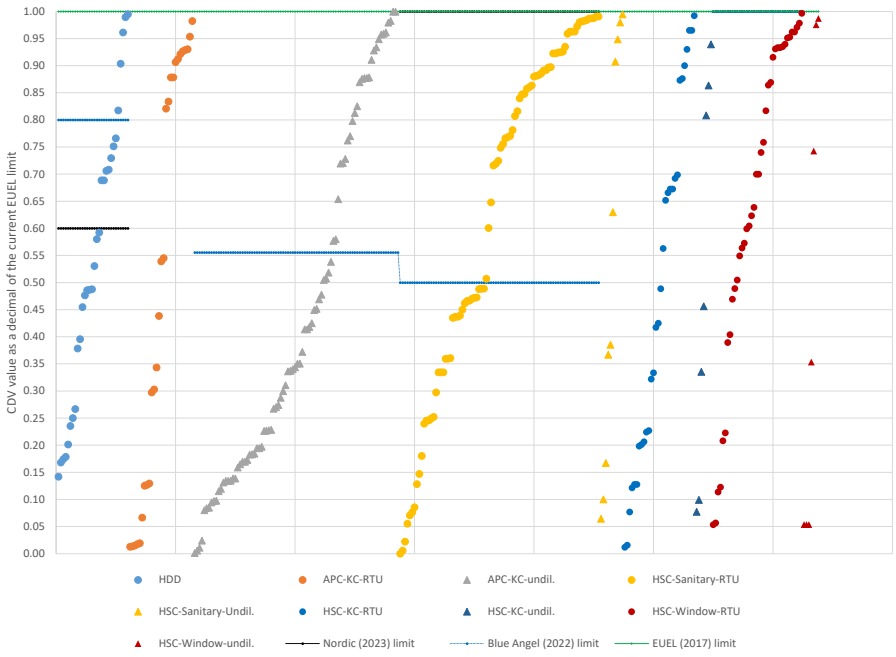
Expanding upon the last point in the list above, the Nordic Swan simply has three CDV limits for IILD that vary depending on the degree of soiling (light, medium, heavy). Whereas the EUEL has a more complex approach, which results in nine CDV limits for IILD, basically adding a “soft, medium and hard” option for water hardness to each of the degree of soiling options. Whether or not the more complex approach for limits in the EUEL makes sense will depend on how well-controlled are water hardness levels in industrial and institutional laundry facilities (e.g. is the water pretreated before entering the laundry cycle).

Looking at the plot of results in Figure 6., it can be seen that all the LD results comfortably comply with the EUEL limits and that CDV limits could be reduced by 25% and still all products would comply. Although the dataset is small and there was a great variability in LD data (ca. by a factor of 6), this upper limit was respected. Consequently, at this stage, the proposal is to reduce the limits in this proportion, with view of decreasing it further shall evidences backed this up, thus resulting in 23625 (heavy duty) and 15000 (light duty) as LD revised CDV threshold.

For IILD results, the picture is more complex. First of all it is necessary to explain that the data provided by Competent Bodies states a CDV value for each degree of water hardness, but it did not specify the degree of soiling. For the purposes of this analysis, it was assumed that a normal degree of soiling would apply. If a light degree of soiling was assumed, the EUEL limits would be lower and the data points in the graph above would be plotted higher. The opposite would be true if assuming a heavy degree of soiling with the provided CDV data. When looking at the data presented for normal soiling, it is clear that the EUEL limits could be reduced by 25% with no effect on compliance of the selected products. Limits could even be reduced by 35% with on 2 of the 51 data points not complying. Given the former, the proposal is 25% reduction in all thresholds.

For HDD and HSC products, the data collected can be represented in Figure 7.

Figure 7. Plot of CDV values for HDD products and for different sub-categories of HSC products



First of all, comparing the limits for CDV of the three ISO type I ecolabel schemes (the green, black and blue lines) shows that both the Blue Angel and/or the Nordic Swan are more ambitious than the EUEL in the following ways:

For HDD, Blue Angel limits were 20% lower and Nordic Swan 40% lower (2000 and 1500 versus 2500 for EUEL). The proposal is to align with the stricter limits, thus NS, being 1500 the revised CDV threshold.

It was not possible to accurately compare the limits for all sub-categories of HSC products because the naming was different between the Nordic Swan, Blue Angel and EUEL criteria, as shown in Table 12. The values in existing EUEL criteria are aligned with those of NS and for the product groups where BA is stricter (Kitchen and sanitary cleaners in RTU form), data shows that a significant share of products would result in non-compliance upon alignment. Further evidences and analysis are required to conclude on a potential revision of HSC CDV thresholds. Given the former, the proposal for HSC is for the CDV thresholds to remain as they are.

Table 12. Comparison of terminologies used for HSC product categories between Nordic Swan, Blue Angel and the EUEL (and associated CDV values).

EU Ecolabel	Nordic Swan	Blue Angel
All-purpose cleaner, RTU (350000)	RTU, WC, consumer (600000) RTU, other, consumer (600000) RTU, other (incl. WC) professional (350000)	??
All-purpose cleaner, undiluted (18000)	Concentrated, consumer (10500) Concentrated, professional (9500)	All-purpose cleaner (10000)
Sanitary cleaner, RTU (600000)	RTU, WC, consumer (600000) RTU, other, consumer (600000) RTU, other (incl. WC) professional (350000)	Toilet cleaner (300000) Bathroom cleaner (150000)
Sanitary cleaner, undiluted (45000)	Concentrated, consumer (10500) Concentrated, professional (9500)	??
Kitchen cleaner, RTU (600000)	RTU, WC, consumer (600000) RTU, other, consumer (600000) RTU, other (incl. WC) professional (350000)	Kitchen cleaner (300000)
Kitchen cleaner, undiluted (45000)	Concentrated, consumer (10500) Concentrated, professional (9500)	??
Window cleaner, RTU (48000)	RTU windows, professional, consumer (48000)	Glass cleaner (48000)
Window cleaner, undiluted (18000)	Concentrated, consumer (10500) Concentrated, professional (9500)	??
	Façade and terrace cleaners (20000)	Descaler, RTU (10000)
	Foam, professional (100000)	

Points for discussion 7 – Critical Dilution Volume limits

Stakeholders are invited to reply the following consultation questions:

- Question 13 (Q13) – Do you support the exclusion of abrasives from CDV calculation, as expressed in criterion legal text? If not but still supporting this exclusion, should it be aligned with EUEL criteria for Cosmetic products (use Active Content –AC)?
- Question 14 (Q14) – Can you provide CDV value data to help support the criteria revision process and make sure that new CDV values have an appropriate level of ambition?

- Question 15 (Q15) – Would you support reducing the CDV threshold for DD single-function to 18000 g/wash?
- Question 16 (Q16) – Would you support reducing the CDV threshold for DD rinse aid products to 1650 l/l washing solution?
- Question 17 (Q17) – Would you support proposed IILD limits? In addition, would you support a simplification of the criterion? If so, why/how (e.g. not differentiating by water hardness)?
- Question 18 (Q18) – Would you support aligning with Blue Angel with regards to HSC CDV toxicity limits? In addition, do you have any specific proposal for revision of each of the HSC products sub-groups?
- Question 19 (Q19) – Do you think the EUEL limits for CDV should continue to be nuanced for dosages for soft, medium and hard water? And does this answer vary depending on whether referring to household or industrial and institutional products?

7.4. Biodegradability

<table>
<tr><th colspan="2">Existing criterion (x) biodegradability</th></tr>
<tr><td>ALL</td><td>(a) Biodegradability of surfactants
All surfactants shall be readily degradable (aerobically).
All surfactants classified as hazardous to the aquatic environment: Acute Category 1 (H400) or Chronic Category 3 (H412), in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council([64]) shall be in addition anaerobically biodegradable.</td></tr>
<tr><td>DD, HDD, IIDD, IILD, LD</td><td>(b) Biodegradability of organic compounds
The content of organic substances in the product that are aerobically non-biodegradable (not readily biodegradable, aNBO) or anaerobically non-biodegradable (anNBO) shall not exceed the following limits for the reference dosage:</td></tr>
<tr><td>HSC</td><td>(b) Biodegradability of organic compounds
The content of organic substances in the product, except micro-organisms, that are aerobically non-biodegradable (not readily biodegradable, aNBO) or anaerobically non-biodegradable (anNBO) shall not exceed the following limits for the reference dosage.</td></tr>
<tr><td>DD</td><td>
<table>
<tr><td>Product type</td><td>aNBO (g/wash)</td><td>anNBO (g/wash)</td></tr>
<tr><td>Dishwasher detergents</td><td>1,00</td><td>3,00</td></tr>
<tr><td>Rinse aids</td><td>0,15</td><td>0,50</td></tr>
</table>
</td></tr>
<tr><td>HDD</td><td>
<table>
<tr><td>Product type</td><td>aNBO (g/l of washing water)</td><td>anNBO (g/l of washing water)</td></tr>
<tr><td>Hand dishwashing detergents</td><td>0,03</td><td>0,08</td></tr>
</table>
</td></tr>
<tr><td>HSC</td><td>
<table>
<tr><td>Product type</td><td>aNBO (g/l of cleaning solution)</td><td>anNBO (g/l of cleaning solution)</td></tr>
<tr><td>All-purpose cleaners, RTU</td><td>3,00</td><td>55,00</td></tr>
<tr><td>All-purpose cleaners, undiluted</td><td>0,20</td><td>0,50</td></tr>
<tr><td>Kitchen cleaners, RTU</td><td>5,00</td><td>35,00</td></tr>
<tr><td>Kitchen cleaners, undiluted</td><td>0,20</td><td>0,50</td></tr>
<tr><td>Window cleaners, RTU</td><td>2,00</td><td>20,00</td></tr>
<tr><td>Window cleaners, undiluted</td><td>0,20</td><td>0,50</td></tr>
<tr><td>Sanitary cleaners, RTU</td><td>5,00</td><td>35,00</td></tr>
<tr><td>Sanitary cleaners, undiluted</td><td>0,20</td><td>0,50</td></tr>
</table>
</td></tr>
<tr><td>IIDD</td><td>aNBO (g/l of washing solution)
<table>
<tr><td>Water hardness
Product type</td><td>Soft
< 1,5 mmol $CaCO_3$/l</td><td>Medium
1,5-2,5 mmol $CaCO_3$/l</td><td>Hard
> 2,5 mmol $CaCO_3$/l</td></tr>
<tr><td>Pre-soaks</td><td>0,40</td><td>0,40</td><td>0,40</td></tr>
<tr><td>Dishwasher detergents/ Multi-component systems</td><td>0,40</td><td>0,40</td><td>0,40</td></tr>
<tr><td>Rinse aids</td><td>0,04</td><td>0,04</td><td>0,04</td></tr>
</table>
</td></tr>
</table>

[64] 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, and amending Regulation (EC) No 1907/2006 (OJ L 353, 31.12.2008, p. 1). https://eur-lex.europa.eu/eli/reg/2008/1272/oj

anNBO (g/l of washing solution)

Water hardness Product type	Soft < 1,5 mmol $CaCO_3$/l	Medium 1,5-2,5 mmol $CaCO_3$/l	Hard > 2,5 mmol $CaCO_3$/l
Pre-soaks	0,40	0,40	0,40
Dishwasher detergents/ Multi-component systems	0,60	1,00	1,00
Rinse aids	0,04	0,04	0,04

IILD

aNBO (g/kg of laundry)

Soft water (< 1,5 mmol $CaCO_3$/l)			
Degree of soiling Product type	Light	Medium	Heavy
Powder	0,70	1,10	1,40
Liquid	0,50	0,60	0,70
Multi-component system	1,25	1,75	2,50

Medium water (< 1,5-2,5 mmol $CaCO_3$/l)			
Degree of soiling Product type	Light	Medium	Heavy
Powder	1,10	1,40	1,75
Liquid	0,60	0,70	0,90
Multi-component system	1,75	2,50	3,75

Soft water (> 2,5 mmol $CaCO_3$/l)			
Degree of soiling Product type	Light	Medium	Heavy
Powder	1,40	1,75	2,20
Liquid	0,70	0,90	1,20
Multi-component system	2,50	3,75	4,80

anNBO (g/kg of laundry)

Soft water (< 1,5 mmol $CaCO_3$/l)			
Degree of soiling Product type	Light	Medium	Heavy
Powder	0,70	1,10	1,40
Liquid	0,50	0,60	0,70
Multi-component system	1,25	1,75	2,50

Medium water (< 1,5-2,5 mmol $CaCO_3$/l)			
Degree of soiling Product type	Light	Medium	Heavy

	Powder	1,10	1,40	1,75
	Liquid	0,60	0,70	0,90
	Multi-component system	1,75	2,50	3,75

Soft water (> 2,5 mmol $CaCO_3$/l)			
Degree of soiling Product type	Light	Medium	Heavy
Powder	1,40	1,75	2,20
Liquid	0,70	0,90	1,20
Multi-component system	2,50	3,75	4,80

LD

aNBO

Product type	aNBO (g/kg of laundry) powder/tablets	aNBO (g/kg of laundry) liquid, capsules, gel
Heavy-duty detergent, colour-safe detergent	1,00	0,45
Light-duty detergent	0,55	0,30
Stain remover (pre-treatment only)	0,10	0,10

anNBO

Product type	aNBO (g/kg of laundry) powder/tablets	aNBO (g/kg of laundry) liquid, capsules, gel
Heavy-duty detergent, colour-safe detergent	1,00	0,45
Light-duty detergent	0,55	0,30
Stain remover (pre-treatment only)	0,10	0,10

ALL

Assessment and verification: the applicant shall provide documentation for the degradability of surfactants, as well as the calculation of aNBO and anNBO for the product. A spreadsheet for calculating aNBO and anNBO values is available on the EU Ecolabel website.

For both the degradability of surfactants and the aNBO and anNBO values for organic compounds, reference shall be made to the most updated DID list.

For ingoing substances that are not included in Part A of 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, as described in Part B of that list.

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

(1) it is readily degradable and has low adsorption (A<25%);

(2) it is readily degradable and has high adsorption (D>75%);

(3) it is readily degradable and non-bio-bioaccumulating ([65])

Testing for adsorption/desorption shall be conducted in accordance with OECD Guideline 106.

Proposed criterion (x) biodegradability

[65] A substance is considered to be not bio-accumulating if the BCF is < 100 or log K_{ow} is < 3,0. If both the BCF and log K_{ow} values are available, the highest measured BCF value shall be used.

ALL

(a) *Biodegradability of surfactants*

All surfactants shall be readily degradable (aerobically).

All surfactants classified as hazardous to the aquatic environment: Acute Category 1 (H400) or Chronic Category 3 (H412), in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council([66]) shall be in addition anaerobically biodegradable.

DD, HDD, IIDD, IILD, LD

(b) *Biodegradability of organic compounds*

The content of organic substances in the product that are aerobically non-biodegradable (not readily biodegradable, aNBO) or anaerobically non-biodegradable (anNBO) shall not exceed the following limits for the reference dosage:

HSC

(b) *Biodegradability of organic compounds*

The content of organic substances in the product, except micro-organisms, that are aerobically non-biodegradable (not readily biodegradable, aNBO) or anaerobically non-biodegradable (anNBO) shall not exceed the following limits for the reference dosage.

DD

Product type	aNBO (g/wash)	anNBO (g/wash)
Dishwasher detergents	1,00	3,00
Rinse aids	0,15	0,50

HDD

Product type	aNBO (g/l of washing water)	anNBO (g/l of washing water)
Hand dishwashing detergents	0,03	0,08

HSC

Product type	aNBO (g/l of cleaning solution)	anNBO (g/l of cleaning solution)
All-purpose cleaners, RTU	3,00	55,00
All-purpose cleaners, undiluted	0,20	0,50
Kitchen cleaners, RTU	5,00	35,00
Kitchen cleaners, undiluted	0,20	0,50
Window cleaners, RTU	2,00	20,00
Window cleaners, undiluted	0,20	0,50
Sanitary cleaners, RTU	5,00	35,00
Sanitary cleaners, undiluted	0,20	0,50

IIDD

aNBO (g/l of washing solution)

Water hardness Product type	Soft < 1,5 mmol $CaCO_3$/l	Medium 1,5-2,5 mmol $CaCO_3$/l	Hard > 2,5 mmol $CaCO_3$/l
Pre-soaks	0,40	0,40	0,40
Dishwasher detergents/ Multi-component systems	0,40	0,40	0,40
Rinse aids	0,04	0,04	0,04

anNBO (g/l of washing solution)

[66] 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, and amending Regulation (EC) No 1907/2006 (OJ L 353, 31.12.2008, p. 1). https://eur-lex.europa.eu/eli/reg/2008/1272/oj

Water hardness Product type	Soft < 1,5 mmol $CaCO_3$/l	Medium 1,5-2,5 mmol $CaCO_3$/l	Hard > 2,5 mmol $CaCO_3$/l
Pre-soaks	0,40	0,40	0,40
Dishwasher detergents/ Multi-component systems	0,60	1,00	1,00
Rinse aids	0,04	0,04	0,04

IILD

aNBO (g/kg of laundry)

Soft water (< 1,5 mmol $CaCO_3$/l)			
Degree of soiling Product type	Light	Medium	Heavy
Powder	0,70	1,10	1,40
Liquid	0,50	0,60	0,70
Multi-component system	1,25	1,75	2,50

Medium water (< 1,5-2,5 mmol $CaCO_3$/l)			
Degree of soiling Product type	Light	Medium	Heavy
Powder	1,10	1,40	1,75
Liquid	0,60	0,70	0,90
Multi-component system	1,75	2,50	3,75

Soft water (> 2,5 mmol $CaCO_3$/l)			
Degree of soiling Product type	Light	Medium	Heavy
Powder	1,40	1,75	2,20
Liquid	0,70	0,90	1,20
Multi-component system	2,50	3,75	4,80

anNBO (g/kg of laundry)

Soft water (< 1,5 mmol $CaCO_3$/l)			
Degree of soiling Product type	Light	Medium	Heavy
Powder	0,70	1,10	1,40
Liquid	0,50	0,60	0,70
Multi-component system	1,25	1,75	2,50

Medium water (< 1,5-2,5 mmol $CaCO_3$/l)			
Degree of soiling Product type	Light	Medium	Heavy
Powder	1,10	1,40	1,75
Liquid	0,60	0,70	0,90
Multi-component system	1,75	2,50	3,75

	Soft water (> 2,5 mmol $CaCO_3$/l) Degree of soiling / Product type: Light / Medium / Heavy Powder: 1,40 / 1,75 / 2,20 Liquid: 0,70 / 0,90 / 1,20 Multi-component system: 2,50 / 3,75 / 4,80
LD	Product type: aNBO (g/kg of laundry) powder/tablets: aNBO (g/kg of laundry) liquid, capsules, gel Heavy-duty detergent, colour-safe detergent: 1,00 / 0,45 Light-duty detergent: 0,55 / 0,30 Stain remover (pre-treatment only): 0,10 / 0,10
LD	aNBO Product type: aNBO (g/kg of laundry) powder/tablets: aNBO (g/kg of laundry) liquid, capsules, gel Heavy-duty detergent, colour-safe detergent: 1,00 / 0,45 Light-duty detergent: 0,55 / 0,30 Stain remover (pre-treatment only): 0,10 / 0,10 anNBO Product type: aNBO (g/kg of laundry) powder/tablets: aNBO (g/kg of laundry) liquid, capsules, gel Heavy-duty detergent, colour-safe detergent: 1,00 / 0,45 Light-duty detergent: 0,55 / 0,30 Stain remover (pre-treatment only): 0,10 / 0,10
ALL	*Assessment and verification*: the applicant shall provide documentation for the degradability of surfactants, as well as the calculation of aNBO and anNBO for the product. A spreadsheet for calculating aNBO and anNBO values is available on the EU Ecolabel website. For both the degradability of surfactants and the aNBO and anNBO values for organic compounds, reference shall be made to the most updated DID list. For ingoing substances that are not included in Part A of 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, as described in Part B of that list. Water-soluble foil/films (e.g., Polyvinyl Alcohol (PVA) films) shall be readily biodegradable according to test method OECD 301 A-F or 310, as reported in Part B of the DID list. In the absence of documentation for degradability described above, an ingoing substance other than a surfactant may be exempted from the requirement for anaerobic degradability if one of the following three alternatives is fulfilled: (1) it is readily degradable and has low adsorption (A<25%);

	(2) it is readily degradable and has high adsorption (D>75%); (3) it is readily degradable and non-bio-bioaccumulating ([67]) Testing for adsorption/desorption shall be conducted in accordance with OECD Guideline 106.

Rationale for the proposed biodegradability

The nature of the ingredients use in detergent products not only conditions its performance but also the environmental impacts attributed to these products. As mentioned in rationale of the criterion *Toxicity to aquatic organisms,* detergent and cleaning products are discharged to the aquatic ecosystems, normally after undergoing treatment to decrease pollutant load at a wastewater treatment plant, and have an inherent load that can potentially contribute to the pollution of these ecosystems. The other aspects of importance with regards to environmental detrimental impacts is how long these potential pollution load would remain – the sooner is degraded, the less likely that negative impact will be amplified. Consequently, this criterion aims to ensure that main ingredients (surfactants) are degradable under aerobic conditions and also under anaerobic if they are classified as hazardous to the aquatic environment. In addition, all the other potentially polluting load is considered via restricting the amount of organic substances that are non-biodegradable (NBO) under aerobic (aNOB) or anaerobic (anNBO) conditions.

Stakeholders requested to consider a full ban to surfactants that are anaerobically non-biodegradable, aiming at decreasing the likelihood of recalcitrant substances by-passing wastewater treatment plants and reaching the (aquatic) environment. This also would be linked to the necessity to maintain a derogation for hazard codes H400 and H412. In addition, consideration for alternative testing methods (e.g. QSAR), biodegradability of particular substances (e.g. microplastics) and stricter limits for aNBO and anNBO were also mentioned.

There is still further research to carry out in this criterion, resulting from the prioritization of research efforts, will be further completed in subsequent steps of the revision of existing EUEL criteria. In spite of this, JRC considers relevant to hold a discussion at this stage (1st AHWG) on the ban of surfactants that are anaerobically non-biodegradable. The outcome of such discussion will be reflected, discussed and complemented (if necessary) in the next version of the technical report (TR2).

Firstly, the analysis of the relevant OECD method to test biodegradability did not highlight any significant change from the previous revision.

Secondly, the comparison with Nordic Swan and Blue Angel shows that both labels require all surfactants, regardless of hazard classification, to be both aerobically and anaerobically biodegradable (See Annex I). Differences arise on which exceptions are allowed under each label, whether by hazard classification (e.g. Nordic Swan; H410/ H411/ H412 and H410) or by exempted substance (e.g. Blue Angel; carboxymethylcellulose). In addition, the EUEL criteria for Cosmetic and Animal Products do

Thirdly, from an LCA perspective, impacts that are directly related to biodegradability are not well captured. Poor biodegradability has to be linked to some sort of toxic effect in order to be reflected in the ecotoxicity impacts (as is the case with the CDV criteria).

While there are many (ca. 700) different types of surfactants listed by CESIO, they will have different carbon chain lengths, different degrees of ethoxylation, different corresponding cations (when relevant) and may come in different concentrations as ingredients. It can also be expected that surfactants will therefore also have a range of biodegradabilities and aquatic toxicities. This was well reflected in the PR where theoretical CDV values of all the DID List chemicals were plotted in groups.

Looking at the DID List (Part A) in more detail, the number of surfactants meeting ready aerobic AND anaerobic degradation criteria was as follows:

- Anionic: 10 out of 32.
- Non-ionic: 26 out of 54.
- Amphoteric: 4 out of 7.

[67] A substance is considered to be not bio-accumulating if the BCF is < 100 or log K_{ow} is < 3,0. If both the BCF and log K_{ow} values are available, the highest measured BCF value shall be used.

- Cationic: 1 out of 4.

Biodegradability data under anaerobic conditions is still very limited, but it would be possible for manufacturers to meet any EUEL requirements since there are a reasonable fraction of different surfactant categories that are compliant. The main advantage of surfactants being biodegradable under such conditions is that they would be broken down in anaerobic sewage sludge digesters, anaerobic zones of advanced activated sludge processes and, in the wider environment, in sediments or landfill if ending up there via wastewater effluents or improper disposal of packaging.

Points for discussion 8 – Biodegradability

Stakeholders are invited to reply the following consultation questions:

— Question 20 (Q20) – Would you support aligning existing EUEL criteria with EUEL Cosmetics? It would imply the following addition to the text in existing criterion *Biodegradability (changes marked in blue font)*: "All surfactants shall be readily ~~degradable (aerobically)~~ *biodegradable under aerobic conditions and biodegradable under anaerobic conditions*."

7.5. Sustainable sourcing of palm oil, palm kernel oil and their derivatives.

Existing criterion (x) sustainable sourcing of palm oil, palm kernel oil and their derivatives.	
ALL	Ingoing substances used in the products which are derived from palm oil or palm kernel oil shall be sourced from plantations that meet the requirements of a certification scheme for sustainable production that is based on multi-stakeholder organizations that has a broad membership, including NGOs, industry and government and that addresses environmental impacts including on soil, biodiversity, organic carbon stocks and conservation of natural resources.
ALL	*Assessment and verification:* The applicant shall provide evidence through third-party certificates and chain of custody that palm oil and palm kernel oil used in the manufacturing of the ingoing substances originates from sustainably managed plantations. Certificates accepted shall include Roundtable for Sustainable Palm Oil (RSPO) (by identity preserved, segregated or mass balance) or any equivalent or stricter sustainable production scheme. For chemical derivatives of palm oil and for palm kernel oil, it shall be acceptable to demonstrate sustainability through book and claim systems such as GreenPalm certificates or equivalent by providing the Annual Communications of Progress (ACOP) declared amounts of procured and redeemed GreenPalm certificates during the most recent annual trading period.
Proposed criterion (x) - Sustainable sourcing of raw materials ~~palm oil, palm kernel oil and their derivatives~~.	
ALL	The requirements does not include raw materials < 1% (w/w) in the final product a) Palm oil, palm kernel oil and their derivatives ~~Ingoing substances used in the products which are derived from palm oil or palm kernel oil shall be sourced from plantations that~~ In the specific case of renewable ingredients from palm oil or palm kernel oil, or derived from palm oil or palm kernel oil, 100 % w/w of the renewable ingredients used shall meet the requirements of a certification scheme for sustainable production that is based on multi-stakeholder organizations that has a broad membership, including NGOs, industry and government and that addresses environmental impacts including on soil, biodiversity, organic carbon stocks and conservation of natural resources. b) Other biobased raw materials than palm oil, palm kernel oil and their derivatives. Biobased raw materials used to produce ingredients included in the final product, shall be covered by chain of custody certificates issued by an independent third-party certification scheme officially recognised by the European Commission [1]
ALL	*Assessment and verification:* To demonstrate compliance, ~~The applicant shall provide~~ evidence through third-party ~~certificates and~~ chain of custody certificating that the raw materials ~~palm oil and palm kernel oil~~ used in the product or in its manufacturing ~~of the ingoing substances~~ originate~~s~~ from sustainably managed plantations shall be provided. The chain of custody certificates shall be valid for the whole duration of the EU Ecolabel license. Competent bodies shall check the certificates again twelve months after the awarding of the EU Ecolabel license. [2]. To demonstrate compliance with a): — For palm oil and palm kernel oil, ~~Certificates accepted shall include~~ Roundtable for Sustainable Palm Oil (RSPO) ~~(by identity preserved, segregated or mass balance)~~ or certificates of any equivalent or stricter sustainable production scheme~~.~~ demonstrating compliance to any of the following models shall be accepted: ~~-~~identity preserved or segregated. — For palm oil and palm kernel oil derivatives, RSPO certificates or certificates of any equivalent or stricter sustainable production scheme demonstrating compliance to any of the following models shall be accepted: identity preserved, segregated, and mass balance.

	— For palm oil, palm kernel oil and their derivatives, a mass balance calculation and/or invoices/delivery notes from the raw material producer shall be provided, showing that the proportion of certified raw material corresponds to the amount of certified palm oil, palm kernel oil and/or their derivatives. Alternatively, a declaration from the producer of raw materials shall be provided, showing that all purchased palm oil, palm kernel oil and/or their derivatives are certified. ~~For chemical derivatives of palm oil and for palm kernel oil, it shall be acceptable to demonstrate sustainability through book and claim systems such as GreenPalm certificates or equivalent by providing the Annual Communications of Progress (ACOP) declared amounts of procured and redeemed GreenPalm certificates during the most recent annual trading period.~~ To demonstrate compliance with b): — For other biobased raw materials than palm oil, palm kernel oil and their derivatives, the applicant shall provide a declaration of compliance supported by a valid, independently certified chain of custody certificate for the suppliers of all biobased raw materials used to produce ingredients included in the final product. — In case the certification scheme does not specifically require that all virgin material is sourced from non-GMO species, additional evidence shall be provided to demonstrate this. Notes: [1] In line with the sustainability requirements related to the sourcing of biobased raw material as per the review of the Renewable Energy Directive (RED III). The certification schemes officially recognised by the European Commission are available at: https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/voluntary-schemes_en [2] - The verification can be done via RSPO website, where the status of the certificate is showed in real time: https://www.rspo.org/certification/search-for-supply-chain-certificate-holders

Rationale for the proposed sustainable sourcing of palm oil, palm kernel and their derivatives

This criterion aims to ensure that the renewable ingredients derived from biogenic raw material used in the production of EU Ecolabelled detergent products meet specific sustainability standards certifications from responsible and traceable sources.

A common environmental claim in detergent products is that of plant-based or bio-based ingredients. Such claims are possible due to the use of oleochemical-derived versions of organic ingredients instead of petrochemical-derived ones. The final chemicals have the same properties, but they were just sourced from different raw materials. The main oleochemical raw materials used are palm oil, palm kernel oil or coconut oil.

The rapid growth in global demand for palm oil and palm kernel oil, coupled with the fact that it is almost exclusively produced in tropical countries (e.g. Indonesia and Malaysia), has led to severe and well-publicised impacts on natural rainforest in those areas.

Consequently, shifting from petrochemical to oleochemical sources can be expected to reduce impacts associated with fossil resource depletion, but increase impacts associated with land use. The LCA literature review in the PR generally revealed that reductions in fossil resource depletion were modest, while increases in impacts associated with land use were enormous. For example, changing from petrochemical to palm kernel oil for surfactant ingredients in different detergent products showed:

- With LD: A 57% increase in terrestrial ecotoxicity and a 12% increase in agricultural land occupation with just a 2% decrease in fossil resource depletion.
- With DD: A 50% increase in terrestrial ecotoxicity with no appreciable reduction in fossil resource depletion.
- With HDD: A 1750% increase in terrestrial ecotoxicity, a 185% increase in agricultural land occupation and a 566% increase in natural land transformation with just a 5% reduction in fossil resource depletion.

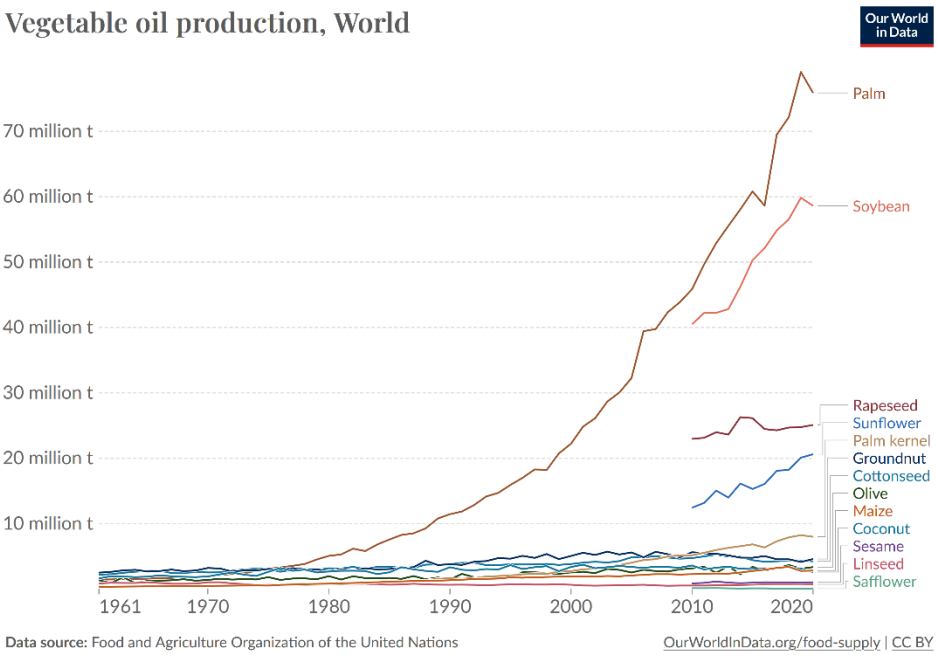
- With HSC: A 9900% increase in terrestrial ecotoxicity, a 1337% increase in agricultural land occupation and a 3000% increase in natural land transformation with just a 5% reduction in fossil resource depletion.

The relative impacts are significant for all detergent product groups but much more extreme for HDD and HSC products, presumably due to differences in the relative importance of surfactants to the overall ingredient composition. The LD products tend to have significant quantities of builders and auxiliary ingredients, DD products have significant quantities of both builders and inorganic salts, while the HDD and HSC products are mostly water with small amounts of surfactant and acid/alkali.

Climate change, especially the land use change aspect of climate change, is another impact category that is very sensitive regarding any use of palm oil. The disturbance of soil carbon and the less intensive carbon sequestration of palm oil plantations compared to natural rainforest is an important consideration. The procurement of sustainable certified palm oil is the most valid way of ensuring that palm oil procurement is not directly contributing to further to land use impacts, including land-use change-associated climate impacts.

Organic raw materials are necessary ingredients in surfactants production and their origin can be fossil (petrochemical; e.g. mineral oil) or renewable (oleochemicals; e.g. palm oil) ([68]). Surfactants are key ingredients in detergent and cleaner products and the choice of organic raw materials can affect surfactants properties (e.g. performance) and their associated environmental impacts. Currently, surfactants and/or their intermediate chemicals (e.g. fatty alcohols) are mainly derived from oleochemical sources, particularly vegetable oils. In the last 40 years, the share of renewable materials (oleochemical resources) used in surfactants production has increased widely, being one indicator the vegetable oil production at global scale (See Figure 8.).

Figure 8. Global vegetable oil production trend (1961 to 2020).



[68] Rupilius, W., and S. Ahmad, 'Palm Oil and Palm Kernel Oil as Raw Materials for Basic Oleochemicals and Biodiesel', European Journal of Lipid Science and Technology, Vol. 109, No. 4, April 2007, pp. 433–439. DOI 10.1002/ejlt.200600291

Source: Ritchie, H. (2021) ([69])

Vegetable oils production is projected to further expand in the coming years, with perennial tropical plants (e. g. palm oil) significantly contributing to this trend, according to OECD/FAO statistics and projections (2023 - 2032) on global vegetable oil dynamics as the followings ([70], [71]):

- Vegetable oil production is majorly formed by oilseeds crush and oil derived from perennial tropical plants (e.g. palm oil) and it is expected to increase at a rate of 0.9% per annum.
- Vegetable oils are currently primarily used for food (57%) and biodiesel production purposes (16%).
- A total of 2.4% of vegetable oil production correspond to Europe, being the three top oil yielding crops rapeseed oil>soybean>palm oil. In 2022, palm oil and palm kernel imports, mostly for domestic consumption, totalled 4970 and 620 million tonnes, respectively.
- The average annual yield has generally decreased across different major oil producing crops related to cultivation expansion to less productive lands, age of oil palms, pesticides restriction in rapeseed cultivation and shifting weather patterns ([72]).
- The cost of vegetable oils in 2022 was close to 1150 USD/t, being the expectation for it to further increase during the projected period.
- Indonesia and Malaysia account for 1/3 of global vegetable oil production and 80% of global palm oil production. Also, they are the major exporters, exporting>60% of their combined production and close to 60% of global vegetable oil exports.
- The expansion on palm oil production seeing in this last decade is foreseen to weaken owing sustainability concerns limiting cultivated land expansion and aging of palm trees in Indonesia and Malaysia.
- The palm oil supplies are expected to grow 0.8% per year, mostly based in enhanced productivity (speeding up replanting) but not on cultivated land expansion. Palm kernel oil production trends follow that of palm oil previously described. Both Palm kernel and coconut oil have important industrial uses.

Currently, the types of vegetable oils majorly used for surfactants production are palm oil (PO), palm kernel oil (PKO) and coconut oil (CO), being equivalent to each other from a technical perspective ([73]). As per other raw materials, the use of a particular oil type is determined by price, market availability and market development ([74]). Alternative vegetable oils can be used to produce surfactants but are not preferred due to comparatively higher cost and lower productivity (See Figure 9.) ([75]).

69 Ritchie, H. (2021) "Palm Oil" Published online at OurWorldInData.org. Retrieved from: 'https://ourworldindata.org/palm-oil' [Online Resource] https://ourworldindata.org/grapher/vegetable-oil-production?time=earliest..2020

70 OECD and Food and Agriculture Organization of the United Nations, OECD-FAO Agricultural Outlook 2023-2032, OECD-FAO Agricultural Outlook, OECD, 2023. DOI: 10.1787/08801ab7-en

71 Krautgartner R. et al. 02/05/23.. European Union: Oilseeds and Products Annual. Report E42023-0015. USDA; Office of Agricultural Affairs; Vienna. https://www.fas.usda.gov/data/european-union-oilseeds-and-products-annual-3

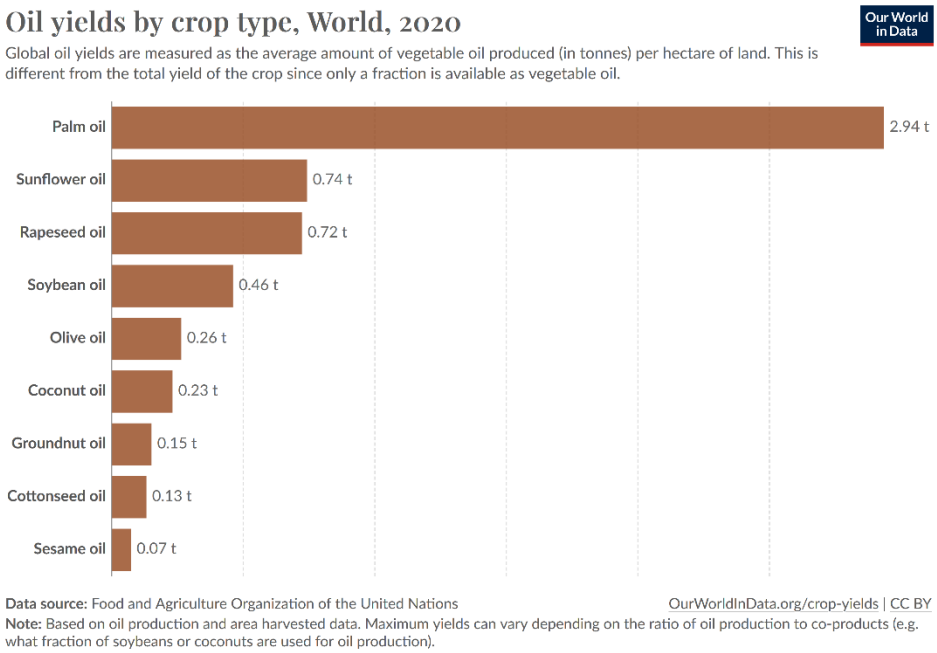
72 https://www.oecd-ilibrary.org/sites/08801ab7-en/1/3/4/index.html?itemId=/content/publication/08801ab7-en&_csp_=cdae8533d2f4a8eebccf87e7e1e64ccd&itemIGO=oecd&itemContentType=book#figure-d1e21620-1fe00815e0

73 Parsons, S., S. Raikova, and C.J. Chuck, 'The Viability and Desirability of Replacing Palm Oil', Nature Sustainability, Vol. 3, No. 6, March 9, 2020, pp. 412–418. DOI 10.1038/s41893-020-0487-8

74 Voora, V.; Bermúdez, S.; Farrell, J.J.; Larrea, C. and Luna, E.; Global Market Report: Palm oil prices and sustainability. June 2023. Available at: https://www.iisd.org/publications/report/2023-global-market-report-palm-oil (Accessed on 26/12/23)

75 https://ourworldindata.org/grapher/oil-yield-by-crop?time=latest In Hannah Ritchie (2021) - "Palm Oil" Published online at OurWorldInData.org. Retrieved from: 'https://ourworldindata.org/palm-oil' [Online Resource]. (Accessed 22/12/23).

Figure 9. Oil yields of main vegetable oils producing crops in the year 2020.



Source: Ritchie, H. (2021) ([76])

The most widely used vegetable oil is palm oil, which in addition of having the greatest productivity by unit of surface land cultivated, possess the lowest cost and a unique fatty acids profile with almost equal proportion of C16 and C18 saturated and unsaturated fatty acids ([77]). In other words, with less land, more quantities of a vegetable oil compatible with diverse applications are produced at lowest costs.

In contraposition to these advantages, we find substantial critics and raised concerns related to palm oil role in deforestation, especially in forested regions of Borneo, Sumatra and the Malay Peninsula, where >90% of global palm oil is produced ([78]). This is one of the main documented negative environmental impacts, having also implications on biodiversity decline, greenhouse gas emissions and contribution to air pollution ([79,80]). To avoid and/or minimise these negative impacts, alternative vegetable oils have been considered such as rapeseed, sunflower, coconut oil and/or shea butter. However, it appears as currently there is neither an economic (comparative lower cost) nor an environmental case (not clear LCA rationale supporting alternatives; high productivity at lowest surface occupation) for the substitution of palm oil with other vegetable oils on a large scale ([81]). A technical alternative could be the substitution of vegetable oils by microbial oils or single cells oils (SCOs), potentially able to match the fatty acid profile of palm oil and palm kernel oil, yet not seeming implementable due to lack of maturity (initial capital costs, low productivities, demonstration of environmental benefits and policy support) ([82]). Hence, in the short- to medium-term

[76] Ritchie, H. (2021) "Palm Oil" Published online at OurWorldInData.org. Retrieved from: 'https://ourworldindata.org/palm-oil' [Online Resource] https://ourworldindata.org/grapher/oil-yield-by-crop?time=latest

[77] Parsons, S., S. Raikova, and C.J. Chuck, 'The Viability and Desirability of Replacing Palm Oil', Nature Sustainability, Vol. 3, No. 6, March 9, 2020, pp. 412–418. DOI 10.1038/s41893-020-0487-8

[78] Meijaard, E., T.M. Brooks, K.M. Carlson, E.M. Slade, J. Garcia-Ulloa, D.L.A. Gaveau, J.S.H. Lee, et al., 'The Environmental Impacts of Palm Oil in Context', Nature Plants, Vol. 6, No. 12, December 7, 2020, pp. 1418–1426. DOI 10.1038/s41477-020-00813-w

[79] Meijaard, E., T.M. Brooks, K.M. Carlson, E.M. Slade, J. Garcia-Ulloa, D.L.A. Gaveau, J.S.H. Lee, et al., 'The Environmental Impacts of Palm Oil in Context', Nature Plants, Vol. 6, No. 12, December 7, 2020, pp. 1418–1426. DOI 10.1038/s41477-020-00813-w

[80] Voora, V.; Bermúdez, S.; Farrell, J.J.; Larrea, C. and Luna, E.; Global Market Report: Palm oil prices and sustainability. June 2023. Available at: https://www.iisd.org/publications/report/2023-global-market-report-palm-oil (Accessed on 26/12/23)

[81] Parsons, S., S. Raikova, and C.J. Chuck, 'The Viability and Desirability of Replacing Palm Oil', Nature Sustainability, Vol. 3, No. 6, March 9, 2020, pp. 412–418. DOI 10.1038/s41893-020-0487-8

[82] Parsons, S., S. Raikova, and C.J. Chuck, 'The Viability and Desirability of Replacing Palm Oil', Nature Sustainability, Vol. 3, No. 6, March 9, 2020, pp. 412–418. DOI 10.1038/s41893-020-0487-8

stronger focus on sustainability of the palm oil sector is advisable to reduce environmental impacts associated with the sourcing of these materials.

Deforestation is negative environmental impacts commonly associated to agricultural commodities production, such as vegetable oils, that implies biodiversity decline, greenhouse gas emissions and air pollution ([83]). Avoidance or minimisation of deforestation results in positive environmental effects, even more if areas of high natural value are protected. This is one of the main rationales and one of the main targets of the recently adopted Deforestation Regulation (1115/2023/EC) ([84]): the minimisation of the EU contribution to deforestation and forest degradation. It does so by setting rules on placing and making available in or out of the EU market of relevant commodities (e.g. oil palm), including information and procedures to set and implement due diligence systems, thus leading to "deforestation-free" products. It defines "deforestation free" as products produced in lands not subjected to deforestation, thus not converted to agricultural use, after 31st December 2020. This Regulation requires business operators to provide extensive information about the product's origins, including the precise location(s) and general time of production and establishes a country benchmarking system through which the EU Commission will assess the risk that countries, or parts thereof, produce relevant commodities and products that contribute to deforestation, with additional risk assessment/mitigation procedures for those classified as standard- or high-risk origins ([85]). However, this Regulation does not set requirements on the management practices of producing such goods (e.g. agricultural practices to cultivate palm oil), which could also contribute to minimise negative environmental effects and maximise positive ones. Hence, it is a useful tool that targets natural resources preservation, via deforestation avoidance, and traceability but does not target explicitly the improvement of the sustainability of already cultivated lands.

Principles to enhance the sustainability of agriculturally-derived commodities production have been captured in different legislative instruments such as the EU Organic Farming Regulation ([86]) or EU Sustainability criteria ([87]) of the Renewable Energy Directive (RED II) ([88]). Despite the scope of these legislative instrument does not cover detergent and cleaner products, the sustainability principles and objectives stated could serve as guidance on minimum horizontal aspects for the sourcing of biomass resources. Industrial bio-based systems, normally limited to the food/feed, biofuels, bioenergy and cultural/recreation sectors, could similarly benefit of taking into account initiatives on environmental sustainability assessment and certification arising from EU policies in the bioeconomy sectors ([89]). Irrespective of the former, recent trends in EU research funding calls ([90]) and funded research projects ([91]) show that there is interest in: *1)* improving the traceability of biological resources and bio-based materials and products on a business-to-business level, at the EU and the global scale ([92]); *2)* standardising and quantifying the degree of sustainability in the fluxes associated with *2)* ([93]).

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83 Meijaard, E., T.M. Brooks, K.M. Carlson, E.M. Slade, J. Garcia-Ulloa, D.L.A. Gaveau, J.S.H. Lee, et al., 'The Environmental Impacts of Palm Oil in Context', Nature Plants, Vol. 6, No. 12, December 7, 2020, pp. 1418–1426. DOI 10.1038/s41477-020-00813-w

84 Regulation (EU) 2023/1115 of the European Parliament and of the Council of 31 May 2023 on the making available on the Union market and the export from the Union of certain commodities and products associated with deforestation and forest degradation and repealing Regulation (EU) No 995/2010. (OJ L 150, 9.6.2023, p. 206–247). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R1115&qid=1687867231461

85 Krautgartner R. et al. 02/05/23.. European Union: Oilseeds and Products Annual. Report E42023-0015. USDA; Office of Agricultural Affairs; Vienna. https://www.fas.usda.gov/data/european-union-oilseeds-and-products-annual-3

86 Regulation (EU) 2018/848 of the European Parliament and of the Council of 30 May 2018 on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007. OJ L 150, 14.6.2018, p. 1–92. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.150.01.0001.01.ENG

87 https://wayback.archive-it.org/12090/20220405002735/https://energy.ec.europa.eu/topics/renewable-energy/biofuels/sustainability-criteria_en (Accessed 28/12/23

88 Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (recast) OJ L 328, 21.12.2018, p. 82–209. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018L2001

89 International and EU sustainability certification schemes for bio-based systems (europa.eu) (Accessed 01/01/24)

90 International and EU sustainability certification schemes for bio-based systems (europa.eu) (Accessed 01/01/24)

91 SUSTCERT4BIOBASED. Sustainability Certification for Biobased Systems https://cordis.europa.eu/project/id/101059785. DOI https://doi.org/10.3030/101059785

92 International and EU sustainability certification schemes for bio-based systems (europa.eu) (Accessed 01/01/24)

93 SUSTCERT4BIOBASED. Sustainability Certification for Biobased Systems https://cordis.europa.eu/project/id/101059785. DOI https://doi.org/10.3030/101059785

On the one hand, products labelled with the EU organic production seal are produced in accordance with organic production general objectives, including (Art. 4 Extract; EC/2018/848([94])):

- *(a) contributing to protection of the environment and the climate;*
- *(b) maintaining the long-term fertility of soils;*
- *(c) contributing to a high level of biodiversity;*
- *(d) substantially contributing to a non-toxic environment*;
- [...]

Also, these labelled products derive from organic production systems which follow sustainability principles such as (Art. 5 Extract; EC/2018/848([95])):

- *(a) respect for nature's systems and cycles and the sustainment and enhancement of the state of the soil, the water and the air, of the health of plants and animals, and of the balance between them;*
- *(b) the preservation of natural landscape elements, such as natural heritage site;*
- *(c) the responsible use of energy and natural resources, such as water, soil, organic matter and air;*
- *(d) the production of a wide variety of high-quality food and other agricultural and aquaculture products that respond to consumers' demand for goods that are produced by the use of processes that do not harm the environment, human health, plant health or animal health and welfare;*
- [...]

These principles, once implemented as management practices, can enhance the sustainability of biogenic raw or processed materials used for detergents and cleaning production. However, the scope of the EU Organic Farming Regulation (Art 2.1) excludes such products ([96]). Indeed, the answer to the question *"Can the term "bio" be used on the label of detergents?"* was negative and reasoned on the basis of the Organic Regulation scope being limited to food, feed or alike agriculturally produced products listed in Annex I ([97]). Nevertheless, these objectives and principles could inform and be extrapolated for the sustainable sourcing of renewable organic materials for detergents production.

On the other hand, the EU sustainability criteria ([98]) of REDII or the Renewable Energy Directive EC/2018/2001 ([99]) present aspects, particularly those not related to GHG emissions, which could enhance the sustainability of agricultural commodities production ([100]). Amongst other aspects, REDII aims to tackle detrimental environmental effects of Indirect Land Use Change (ILUC) or the extension of agriculture into non-croplands. Though some aspects are specific to bioenergy production (e.g. GHG emissions) other aspects are horizontal to sustainable sourcing of biomass resources, such as those related to environmental compartments protection (soil, water & air) or socio-economic improvement. The EU commission assesses and recognises whether voluntary initiatives/schemes meet this EU sustainability criteria, doing so via an assessment protocol based on the compliance with REDII, particularly articles 29 & 30 ([101]). Once schemes

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94 Regulation (EU) 2018/848 of the European Parliament and of the Council of 30 May 2018 on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007. OJ L 150, 14.6.2018, p. 1–92. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.150.01.0001.01.ENG

95 Regulation (EU) 2018/848 of the European Parliament and of the Council of 30 May 2018 on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007. OJ L 150, 14.6.2018, p. 1–92. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.150.01.0001.01.ENG

96 Regulation (EU) 2018/848 of the European Parliament and of the Council of 30 May 2018 on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007. OJ L 150, 14.6.2018, p. 1–92. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.150.01.0001.01.ENG

97 Frequently asked questions ON ORGANIC RULES. European Commission Directorate-General for Agriculture and Rural Development. 30/11/23. Brussel. Available at: https://agriculture.ec.europa.eu/farming/organic-farming/organics-glance_en

98 https://wayback.archive-it.org/12090/20220405002735/https://energy.ec.europa.eu/topics/renewable-energy/biofuels/sustainability-criteria_en (Accessed 28/12/23

99 Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources. OJ L 328, 21.12.2018, p. 82–209 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32018L2001

100 https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/voluntary-schemes_en (Accessed 28/12/23)

101 https://energy.ec.europa.eu/system/files/2022-04/Assessment%20Protocol%20template_REDII_Final%20version%20April%202022_v3.pdf (Accessed 28/12/23).

have been recognised as compliant, they are included in a publicly available list ([102]). A legislative tool mentioning and advising compliance with the REDII Sustainability Criteria is the *"EU policy framework on biobased, biodegradable and compostable plastics"* ([103]). This communication aim to provide better understanding of the challenges and benefits that stem from the use of bioplastics, setting the conditions the conditions to ensure that overall, the environmental impact of their production and consumption is positive. Whilst focused on bioplastics, several of the principles mentioned in this communication related to feedstock sustainability could be relevant for enhancing the sustainable sourcing of biomass for detergents and cleaners production. As examples:

- *In line with the circular economy principles, producers should prioritise the use of organic waste and by-products as feedstock, by thus minimising the use of primary biomass and avoiding significant environmental impacts.*
- *When primary biomass is used, it is important to ensure that it is environmentally sustainable and does not harm biodiversity or ecosystem health.*
- *Biomass used to produce biobased plastics must meet the EU sustainability criteria for bioenergy.*
- *Only biobased plastic products with long lifetime that are not incinerated when they become waste can have beneficial carbon storage effects.*

These principles have been considered and adapted into the EU Ecolabel criteria for absorbent hygiene products and for reusable menstrual cups ([104]) with regards to requirements on the raw materials sourced for biobased plastics production. Similarly, enhanced sustainability via management practices has been also the subject of the Guidelines on Close-to-Nature Forest Management ([105]),

As previously discussed, the sustainability of renewable materials sourcing has been addressed in EU legislation for uses such as bioenergy or materials production (bioplastics), which differ to the final aim and use of detergent and cleaner products. However, the biogenic raw materials used for any of these uses could have common source (e.g. palm oil), being the impacts associated to its production management also common (e.g. deforestation; soil degradation). Indeed, these raw materials could feed into the production processes of different applications (e.g. palm oil and derivatives used for basic oleochemicals & biodiesel) ([106]). Consequently, considering the requirements and/or principles of the EU Sustainability criteria (also the EU framework for biobased, biodegradable and compostable plastics) could result in enhanced sustainability on the sourcing of raw materials used in detergent and cleaner products. However, this should be understood as a generic and horizontal way of enhancing sustainable sourcing which should be in place only in the absence of a better alternative, as could be a more specific (raw material oriented) and mature voluntary sustainability certification scheme (e.g. RSPO specific to palm oil ([107])). A list of sustainability certifications related to palm oil, the main vegetable oil used for detergents and cleaners production, is shown in Figure 10..

[102] https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/voluntary-schemes_en (Accessed on 01/01/24)

[103] COM(2022) 682 final. https://environment.ec.europa.eu/publications/communication-eu-policy-framework-biobased-biodegradable-and-compostable-plastics_en (Accessed 28/12/23)

[104] Commission Decision (EU) 2023/1809 of 14 September 2023 establishing the EU Ecolabel criteria for absorbent hygiene products and for reusable menstrual cups. OJ L 234, 22.9.2023, p. 142–189. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AJOL_2023_234_R_0006&qid=1695364426290

[105] Commission staff Working Document Guidelines on Closer-to-Nature Forest Management. SWD(2023) 284 final https://environment.ec.europa.eu/publications/guidelines-closer-nature-forest-management_en

[106] Rupilius, W., and S. Ahmad, 'Palm Oil and Palm Kernel Oil as Raw Materials for Basic Oleochemicals and Biodiesel', European Journal of Lipid Science and Technology, Vol. 109, No. 4, April 2007, pp. 433–439. DOI 10.1002/ejlt.200600291

[107] https://rspo.org/ (Accessed 28/12/23)

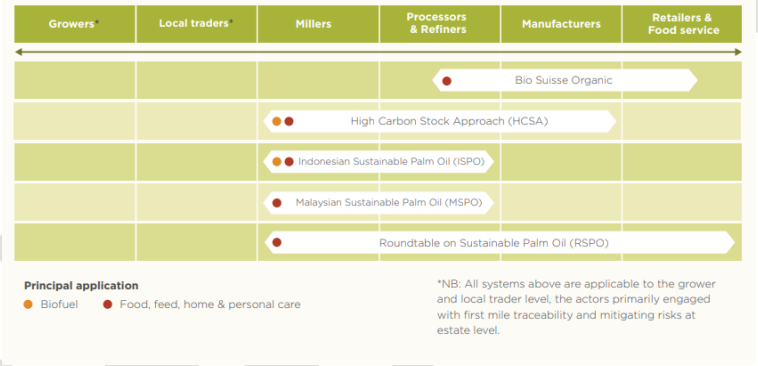
1392 Figure 10. Palm oil sustainability certification schemes

TABLE FOR SECTION 3.4
Overview of certification schemes

Standard (a-z)	Foundation	Certification	Principal focus of standard	Uptake in palm oil sector*	Palm Oil only	Consumer label on packaging
Bio Suisse Organic	1981	Yes, requires companies to be RSPO certified	Food	Low	No	No
High Carbon Stock Approach (HCSA)	2014	No	Covers all palm oil produced	Low	No	No
Indonesian Sustainable Palm Oil (ISPO)	2011	Yes	Covers all palm oil produced	High	Yes	No
Malaysian Sustainable Palm Oil (MSPO)	2013	Yes	Covers all palm oil produced	High	Yes	No
Roundtable on Sustainable Palm Oil (RSPO)	2004	Yes	Food, feed, home & personal care	High	Yes	Yes

* Uptake in palm oil sector' is based on indicators such as MT of palm oil traded under this certification or hectares of plantations certified

FIGURE 3.4
Standards (certification systems and other) mapped according to the principal initiator in the supply chain*, and principal application in palm oil products (see Table 5 on the next page for more detailed information)



1393 *Source: EPOA, IDH, RSPO (2022) ([108])*

1394 From the previous, the most relevant voluntary scheme is the Roundtable for Sustainable Palm Oil
1395 (RSPO) ([109]). It could be considered the main non-state, market-driven governance system through which
1396 sustainable production of palm oil can be assessed ([110]). According to RSPO estimation, in 2022 from the 215
1397 million metric tonnes of oil produced globally, 86.43 (40.2%) corresponded to palm, being 17.4 (8.1%) million
1398 metric tonnes RSPO certified ([111]). This implies that in 2022 the RSPO coverage reached 20% of the global
1399 palm oil production, a similar percentage to the total RSPO certified mills (23.2%). Palm oil or palm oil
1400 derivatives certified by the RSPO can be sourced through four different supply chain models ([112]):

1401 — *Identity Preserved*: certified palm oil from a single identifiable certified source that is kept separately
1402 from ordinary palm oil throughout the supply chain.

1403 — *Segregated*: certified palm oil from different certified sources that is kept separate from ordinary palm oil
1404 throughout the supply chain

108 EPOA, IDH, RSPO (2022), Sustainable Palm Oil: Europe's Business. Facts, analysis, and actions to leverage impact. https://www.idhsustainabletrade.com/publication/report-sustainable-palm-oil-europes-business/
109 https://rspo.org/ (Accessed 28/12/23)
110 Parsons, S., S. Raikova, and C.J. Chuck, 'The Viability and Desirability of Replacing Palm Oil', Nature Sustainability, Vol. 3, No. 6, March 9, 2020, pp. 412–418. DOI 10.1038/s41893-020-0487-8
111 RSPO Impact Update 2023. https://rspo.org/resources?category=impact-reports&id=41922 (Accessed 22/12/23)
112 https://rspo.org/as-an-organisation/certification/supply-chains/ (Accessed 28/12/23)

— *Mass Balance*: certified palm oil from certified sources that is mixed with ordinary palm oil throughout the supply chain.

— *RSPO Credits / Book and Claim*: Manufacturers and retailers can buy RSPO credits and RSPO independent smallholder credits from RSPO certified growers, crushers and independent smallholders. By purchasing RSPO Credits, buyers encourage the production of Certified Sustainable Palm Oil. To continue providing economic incentives to growers, we need the flexibility of the Mass Balance supply chain to provide growers increased access to international markets

According to RSPO, in 2022 from the 2128 known palm oil mills, 493 were RSPO certified and within these, the supply chain models predominantly used were mass balance (313 mills) followed by identity preserved (159 mills), with further 21 certified under both these models ([113]). This trend could reflect certified palm oil consumption trends, were existing and especially new markets might not have yet available the necessary physical infrastructures required for identify preserved or segregated supply models.

Focusing on the impact of each of these supply model on livelihood, particularly which is the additional revenue ("premium") paid to the base (conventional production), in 2019 the lowest was for book and claim (USD 2.50 to USD 3.50 per tonne), then mass balance (USD 6 and USD 17 per tonne) and the highest premium for segregated or identify preserved (USD 25 and USD 30 per tonne) ([114]). In addition to these direct positive livelihood impacts, enhanced management practices associated to voluntary schemes implementation could result also in further socio-economic positive impacts (e.g savings by using less agrochemicals).

Voluntary schemes have been criticised, mostly on the grounds of clarity and enforceability, but also they have been recognised as responsible of positive environmental effects. On the one hand, RSPO have raised criticism over the years related to ([115,116]): the clarity of interpretation of its principles/criteria; the lack of effective external intervention/control leading to enforcement and; the lack of proper integration with local socio-politico- legal realities. Throughout these years, RSPO has also evolved incorporating further sustainability aspects such as the alignment with no or zero deforestation policies (*High Carbon Stock Approach)* or new smallholders approaches ([117]). On the other hand, there are evidences of minor yet positive environmental effects attributable to sustainability certifications for producing palm oil, mostly related with deforestation. Carlson et al. (2017) found that certification significantly reduced avoiding deforestation but not fire or peatland clearance, thus suggesting that higher levels of certification could generate greater forest protection ([118]). Furomo et al. (2020) performed a farm-level assessment on the impact of RSPO, finding improved environmental practices (e.g. lowest agrochemicals use; larger areas for conservation) and mixed socioeconomic effects (e.g. higher wages but lower worker numbers), concluding that whilst valuable additional strategies to certification would be required ([119]).

In the focused questionnaire carried by the JRC, two questions targeted to different stakeholders groups (Industry and Competent Bodies from EU member states) aiming to better understand which was the voluntary scheme (e.g. RSPO) and the type of chain of custody model (e.g. mass balance) majorly used in ecolabelled products. The questions, including brief responses, were:

— *3.8) Could you indicate the certification scheme for sustainable production of the products you granted the EU Ecolabel? Please, specify the type of chain of custody/ supply model.*

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[113] RSPO Impact Update 2023. https://rspo.org/resources?category=impact-reports&id=41922 (Accessed 22/12/23)

[114] Voora, V.; Bermúdez, S.; Farrell, J.J.; Larrea, C. and Luna, E.; Global Market Report: Palm oil prices and sustainability. June 2023. Available at: https://www.iisd.org/publications/report/2023-global-market-report-palm-oil (Accessed on 26/12/23)

[115] Ruysschaert, D., and D. Salles, 'Towards Global Voluntary Standards: Questioning the Effectiveness in Attaining Conservation Goals', Ecological Economics, Vol. 107, November 2014, pp. 438–446. DOI: 10.1016/j.ecolecon.2014.09.016

[116] Parsons, S., S. Raikova, and C.J. Chuck, 'The Viability and Desirability of Replacing Palm Oil', Nature Sustainability, Vol. 3, No. 6, March 9, 2020, pp. 412–418. DOI 10.1038/s41893-020-0487-8

[117] Parsons, S., S. Raikova, and C.J. Chuck, 'The Viability and Desirability of Replacing Palm Oil', Nature Sustainability, Vol. 3, No. 6, March 9, 2020, pp. 412–418. DOI 10.1038/s41893-020-0487-8

[118] Carlson, K.M., R. Heilmayr, H.K. Gibbs, P. Noojipady, D.N. Burns, D.C. Morton, N.F. Walker, G.D. Paoli, and C. Kremen, 'Effect of Oil Palm Sustainability Certification on Deforestation and Fire in Indonesia', Proceedings of the National Academy of Sciences, Vol. 115, No. 1, January 2, 2018, pp. 121–126. DOI 10.1073/pnas.1704728114

[119] Furumo, P.R., X. Rueda, J.S. Rodríguez, and I.K. Parés Ramos, 'Field Evidence for Positive Certification Outcomes on Oil Palm Smallholder Management Practices in Colombia', Journal of Cleaner Production, Vol. 245, February 2020, p. 118891. 10.1016/j.jclepro.2019.118891

Competent bodies reported RSPO as the main scheme declared by license holders. The mostly cited model was "mass balance".

— *3.10) Do you hold any certification scheme for sustainable production of your oleochemical sources (organic raw materials)? If yes, could you share details of it/them? Please, specify the type of chain of custody/ supply model.*

Similarly to Competent Bodies, industry stakeholders mentioned RSPO and mass balance as the main scheme and model.

A relevant comment worth highlighting (and discussing) is that the availability of identity preserved and segregated was limited and, even if available, cost of the resulting surfactant would not be compatible with consumers affordability.

Other ISO Type I ecolabels, namely Nordic Swan ([120]) and Blue Angel ([121]), have introduced new requirements related to the sustainability of raw materials and the enhancement of the renewable material share in detergents and cleaner products (See Annex I). Nordic Swan includes a new requirement in its criteria for LD ([122]), HDD ([123]) and HSC ([124]) on *Sustainable raw materials* that foresees that the licence holder must document that they are working to increase the purchase of sustainable and renewable raw materials or that they require their manufacturer to work to increase the purchase of renewable and sustainable raw materials for Nordic Swan Ecolabelled products. Nordic Swan also has an specific requirement for *Certified raw materials from oil palms*, similar to the criterion *Sustainable sourcing of palm oil, palm kernel oil and their derivatives* in EU Ecolabel Cosmetics or Detergents criteria, except for the inclusion of a cut-off limit (*"The requirement does not include raw materials < 1% in the final product")* aimed at focusing on most relevant raw materials and reducing the administrative burden ([125]). Other renewable materials are not explicitly included as they are either considered less relevant or there is not yet a sustainability standard available (e.g. coconut oil) ([126]). However, sustainability certification is required for sugarcane when it is used as renewable raw materials, not as secondary raw materials ([127]). On what concerns Blue Angel criteria for LD ([128]) and HDD/HDD ([129]), the new requirement *Renewable raw materials in surfactants* states that a minimum of 50% of the carbon in the total carbon of surfactant systems must originate from renewable sources. In addition, the compliance verification steps are more detailed than in existing EU Ecolabel criteria for detergents and set differently according to RSPO status (Ordinary member or user of RSPO certified raw materials) and amount of RSPO oil sourced (whether above or below 500 tonnes of palm oil products). These requirements show that there is an interest in:

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120 https://www.nordic-swan-ecolabel.org/

121 https://www.blauer-engel.de/en

122 006 Laundry Detergents and Stain Removers, version 8.7, 24 October 2023. Nordic Swan https://www.nordic-swan-ecolabel.org/4ac25f/contentassets/70445c77678f46db9a850528cb7398d5/criteria-document_006_laundry-detergents-and-stain-removers-006_english.pdf

123 025 Hand dishwashing detergents, version 6.8, 07 November 2023. Nordic Swan. https://www.nordic-swan-ecolabel.org/4adf5d/contentassets/10f50d7e13a34cfbaf8fc0b66a4fc521/criteria-document_025_hand-dishwashing-detergents-025_english2.pdf

124 026 Cleaning products, version 6.13, 24 October 2023 Nordic Swan. https://www.nordic-swan-ecolabel.org/4acea6/contentassets/988cf5d0a3fe4c3fa2f85775d7df4be9/criteria-document_026_cleaning-products-026_english2.pdf

125 006 Laundry Detergents and Stain Removers, version 8.7, 24 October 2023 Background to Ecolabelling. Nordic Swan https://www.nordic-swan-ecolabel.org/4ac25f/contentassets/70445c77678f46db9a850528cb7398d5/background-document_006_laundry-detergents-and-stain-removers-006_english.pdf

126 006 Laundry Detergents and Stain Removers, version 8.7, 24 October 2023 Background to Ecolabelling. Nordic Swan https://www.nordic-swan-ecolabel.org/4ac25f/contentassets/70445c77678f46db9a850528cb7398d5/background-document_006_laundry-detergents-and-stain-removers-006_english.pdf

127 006 Laundry Detergents and Stain Removers, version 8.7, 24 October 2023. Nordic Swan https://www.nordic-swan-ecolabel.org/4ac25f/contentassets/70445c77678f46db9a850528cb7398d5/criteria-document_006_laundry-detergents-and-stain-removers-006_english.pdf

128 DE-UZ 202, Laundry detergent. V1.1. January 2022. BLUE ANGEL The German Ecolabel. https://produktinfo.blauer-engel.de/uploads/criteriafile/en/DE-UZ%20202-202201-en%20criteria-V1.1.pdf

129 DE-UZ 194, Hand Dishwashing Detergents and Hard Surface Cleaners. V1.2. January 2022. BLUE ANGEL The German Ecolabel. https://produktinfo.blauer-engel.de/uploads/criteriafile/en/DE-UZ%20194-202201-en%20criteria-V1.2.pdf

(a) increasing the amounts of renewable materials used in the product, either generally in the product via self-commitment or specifically (e.g. in surfactants systems);

(b) promoting sourcing of raw materials with sustainability certifications, yet still at this stage primarily focused on palm oil (and its derivatives) via RSPO mandatory requirements.

From the previous, the existing EU criteria for detergents does not include explicitly any target to enhance the share of renewable raw materials but it does promote the sustainable sourcing of the main raw materials (palm oil, palm kernel oil and their derivatives) used in detergent and cleaner production. Hence, it stems that an aspect to consider for addition in EU Ecolabel criteria is how to prime the use of renewable materials. However, renewable materials should be produced under sustainable management in order to achieve all the potential positive impacts. The facts disclosed earlier in this section suggest that an enhancement of the sustainability of the sourcing (thus on the production of the raw materials) has priority or, at least, should be simultaneously required to the increase of the renewable material share. In this sense, mandatory *Raw material sustainability certification* (other than palm oil/palm kernel oil) is considered a necessary step to improve EUEL criteria for detergents. This provision would require all/the main renewable materials other than palm oil and/or palm kernel oil to hold a sustainability certificate. Relevant certificates (e.g. chain of custody) emitted by the voluntary schemes in the approved list by the EU Commission complying with RED II sustainability criteria are proposed as a the minimum verifications means. If deemed relevant, revision discussions can focus on identifying if particular raw materials (e.g. sugarcane) should be covered by specific voluntary schemes which, similarly to RSPO for palm oil, are more specific and consolidated for that particular raw material.

Considering all the information shared in this section, the main changes and additions proposed are:

— Expansion of the scope of the criterion, by requiring that all renewable raw materials are sustainably sourced, similarly to currently required for palm oil, palm kernel oil and/or their derivatives.

— Given this new provision, the name of the criterion is changed to *Sustainable sourcing of raw materials*. Also, the requirements are split in two parts: a) when referring to palm oil, palm kernel oil and their derivatives (mostly as per existing criterion text); b) when referring to other renewable raw materials than palm oil, palm kernel oil and their derivatives (new provisions).

— However, the previous provision would only apply to the most relevant raw materials, thus reducing administrative. This in practice implies the inclusion of a cut-off limit ("*The requirement does not include raw materials < 1% in the final product*").

— Alignment with EUEL criteria for Cosmetic products ([130]), both in terms of the wording used in the legal texts and some provisions, especially with regards to the Assessment and Verification of palm oil and palm kernel oil and their derivatives sustainability certificates.

— Also, alignment with the EUEL criteria for Absorbent Hygiene products ([131]) in the same aspects (wording and A&V), mostly on requirements to biobased raw materials other than palm oil, palm kernel oil and their derivatives, but also some horizontal ones (applicable to any raw material) related to validity of the certificates and when Competent Bodies should check it.

— Related to the chain of custody model, it is proposed to limit to identify preserved and segregated models for palm oil and palm kernel oil. This proposal is aligned with EUEL criteria for cosmetics products, where by 1st of January 2025 these are the only models that will be accepted. This would also be aligned with stakeholders feedback received by the JRC.

[130] Commission Decision (EU) 2021/1870 of 22 October 2021 establishing the EU Ecolabel criteria for cosmetic products and animal care products (notified under document C(2021) 7500). OJ L 379, 26.10.2021, p. 8–48. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021D1870

[131] Commission Decision (EU) 2023/1809 of 14 September 2023 establishing the EU Ecolabel criteria for absorbent hygiene products and for reusable menstrual cups (notified under document C(2023) 6024). OJ L 234, 22.9.2023, p. 142–189. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AJOL_2023_234_R_0006&qid=1695364426290

Points for discussion 9 – Sustainable sourcing of raw materials (formerly *"Sustainable sourcing of palm oil, palm kernel oil and their derivatives)*

Stakeholders are invited to reply the following consultation question:

- Question 21 (Q21) – Would you support limiting the chain of custody models to identity preserved and segregated? JRC acknowledges that evidence gathered suggested potential difficulties with compliance, thus it encourages stakeholders commenting on the feasibility of this provision.
- Question 21 (Q22) – Would suggest considering the inclusion of specific provisions targeting achieving environmental positive effects via Carbon accounting? If so, could you share specific proposals? For example, requiring a minimum share of in carbon from renewable origin from surfactants systems (as per Blue Angel ecolabel) OR set follow a particular C-footprint methodology to ensure net LCA reduction in C-footprint in ingredients and/or final product.

7.6. Excluded and restricted substances

The technical analysis included in the preliminary report showed that the chemicals used in the formulation of detergent products significantly contribute to overall environmental impacts. The aim of this criterion is to exclude or limit toxic or harmful substances, thereby ensuring that the EU Ecolabel is only awarded to the least environmentally impactful products. Limiting the presence of environmentally harmful substances in detergents is essential, as they are released into the aquatic environment after use. While detergent wastewater generally undergoes treatment, in the worst case scenario, ingredients may be released directly into the aquatic environment. The Detergent Regulation does not prohibit the use of substances in detergent products on the basis of their environmental properties, but the EU Ecolabel Regulation sets out general requirements for substances.

The information is presented separately for each sub-criteria, following the order of the existing criteria legal text:

3. (a) Specified excluded and restricted substances
4. (b) Hazardous substances
5. (c) Substances of very high concern (SVHCs)
6. (d) Fragrances
7. (e) Preservatives
8. (f) Colouring agents
9. (g) Enzymes
10. (h) (Only for HDD) Corrosive properties
11. (h) (Only for HSC) Micro-organisms

7.6.1. Specified excluded and restricted substances

This sub-criterion presents the list of substances that are specifically excluded (*sub-criterion (i)*) or restricted (*sub-criterion (ii)*) from the formulation of detergent and cleaning products.

Substances are restricted based on: a) their chemical function (i.e. fragrances); b) their chemical composition (i.e. total content of phosphorus).

Existing sub-criterion (a) specified excluded and restricted substances (*i*) Excluded substances	
ALL	The substances indicated below shall not be included in the product formulation regardless of concentration: — Alkyl phenol ethoxylates (APEOs) and other alkyl phenol derivatives, — Atranol, — Chloroatranol, — Diethylenetriaminepentaacetic acid (DTPA), — Ethylenediaminetetraacetic acid (EDTA) and its salts, — Formaldehyde and its releasers (e.g. 2-bromo-2-nitropropane-1,3-diol, 5-bromo-5-nitro-1,3-dioxane, sodium hydroxyl methyl glycinate, diazolidinylurea), with the exception of impurities of formaldehyde in surfactants based on polyalkoxy chemistry up to a concentration of 0,010 % weight by weight in the ingoing substance, — Glutaraldehyde,

	— Hydroxyisohexyl 3-cyclohexene carboxaldehyde (HICC), — Microplastics, — Nanosilver, — Nitromusks and polycyclic musks, — Per-fluorinated alkylates, — Quaternary ammonium salts not readily biodegradable, — Reactive chlorine compounds, — Rhodamine B, — Triclosan, — 3-iodo-2-propynyl butylcarbamate.
DD, HDD, HSC, LD	— Phosphates,
DD	— Sodium hydroxyl methyl glycinate,
HDD	— (only for professional products) Fragrances
HSC	— Aromatic hydrocarbons — Halogenated hydrocarbons
DD, HDD, HSC, IILD, LD	*Assessment and verification:* the applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, confirming that the listed substances have not been included in the product formulation regardless of concentration.
IIDD	*Assessment and verification:* the applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, confirming that the listed substances have not been included in the product formulation.
Proposed sub-criterion (a) specified excluded and restricted substances (*i*) Excluded substances	
ALL	The substances indicated below shall not be included in the product ~~formulation~~ regardless of concentration, neither as part of the formulation, as part of any mixture included in the formulation, nor as impurities: — Alkyl phenol ethoxylates (APEOs) and other alkyl phenol derivatives, — Atranol, — Chloroatranol, — Diethylenetriaminepentaacetic acid (DTPA), — Ethylenediaminetetraacetic acid (EDTA) and its salts, — Formaldehyde and its releasers (e.g. 2-bromo-2-nitropropane-1,3-diol, 5-bromo-5-nitro-1,3-dioxane, sodium hydroxyl methyl glycinate, diazolidinylurea), with the exception of impurities of formaldehyde in surfactants based on polyalkoxy chemistry up to a concentration of 0,010 % weight by weight in the ingoing substance,

	— Glutaraldehyde, — Hydroxyisohexyl 3-cyclohexene carboxaldehyde (HICC), — Methylisothiazolinone (MIT), — Microplastics, — ~~Nanosilver~~ Nanomaterials, — Nitromusks and polycyclic musks, — ~~Per-fluorinated alkylates,~~ Per- and polyfluoroalkyl substances (PFAS), — Quaternary ammonium salts not readily biodegradable, — Reactive chlorine compounds, — Rhodamine B, — Substances identified to have endocrine disrupting properties, — Substances considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances that are to be investigated further for endocrine disruptive effects. — Triclosan, — 3-iodo-2-propynyl butylcarbamate.
DD, HDD, HSC, LD	— Phosphates, — Alkyl phosphonic acid derivatives (e.g. ATMP, HEDP, DTPMP) and their salts
~~DD~~	— ~~Sodium hydroxyl methyl glycinate,~~
HDD	— (only for professional products) Fragrances
HSC	— Aromatic hydrocarbons — Halogenated hydrocarbons
DD, HDD, HSC, IILD, LD	*Assessment and verification:* the applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, confirming that the listed substances have not been included in the product formulation regardless of concentration.
IIDD	*Assessment and verification:* the applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, confirming that the listed substances have not been included in the product formulation.

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Existing sub-criterion (a) specified excluded and restricted substances (*ii*) Restricted substances	
DD, IIDD, IILD, LD	The substances listed below shall not be included in the product formulation above the concentrations indicated: — 2-methyl-2H-isothiazol-3-one: 0,0050 % weight by weight, — 1,2-Benzisothiazol-3(2H)-one: 0,0050 % weight by weight, — 5-chloro-2-methyl-4-isothiazolin-3-one/2-methyl-4-isothiazolin-3-one: 0,0015 % weight by

<table>
<tr><td></td><td>weight</td></tr>
<tr><td>HDD, HSC</td><td>The substances listed below shall not be included in the product formulation above the concentrations indicated:
— 2-methyl-2H-isothiazol-3-one: 0,0050 % weight by weight, (should the value of 2-methyl-2H-isothiazol-3-one allowed in Annex V (List of preservatives allowed in cosmetic products) to Regulation (EC) No 1223/2009 of the European Parliament and of the Council ([132]) be lower at the time of the application, then that lower value shall take precedence);
— 1,2-Benzisothiazol-3(2H)-one: 0,0050 % weight by weight,
— 5-chloro-2-methyl-4-isothiazolin-3-one/2-methyl-4-isothiazolin-3-one: 0,0015 % weight by weight</td></tr>
<tr><td>DD</td><td>The total phosphorus (P) content calculated as elemental P shall be limited to:
— 0,20 g/wash for dishwasher detergents,
— 0,030 g/wash for rinse aids
Fragrance substances subject to the declaration requirement provided in Regulation (EC) No 648/2004 shall not be present in quantities ≥ 0,010 % weight by weight per substance.</td></tr>
<tr><td>HDD</td><td>The total phosphorus (P) content calculated as elemental P shall be limited to 0,08 g/l of washing water.
Fragrance substances subject to the declaration requirement provided in Regulation (EC) No 648/2004 shall not be present in quantities ≥ 0,010 % weight by weight per substance.</td></tr>
<tr><td>HSC</td><td>The total phosphorus (P) content calculated as elemental P shall be limited to the following values for the reference dosage.
<table>
<tr><th>Product type</th><th>P content</th></tr>
<tr><td>All-purpose cleaners, RTU</td><td>0,02 g/l of RTU product</td></tr>
<tr><td>All-purpose cleaners, undiluted</td><td>0,02 g/l of cleaning solution</td></tr>
<tr><td>Kitchen cleaners, RTU</td><td>1,00 g/l of RTU product</td></tr>
<tr><td>Kitchen cleaners, undiluted</td><td>1,00 g/l of cleaning solution</td></tr>
<tr><td>Window cleaners, RTU</td><td>0,00 g/l of RTU product</td></tr>
<tr><td>Window cleaners, undiluted</td><td>0,00 g/l of cleaning solution</td></tr>
<tr><td>Sanitary cleaners, RTU</td><td>1,00 g/l of RTU product</td></tr>
<tr><td>Sanitary cleaners, undiluted</td><td>1,00 g/l of cleaning solution</td></tr>
</table>
Fragrance substances subject to the declaration requirement provided in Regulation (EC) No 648/2004 shall not be present in quantities ≥ 0,010 % weight by weight per substance.
VOCs shall not be present above the limits specified below (VOCs means any organic compound having a boiling point lower than 150 °C).
<table>
<tr><th>Product type</th><th>VOC limit</th></tr>
<tr><td>All-purpose cleaners, RTU</td><td>30 g/l of RTU product</td></tr>
<tr><td>All-purpose cleaners, undiluted</td><td>30 g/l of cleaning solution</td></tr>
<tr><td>Kitchen cleaners, RTU</td><td>60 g/l of RTU product</td></tr>
<tr><td>Kitchen cleaners, undiluted</td><td>60 g/l of cleaning solution</td></tr>
<tr><td>Window cleaners, RTU</td><td>100 g/l of RTU product</td></tr>
<tr><td>Window cleaners, undiluted</td><td>100 g/l of cleaning solution</td></tr>
<tr><td>Sanitary cleaners, RTU</td><td>60 g/l of RTU product</td></tr>
</table></td></tr>
</table>

[132] Regulation (EC) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products (OJ L 342, 22.12.2009, p. 59). https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32009R1223

<table>
<tr><td></td><td><table><tr><td>Sanitary cleaners, undiluted</td><td>60 g/l of cleaning solution</td></tr></table></td></tr>
<tr><td>IIDD</td><td>The total phosphorus (P) content calculated as elemental P shall be limited to:<table><tr><td rowspan="2">Product type
(in g/l of washing solution)</td><td colspan="3">Water hardness (mmol $CaCO_3$/l)</td></tr><tr><td>Soft (< 1,5)</td><td>Medium (1,5-2,5)</td><td>Hard (> 2,5)</td></tr><tr><td>Pre-soaks</td><td>0,08</td><td>0,08</td><td>0,08</td></tr><tr><td>Dishwasher detergents</td><td>0,15</td><td>0,30</td><td>0,50</td></tr><tr><td>Rinse aids</td><td>0,02</td><td>0,02</td><td>0,02</td></tr><tr><td>Multicomponent system</td><td>0,17</td><td>0,32</td><td>0,52</td></tr></table></td></tr>
<tr><td>IILD</td><td>The total phosphorus (P) content calculated as elemental P shall be limited to:
— 0,50 g/kg of laundry for light soil,
— 1,00 g/kg of laundry for medium soil,
— 1,50 g/kg of laundry for heavy soil.
Fragrance substances subject to the declaration requirement provided in Regulation (EC) No 648/2004 shall not be present in quantities ≥ 0,010 % weight by weight per substance.</td></tr>
<tr><td>LD</td><td>The total phosphorus (P) content calculated as elemental P shall be limited to:
— 0,04 g/kg of laundry for laundry detergents,
— 0,005 g/kg of laundry for stain removers.
Fragrance substances subject to the declaration requirement provided in Regulation (EC) No 648/2004 shall not be present in quantities ≥ 0,010 % weight by weight per substance.</td></tr>
<tr><td>ALL</td><td>Assessment and verification: the applicant shall provide the following documents:
(a) if isothiazolinones are used, a signed declaration of compliance supported by declarations from suppliers, if appropriate, confirming that the content of isothiazolinones used is equal to or lower than the limits set;
(b) a signed declaration of compliance supported by declarations from suppliers, if appropriate, confirming that the total amount of elemental P is equal to or lower than the limits set. The declaration shall be supported by the calculations of the product's total P-content;</td></tr>
<tr><td>DD, IILD, LD, HSC</td><td>(c) a signed declaration of compliance supported by declarations or documentation from suppliers, if appropriate, confirming that the fragrance substances subject to the declaration requirement provided for in Regulation (EC) No 648/2004 are not present above the limits set.</td></tr>
<tr><td>HDD</td><td>(c) a signed declaration of compliance supported by declarations or documentation from suppliers, if appropriate, confirming that the fragrance substances subject to the declaration requirement provided for in Regulation (EC) No 648/2004 are not present above the limits set. For professional products, a signed declaration of non-presence of fragrances shall be provided.</td></tr>
<tr><td>HSC</td><td>(d) A signed declaration of compliance supported by declarations from the suppliers, if appropriate, confirming that the total amount of VOCs is below the set limits. This declaration shall be supported by test reports or calculations of the VOC content based on the list of ingredients.</td></tr>
<tr><td colspan="2">Proposed sub-criterion (a) specified excluded and restricted substances
(ii) Restricted substances</td></tr>
<tr><td>DD, IIDD, IILD, LD</td><td>The substances listed below shall not be included in the product formulation above the concentrations indicated:
— ~~2-methyl-2H-isothiazol-3-one: 0,0050 % weight by weight~~,</td></tr>
</table>

<table>
<tr><td></td><td>— 1,2-Benzisothiazol-3(2H)-one: 0,0050 % weight by weight,
— ~~5-chloro-2-methyl-4-isothiazolin-3-one/2-methyl-4-isothiazolin-3-one: 0,0015 % weight by weight~~</td></tr>
<tr><td>HDD, HSC</td><td>The substances listed below shall not be included in the product formulation above the concentrations indicated:
— ~~2-methyl-2H-isothiazol-3-one: 0,0050 % weight by weight, (should the value of 2-methyl-2H-isothiazol-3-one allowed in Annex V (List of preservatives allowed in cosmetic products) to Regulation (EC) No 1223/2009 of the European Parliament and of the Council (~~[133]~~) be lower at the time of the application, then that lower value shall take precedence);~~
— 1,2-Benzisothiazol-3(2H)-one: 0,0050 % weight by weight,
— ~~5-chloro-2-methyl-4-isothiazolin-3-one/2-methyl-4-isothiazolin-3-one: 0,0015 % weight by weight~~</td></tr>
<tr><td>DD</td><td>The total phosphorus (P) content calculated as elemental P shall be limited to:
— 0,20 g/wash for dishwasher detergents,
— 0,030 g/wash for rinse aids
Fragrance substances subject to the declaration requirement provided in Regulation (EC) No 648/2004 shall not be present in quantities ≥ 0,010 % weight by weight per substance.</td></tr>
<tr><td>HDD</td><td>The total phosphorus (P) content calculated as elemental P shall be limited to ~~0,08~~ 0,01 g/l of washing water.
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<table>
<tr><th>Product type</th><th>P content</th></tr>
<tr><td>All-purpose cleaners, RTU</td><td>~~0,02~~0,01 g/l of RTU product</td></tr>
<tr><td>All-purpose cleaners, undiluted</td><td>~~0,02~~0,01 g/l of cleaning solution</td></tr>
<tr><td>Kitchen cleaners, RTU</td><td>~~1,00~~ 0,10 g/l of RTU product</td></tr>
<tr><td>Kitchen cleaners, undiluted</td><td>~~1,00~~ 0,10 g/l of cleaning solution</td></tr>
<tr><td>Window cleaners, RTU</td><td>0,00 g/l of RTU product</td></tr>
<tr><td>Window cleaners, undiluted</td><td>0,00 g/l of cleaning solution</td></tr>
<tr><td>Sanitary cleaners, RTU</td><td>~~1,00~~ 0,10 g/l of RTU product</td></tr>
<tr><td>Sanitary cleaners, undiluted</td><td>~~1,00~~ 0,10 g/l of cleaning solution</td></tr>
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VOCs shall not be present above the limits specified below (VOCs means any organic compound having a boiling point lower than 150 °C).
<table>
<tr><th>Product type</th><th>VOC limit</th></tr>
<tr><td>All-purpose cleaners, RTU</td><td>~~30~~ 1 g/l of RTU product</td></tr>
<tr><td>All-purpose cleaners, undiluted</td><td>~~30~~1 g/l of cleaning solution</td></tr>
<tr><td>Kitchen cleaners, RTU</td><td>~~60~~10 g/l of RTU product</td></tr>
<tr><td>Kitchen cleaners, undiluted</td><td>~~60~~10 g/l of cleaning solution</td></tr>
<tr><td>Window cleaners, RTU</td><td>100 g/l of RTU product</td></tr>
</table></td></tr>
</table>

[133] Regulation (EC) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products (OJ L 342, 22.12.2009, p. 59). https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32009R1223

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<tr><td>Window cleaners, undiluted</td><td>100 g/l of cleaning solution</td></tr>
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<tr><td>Pre-soaks</td><td>~~0,08~~ XX</td><td>~~0,08~~ XX</td><td>~~0,08~~ XX</td></tr>
<tr><td>Dishwasher detergents</td><td>~~0,15~~ XX</td><td>~~0,30~~ XX</td><td>~~0,50~~ XX</td></tr>
<tr><td>Rinse aids</td><td>~~0,02~~ XX</td><td>~~0,02~~ XX</td><td>~~0,02~~ XX</td></tr>
<tr><td>Multicomponent system</td><td>~~0,17~~ XX</td><td>~~0,32~~ XX</td><td>~~0,52~~ XX</td></tr>
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</td></tr>
<tr><td>IILD</td><td>The total phosphorus (P) content calculated as elemental P shall be limited to:
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</table>

In the below sections the rationale and relevant changes to the single criteria are presented separately for each sub-criterion.

Rationale for the proposed sub-criterion (a) specified excluded and restricted substances

This criterion lists substances that shall not be included in the product as part of the formulation or as a part of a mixture included in the formulation.

The proposal to include *alkyl phosphonic acid derivatives (e.g. ATMP, HEDP, DTPMP) and their salts* in the list of excluded substances for LD, DD, HDD, HSC aligns with Blue Angel. This decision is based on the rationale outlined in paragraph Phosphorus restrictions.

The proposal to include *Methylisothiazolinone (MIT)* in the list of excluded substances for all product groups is based on the rationale outline in the paragraph Isothiazolinones restrictions.

Nanomaterials

Numerous everyday products containing nanomaterials are currently available in the European market, indicating the widespread utilization of these materials. While these materials may offer technical and commercial benefits, concerns have been raised about their potential impact on health and the environment. Knowledge of the environmental behaviour, fate, and effects of nanomaterials has significantly increased in the last decade.

Guidance from the Scientific Committee on Consumer Safety (SCCS)[134] in 2019 and the European Consumer Organisation (BEUC)[135] also underscores safety concerns related to nanotechnology, particularly in the context of consumer products, such as detergents. Furthermore, ECHA's review[136] raises concerns about potential reproductive and developmental toxicity associated with nanomaterials, emphasizing the need for careful consideration of the risks posed by nanoparticles. ECHA has also released a new ECHA CHEM database[137] providing updated REACH registration data on nanomaterials in circulation in the European market and their potential impact on human health and the environment.

In a legal context, nanomaterials fall under the existing REACH and CLP definition of a substance, and provisions set by both regulations. As of 1 January 2020, explicit legal requirements under REACH apply for companies that manufacture or import nanoforms. These reporting obligations address specific information requirements, outlined in revised annexes to the REACH regulation, including the characterization of nanoforms or sets of nanoforms covered by the registration (Annex VI), chemical safety assessment (Annex I), registration information requirements (Annexes III and VII-XI), and downstream user obligations (Annex XII).

Considering the various concerns about nanomaterials, it is proposed to add nanomaterials to the list of substances excluded from detergents, with nanosilver already included in the general exclusion of nanomaterials.

Endocrine disruptors

Endocrine disruptors, also known as EDs, are chemical compounds that interfere with the proper functioning of the endocrine system, leading to adverse effects on the health of both humans and animals. These impacts can take various forms, such as negative effects on reproductive health or potential contribution to the development of hormone-related cancers. These disruptors can have synthetic or natural origins, and people can be exposed to them through different means, including residues of pesticides or everyday consumer products. One significant contributor to the spread of endocrine disruptors is their release into the aquatic environment. The fate of EDs in the environment varies. Some are persistent and can accumulate in soils, sediments, or fatty tissues, while others are more soluble in water and break down rapidly. Additionally, in some cases the effects of exposure to these disruptors may only become apparent long after the initial contact([138]).

The growing recognition of the potential risks posed by EDs is evident in the revised Regulation on classification, labelling, and packaging of chemicals (CLP). In December 2022, the European Commission proposed a revised CLP Regulation with the specific objective of addressing concerns related to EDs by appropriately classifying and labeling these chemicals ([139]). The EC established two categories of endocrine disruptors: known or presumed endocrine disruptors (category 1) and suspected endocrine disruptors

[134] SCCS (Scientific Committee on Consumer Safety) (2019) Guidance on the Safety Assessment of Nanomaterials in Cosmetics. SCCS/1611/19 https://ec.europa.eu/health/sites/health/files/scientific_committees/consumer_safety/docs/sccs_o

[135] BEUC – The European Consumer Organisation. Nanotechnology. www.beuc.eu/safety/nanotechnology (2020-05-06).

[136] https://euon.echa.europa.eu/documents/2435000/3268573/critical_review_of_studies_on_reproductive_and_developmental_toxicity_of_nanomaterials_en.pdf/c83f78ef-7136-ef4b-268c-c5d9b7bf1fea?t=1586154196963

[137] https://euon.echa.europa.eu/search-for-nanomaterials

[138] State of the Science of Endocrine Disrupting Chemicals – 2012 Edited by Åke Bergman, Jerrold J. Heindel, Susan Jobling, Karen A. Kidd and R. Thomas Zoeller; https://echa.europa.eu/hot-topics/endocrine-disruptors.

[139] https://ec.europa.eu/commission/presscorner/detail/en/IP_22_7775

(category 2), for both human health and for the environment Additionally, the Commission adopted a Delegated Act to introduce new hazard classes for EDs. The introduction of these new hazard classes aims to strengthen the protection of human health and the environment from the potential risks associated with these chemicals ([140]).

In the stakeholder consultation preliminary survey,[141] the exclusion of identified and potential endocrine disruptors (category 1 and 2) received favourable feedback from the majority of respondents. This exclusion is also consistent with other ecolabelling schemes such as the EU Ecolabel for Absorbent Hygiene Products group (Commission Decision (EU) 2023/1809), EU Ecolabel for Cosmetic products and animal care products (Commission Decision (EU) 2021/1870), and Nordic Swan for all detergent product groups. By excluding identified and potential EDs, the EU Ecolabel for the six detergent products ensures a strict policy on EDs, preventing their negative effects on the environment, humans, and animals. This approach also promotes harmonization with the requirements of other ecolabelling schemes and aligns with the development of new regulatory instruments.

Per- and polyfluoroalkyl substances

Per- and polyfluoroalkyl substances (PFAS) represent a diverse group of synthetic chemicals extensively utilized in both industrial and consumer products since the 1950s. Owing to their robust carbon-fluorine bonds, they exhibit resistance to environmental degradation, thus persisting in various environmental compartments, such as groundwater, surface water, and soil([142]). Additionally, PFAS have been detected to accumulate in the bodies of humans and animals, and have been associated with adverse health effects, including reproductive and developmental issues, liver and kidney damage, an elevated risk of certain cancers, and immunotoxicity, and weakening of vaccine-responsiveness([143])([144])([145])

The escalating prevalence of PFAS contamination has emerged as a significant concern for environmental regulatory authorities.

There are ongoing discussions, within the Stockholm Convention on Persistent Organic Pollutants and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, regarding the inclusion of per- and polyfluoroalkyl substances (PFAS) in their respective frameworks to address PFAS.

Moreover, the Commission in October 2022 has proposed, under the Chemicals Strategy for Sustainability Towards a Toxic-Free Environment, a set of actions to address the use of and contamination with PFAS. These actions aim to ensure, in particular, that the use of PFAS is phased out in the EU and focus on promoting safer alternatives that can avoid the adverse health and environmental effects of PFAS([146]).

According to the OECD (OECD (2021), Reconciling Terminology of the Universe of Per- and Polyfluoroalkyl Substances: Recommendations and Practical Guidance, OECD Series on Risk Management, No. 61, OECD Publishing, Paris.)) definition, per- and polyfluoroalkyl substances (PFASs) are fluorinated substances containing at least one fully fluorinated methyl or methylene carbon atom, (without any H/Cl/Br/I atom attached to it), i.e. with a few noted exceptions, any chemical with at least a perfluorinated methyl group (–CF3) or a perfluorinated methylene group (–CF2–) is a PFAS.

In the current EU Ecolabel criteria for detergent products, only perfluorinated alkylated, where all hydrogen on the fluorinated carbon chain are replaced by fluorine, are listed in the excluded substances criterion. The new proposal requires the exclusion of not only perfluoroalkyl but also polyfluoroalkyl substances, where not all hydrogen on the fluorinated carbon chain are replaced by fluorine (e.g., H–C2F4–, Cl–C2F4–, CF3CF2–C2H4–C2F4–C2H4–), in alignment with other ecolabelling schemes such as the EU Ecolabel for Cosmetic products and animal care products (Commission Decision (EU) 2021/1870), and Nordic Swan for all detergent product groups.

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[140] https://environment.ec.europa.eu/system/files/2022-12/Delegated%20Regulation%20amending%20Regulation%2012722008.pdf.

[141] European Commission, Joint Research Centre, La Placa, M.G..; Vidal Abarca Garrido, C.; Wolf, O, 2022. Assessment of the EU Ecolabel criteria for six Detergent Product Groups. Internal. Document prepared for the European Union Ecolabelling Board (EUEB)

[142] https://echa.europa.eu/hot-topics/perfluoroalkyl-chemicals-pfas

[143] https://www.efsa.europa.eu/sites/default/files/consultation/consultation/PFAS_Draft_Opinion_for_public_consultation_Part_I.pdf

[144] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4187289/)

[145] http://norden.diva-portal.org/smash/get/diva2:1295959/FULLTEXT01.pdf

[146] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0667.

Additional substances

The following additional substances are excluded from other ISO Type I schemes such as Nordic Swan or Blue Angel but are not excluded from the EU Ecolabel as detailed also in Annex I:

- Organic chlorine compounds, hypochlorites, and hypochlorous acid
- Methyldibromo glutaronitrile
- Phthalates
- BHT (butylated hydroxytoluene
- Benzalkonium chloride
- 34 bisphenols
- Halogenated flame retardants
- DADMAC
- Benzotriazole and benzotriazole derivatives
- Parabens
- Formic acid
- Butylphenyl Methylpropional (2-(4-tert-Butylbenzyl)propionaldehyde; Lysmeral; Lilial

Regarding the above list of substances, interested parties are invited to respond to the following question:

Points for discussion 10 – Excluded substances

Stakeholders are invited to reply the following consultation question:

— Question 23 (Q23) – Would you support the exclusion of any of the substances reported in the list of 'additional substances' from the EU Ecolabel for detergents?

Isothiazolinones restriction

Preservatives are necessary for preventing contamination and microbial growth in liquid detergents, thereby protecting products from damage during manufacturing and ensuring a longer shelf life. They are biocides primarily regulated by the Biocidal Product Regulation (BPR)([147]). Not all types of preservatives are technically compatible with detergents. According to AISE, the following preservatives are compatible with the detergent industry and current Biocidal Regulations: Methylisothiazolinone (MIT), Benzisothiazolinone (BIT), a mixture of chloromethylisothiazolinone (CMIT) and MIT, Bronopol, and Phenoxyethanol([148]). All these preservatives have harmonized CLP classifications, and with the exception of Phenoxyethanol, they fall under restricted hazard classes for the EU Ecolabel. MIT, BIT, and CMIT belong to the chemical class of isothiazolinones. Regarding the CLP rule of mixtures, the most restrictive hazard category for isothiazoline preservatives is H317 (skin sensitization). Additionally, Isothiazolinones and also bronopol present harmonised classification as hazardous to aquatic environment.

The presence of MIT in commercial mixtures has led to an increase in cases of skin sensitization and contact dermatitis in Europe. In 2015, the SCCS recommended limiting the concentration of MIT to 15 ppm in rinse-off

[147] Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products. OJ L 167, 27.6.2012, p. 1–123. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32012R0528

[148] Preservatives key biocidal ingredients to preserve liquid detergents. A call to secure their future availability A.I.S.E. Fact sheet – October 2018 https://www.aise.eu/our-activities/regulatory-context/biocides/preservatives.aspx

cosmetic products ([149]), a recommendation supported by additional studies (Yazar et al., 2015). The harmonized classification H317 (respiratory and skin sensitization) of isothiazolinones was revised in 2018 through the 13th Adaptation to Technical Progress (ATP), establishing specific concentration limits of 0.0015% w/w for MIT and CMIT/MIT (3:1) and 0.05% w/w for BIT. Although isothiazolinones, especially MIT, are widely used due to their high efficacy and effectiveness across a broad pH range even at low concentrations, there is a clear need to encourage the development of safer alternatives. Ecolabels can be instrumental in incentivizing the industry to substitute these substances. Notably, the Nordic Swan Ecolabel has banned MIT from all detergent products except for LD products, acknowledging the rise in skin sensitization and allergies. EU Ecolabel cosmetic products and animal care products excludes all isothiazolinones regardless of the concentration, as part of the formulation or any mixture included in the formulation. Likewise, the EU Ecolabel criteria for absorbent hygiene products and reusable menstrual cups prohibit the use of CMIT and MIT.

Stakeholder consultation through the preliminary detergents questionnaire([150]) showed split views on isothiazolinones, with some claiming no real alternatives in the market ensuring the same microbial formulation stability, and others advocating for stricter limits or prohibition, especially in the case of MIT. 34% of stakeholders agreed with a ban of MIT from HSC products, while 29% disagreed with the exclusion, and 37% expressed no opinion.

Based on the observation of data gathered from the focus stakeholder questionnaire, it is evident that industries have already begun substituting isothiazolinone family preservatives, either partially or completely, with alternative options. These alternatives include phenoxyethanol, sodium benzoate, potassium sorbate, lactic acid, bronopol, sodium pyrithione, DBNPA, essential oils, benzyl alcohol, and glyceryl laurate. However, in certain cases, these alternatives may require higher concentrations to achieve a comparable level of effectiveness as isothiazolinones (e.g. phenoxyethanol). Additionally, it is important to conduct further evaluation of the human and environmental toxicity of these alternative preservatives to determine the possibility of entirely phasing out isothiazolinones.

In light of all the information presented above, it is proposed to exclude Methylisothiazolinone (MIT) and the mixture of chloromethylisothiazolinone (CMIT) and MIT from all EU Ecolabel detergent product groups. This proposal is also influenced by the difficulty in preserving products with the new MIT concentration limit of 0.0015% w/w.

As for benzisothiazolinone (BIT), it is proposed to maintain the current requirements which includes limiting the concentration in the formulation to 0.005% w/w.

Points for discussion 11 – Excluded & Restricted Substances (Isothiazolinones)

Stakeholders are invited to reply the following consultation questions:

- Question 24 (Q24) - Do you agree with the exclusion of MIT and CMIT/MIT from all EU Ecolabel detergent product groups?
- Question 25 (Q25) - Would you agree with the complete exclusion of isothiazolinones from all detergent product groups?
- Question 26 (Q26) - Phenoxyethanol does not have any EU Ecolabel restricted hazards. Do you believe that phenoxyethanol could serve as a viable alternative to isothiazolinones? If not, why?

Phosphorus restrictions

Increased levels of soluble and readily available forms of phosphorus (P) are a leading cause of eutrophication in streams, rivers, and lakes in numerous countries worldwide. (Richards et al., 2015)(Metson et

[149] https://ec.europa.eu/health/scientific_committees/consumer_safety/docs/sccs_o_178.pdf

[150] European Commission, Joint Research Centre, La Placa, M.G.; Vidal Abarca Garrido, C.; Wolf, O, 2022. Assessment of the EU Ecolabel criteria for six Detergent Product Groups. Internal. Document prepared for the European Union Ecolabelling Board (EUEB)

al., 2017). Phosphorus, often in conjunction with nitrogen emissions can lead to nutrient enrichment, prompting harmful changes in the aquatic ecosystem, such as algae overgrowth and increased biomass. In severe cases, this can result in oxygen depletion and the collapse of aquatic life. Algal blooms caused by high phosphorus levels can also lead to increased water turbidity and create taste and odor issues.[151]

It is important to limit the use of phosphorous in the whole range of detergents to reduce environmental impact, but also to preserve the long-term availability of phosphate rock. (Álvarez et al., 2018). Phosphorus is a non-renewable resource with a constantly increasing demand that can only be extracted from phosphate rock, which is primarily found in a few countries, such as China and Morocco. Detergents currently account for approximately 4% of total phosphate rock consumption, and as the quality and economic availability of this resource continue to decline, phosphate rock was added to the fifth European list of critical raw materials in 2023. This list is published in Annex II of the Proposal for a Regulation establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) 168/2013, (EU) 2018/858, 2018/1724 and (EU) 2019/1020.[152]

The primary phosphorus compounds that are significant in environmental and biological contexts are phosphates. The four main sources of phosphates in the environment were identified as: fertilisers, metabolic waste from humans, livestock and detergents. Phosphates are used in detergents to combat water hardness, adjust the PH, increase dirt carrying capacity. The most commonly used phosphate detergents is sodium tripolyphosphate (STPP) which is effective in sequestering hardness salts, removing and preventing encrustation on fibres and acting as a carrier for other detergent ingredients.[153]

To mitigate the environmental impact of phosphorus-containing compounds, numerous measures have been implemented at the European level.

Regulation (EU) No 259/2012[154] amending Detergent Regulation (EC) No 648/200 introduced harmonised rules on the content of phosphates and other phosphorus compounds in detergents for household laundry and automatic dishwashing machines. It sets limitations of 0.5 grams of the total phosphorus content per recommended dosage in laundry detergents and 0.3 grams of the total phosphorus content per standard dosage in consumer automatic dishwasher detergents.

Furthermore, the Urban Waste Water Treatment Directive[155] and the Water Framework Directive[156] provide a legal framework to protect the environment from the adverse effects of urban waste water discharges and discharges from specific industrial sectors. The aim of these directives is to restore clean water across Europe and ensure its sustainable long-term use.

The concentration of phosphate in detergents has decreased drastically in the last two decades[157] and the European Union has made significant progress in promoting the availability and use of phosphate-free and P-free detergent products through the implementation of the Detergent Regulation, which restricts phosphates and other phosphorus compounds. The report from the Commission to the European Parliament and the Council (COM(2015) 229)[158] highlights the progress and confirms the technical feasibility for phosphates-free

151 Human & Environmental Risk Assessment on ingredients of European household cleaning products https://www.heraproject.com/files/13-F-04-%20HERA%20STPP%20full%20web%20wd.pdf

152 Proposal for a Regulation of the European Parliament and of the Council establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) 168/2013, (EU) 2018/858, 2018/1724 and (EU) 2019/1020:https://eur-lex.europa.eu/resource.html?uri=cellar:903d35cc-c4a2-11ed-a05c-01aa75ed71a1.0001.02/DOC_2&format=PDF

153 SWD SEC(2010) 1277 https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SEC:2010:1277:FIN:EN:PDF

154 REGULATION (EU) No 259/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Regulation (EC) No 648/2004 as regards the use of phosphates and other phosphorus compounds in consumer laundry detergents and consumer automatic dishwasher detergents: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:094:0016:0021:EN:PDF

155 Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment: https://eurlex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31991L0271

156 Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy: https://eur-lex.europa.eu/legalcontent/EN/TXT/?uri=CELEX:32000L0060

157 https://www.ikw.org/fileadmin/IKW_Dateien/downloads/Haushaltspflege/2021_IKW_Nachhaltigkeitsbericht.pdf

158 Report from the Commission to the European Parliament and the Council (COM(2015) 229) https://www.europarl.europa.eu/RegData/docs_autres_institutions/commission_europeenne/com/2015/0229/COM_COM(2015)0229_EN.pdf

detergents, noting a large number of patents filed since 2012 for substitution approaches to replace phosphates.

Since phosphates provide a variety of functions, the alternative substances need to address each one of those functions. Therefore, normally it takes a number of different ingredients to achieve the same results. The alternatives for phosphate replacement include chelating agents, dispersant polymers, surfactants and enzymes. Polycarboxylates are used as co-builders for water softening[159]. Phosphonates are mainly used as chelating agents and/or scale inhibitors[160]. Sodium citrate have water-softening properties. Sodium silicates have builder properties, stabilise the bleach system and also inhibit the corrosion of stainless steel and aluminium by synthetic detergents. Other chemicals that are used in phosphate-free detergents and are environmentally friendly chelating agents are mainly glutamic acid diacetic acid (GLDA), hydroxyethyl amino diacetic acid (HEIDA), methyl glycine diacetic acid (MGDA), L-aspartic acid N,N-diacetic acid (ASDA).

The shift towards P-free detergents and market innovation was also influenced by ecolabelled products, which generally contain less phosphorus than regular detergents.(Richards et al., 2015).

The EU Ecolabel has proposed a ban on phosphate from LD, DD, HSC, and HDD, as well as different restrictions on total phosphorus content for these product groups. Additionally, it also restricts the total phosphorus content for IILD and IIDD, depending on the type of product and the water hardness.

Other ISO Type I schemes, such as Nordic Swan and Blue Angel, have stricter limitations on the use of phosphorous content for all product groups when compared to the EU Ecolabel. Details of the comparison are given in Annex I.

In alignment with both Nordic Swan and Blue Angel it is proposed to set a total phosphorous content for LD of 0,03 g/kg of laundry. Additionally, it is proposed to ban alkyl phosphonic acid derivatives and their salts in addition to phosphate, in alignment with Blue Angel. The same exclusion of alkyl phosphonic acid is proposed for DD.

Different approaches to limiting phosphorus content in HSC and HDD products are considered in ecolabel schemes. Nordic Swan prohibits phosphate, phosphonate, phosphoric acid, and phosphonic acids from these product groups. Blue Angel bans phosphate and alkyl phosphonic acid derivatives and their salts, in addition to setting specific limit values for the total P content of elemental phosphorous.

Considering that the EU Ecolabel only excludes the use of phosphate in formulations and has less strict limits on total elemental phosphorous content, it is proposed to align with Blue Angel. This would require the ban of phosphonic acids and their derivatives, as well as lowering the limits on total elemental phosphorous content.

Nordic Swan prohibits the use of phosphate in industrial and institutional detergent products (IILD and IIDD), with an exemption for those used to stabilize H_2O_2 (allowed in concentrations < 0.0100 w-% in the final products) in the case of IILD. Additionally, the Nordic ecolabel sets specific limitations for phosphonates and phosphonic acids. As an alternative to phosphate as a complexing agent, Nordic Swan considers the use of polycarboxylates. Immunosuccinate and cumene sulphonates are used, but because they significantly contribute to anNBO, they are excluded from the calculation of anNBO.

In light of the restrictions set by Nordic Swan, it is reasonable to consider extending the limitations on phosphates to industrial and institutional detergents, along with all other product groups. However, a research study published by the German Federal Environmental Agency in 2021[161], and reported translated results from AISE[162], indicates that there are several trade-offs to be considered regarding the properties of phosphates from environmental, performance, and economic perspectives.

As reported by AISE, the inclusion of phosphates is considered highly beneficial in professional applications where performance is a key concern due to the specific and challenging conditions in which they operate. In

[159] Human & Environmental Risk Assessment (HERA) on ingredients of European household cleaning products Polycarboxylates used in detergentshttps://www.heraproject.com/files/HERA_P-AA_final_v3_23012014.pdf

[160] Human & Environmental Risk Assessment (HERA) on ingredients of European household cleaning products – Phosphonates https://www.heraproject.com/files/30-F-04-%20HERA%20Phosphonates%20Full%20web%20wd.pdf

[161] https://www.umweltbundesamt.de/sites/default/files/medien/5750/publikationen/2021-06-24_texte_98-2021_gewerbliche_phosphateintraege.pdf

[162] https://www.aise.eu/newsroom/aise-news/paper-by-umweltbundesamt-on-the-relevance-of-professional-laundry-and-machine-dishwashing-on-the-entry-of-phosphate-and-other-phosphorus-compounds-p-into-wastewater.aspx

these areas, several influencing factors should be considered, such as temperature, water quantity, time, sanitizing/whitening effects, corrosion protection, amount of detergent, and professional washing machine technologies.

In order to assess the potential ban of phosphate and the further reduction of P content in industrial and institutional detergents, additional analysis and specific evidence from industry representatives will be necessary. The refined quantitative proposal will be developed after a comprehensive analysis of all the data and information gathered through the focus questionnaire. However, the intended course of action is to align with other ISO Type I schemes and to increase the stringency of the requirements, as observations from the questionnaire data suggest the availability of P-free detergent products in the market for all six product groups.

Points for discussion 12 – Excluded & Restricted Substances (Phosphorus)

Stakeholders are invited to reply the following consultation questions:

- Question 27 (Q27) – Would you support proposed LD, DD, HDD, HSC limits? In addition, would you support a further reduction of the limits?
- Question 28 (Q28) – Can you provide P-content value data for IILD and IIDD to help support the criteria revision process and make sure that new values have an appropriate level of ambition?
- Question 29 (Q29) – Would you support the exclusion of phosphate from IILD and IIDD in line with Nordic Swan?

VOCs restriction

One of the most significant classes of potentially toxic indoor air chemicals is Volatile Organic Compounds (VOCs), which encompass a range of chemical compounds including aromatic hydrocarbons, alkane hydrocarbons, aldehydes, aliphatic hydrocarbons, terpenes, chlorinated hydrocarbons, glycol and glycol ethers, and esters (Halios et al., 2022) ([163]). Exposure to these chemicals has been associated with various adverse effects on the respiratory, nervous, and cardiovascular systems, as well as allergic sensitization/irritation and carcinogenicity, with the severity depending on the duration and level of exposure (Halios et al., 2022) ([164]). Additionally, VOCs have been identified as a significant contributor to global warming, altering the concentration of ozone through the formation of ground-level ozone ([165]). Indoor sources of VOCs in residential environments include construction and building materials such as paints, glues, and furnishings, as well as consumer products like air fresheners, personal care products, detergents, cleaning and polishing products (Halios et al., 2022; Paciência et al., 2016; Shrubsole et al., 2019). In particular, detergents and general-purpose cleaners have been identified as sources of diethanolamine, formaldehyde, N-methyl-2-pyrrolidone, trichloroethylene, methanol, methyl isobutyl ketone, ethylbenzene, benzene, ethylene glycol, toluene, acetone, ethanol, isopropyl alcohol, naphthalene, α-pinene, limonene, and xylenes (Knox et al., 2023; Halios et al., 2022). These VOCs in cleaning products serve various purposes, including as solvents, fragrances, preservation or for disinfection ([166]).

The definition of VOCs directly impacts the classification of substances as VOCs and limits setting. This has led to difficulties also in the past, as there is no a unique VOC definition, neither at EU level nor at international level, making it challenging to determine the maximum amount allowed.

In the current EU Ecolabel criteria, VOCs are defined as any organic compound with a boiling point lower than 150 °C at 1 atm. During the stakeholder consultation in the last criteria revision, there was a proposal to align the VOC definition with Directive 1999/13/EC, in which VOC means any organic compound having at 293.15 K

[163] European Commission, "Screening study to identify reduction in VOC emission due to the restrictions in the VOC content of products", BIPro, 2002

[164] WHO, 2021. Literature review on chemical pollutants in indoor air in public settings for children

[165] https://www3.epa.gov/airnow/mediakits/ozone/facts.pdf

[166] European Commission, "Screening study to identify reduction in VOC emission due to the restrictions in the VOC content of products", BIPro, 2002

a vapour pressure of 0.01 kPa or more, or having a corresponding volatility under the particular conditions of use. However, the proposal did not receive favourable feedback. Furthermore, Directive 1999/13/EC is no longer in force. Therefore, at this stage, an alignment with the Directive 1999/13/EC VOC definition is not being proposed.

In addition to Directive 1999/13/EC, which defines VOCs based on vapour pressure at a specific temperature, there is another main VOCs definition in Directive 2004/42/EC. This directive sets a threshold based on the boiling point of the substance (250°C) at a specific pressure (101,3 kPa).
Alignment to Directive 2004/42/EC, i.e. a change in the current definition from 150°C to 250°C, would broaden the scope of organic compounds that would fall under the provisions of the VOC criterion for hard surface cleaning products. As a result, this would lead for example to the inclusion of various glycol ethers that have a higher boiling point than low molecular weight alcohols. To fully understand the impact of this change, it would be important to conduct a thorough analysis of the detergents formulations currently on the market to analyse the chemical and physical properties of the different detergent ingredients. We have received a limited amount of formulation data and various Safety Data Sheets (SDS). However, this data is insufficient to be considered a representative sample of the multitude products awarded with the EU Ecolabel. Furthermore, the SDS do not contain all the necessary information required for our analysis.

One aspect that should be taken into account is that the VOC criterion is also complemented by other criteria requirements, such as restricted hazard classifications and the ban of aromatic hydrocarbons, halogenated hydrocarbons, and formaldehyde and its releasers through the excluded substances criterion. These additional criteria further contribute to VOCs limitations and should be taken into account when determining alignment Directive 2004/42/EC.

Nordic Swan defines VOC in accordance with Directive 1999/13/EC and excludes the use of VOC from cleaning products, with exemptions for isopropanol, ethanol (including denaturing agents) and fragrances. Whereas the other European ISO Type I scheme Blue Angel, sets requirements considering VOCs as any organic compound with a boiling point lower than 150 °C in line with the EU Ecolabel. A direct comparison of VOC limits between Blue Angel and the EU Ecolabel is feasible, as they share the same VOC definition. The stringency and thresholds of the criterion depend on the cleaner's function.

Blue Angel sets significantly stricter limits than the EU Ecolabel for all HSC product categories, with the exception of window cleaners, and also includes VOC limit for HDD as detailed in Table 13 and Annex I.

Table 13. Comparison VOC requirements

	EU Ecolabel	Blue Angel
Product Type	VOC limits in undiluted products	
All-purpose cleaners	30.0 g/l of cleaning solution	1.0 g/l of cleaning solution
Kitchen cleaners	60.0 g/l of cleaning solution	10.0 g/1000g cleaning solution
Sanitary cleaners (EU Ecolabel)	60 g/l of cleaning solution	
Bathroom cleaner s(Blue Angel)		10.0 g/1000g of cleaning solution
Toilet cleaners (Blue Angel)		10.0 g/1000g of cleaning solution
Window cleaners	100.0 g/l of cleaning solution	100.0 g/1000g cleaning solution
Hand dishwashing detergent		0.1 g/l dishwashing water

Based on the information gathered from stakeholders via the focus questionnaire, a decrease in VOCs in the detergent industry over the years has been observed. Consequently, aligning with the higher level of ambition set by Blue Angel seems feasible.

Additionally, considering the availability of various types of VOC-free cleaners in the market based on stakeholders' information, it may be possible to further tighten the limits compared to those proposed at this stage, thereby suggesting lower limits than those set by Blue Angel.

The refined proposal will be elaborated after the full analysis of data and information received from stakeholders has been finalized, as well as after gathering additional specific evidence.

Points for discussion 13 – Excluded & Restricted Substances (VOC)

Stakeholders are invited to reply the following consultation questions:

- Question 30 (Q30) – Would you support alignment with Directive 2004/42/EC and change the current VOC definition from 150°C to 250°C VOC?
- Question 31 (Q31) - Do you support proposed limits? If not, why? In addition, would you support a further reduction of the limits?
- Question 32 (Q32) – Would you support the inclusion of VOC limit for HDD products in line with Blue Angel?

7.6.2. Hazardous substances

Existing sub-criterion (b) hazardous substances

ALL

(*i*) Final product

The final product shall not be classified and labelled as being acutely toxic, a specific target organ toxicant, a respiratory or skin sensitiser, carcinogenic, mutagenic or toxic for reproduction, or hazardous to the aquatic environment, as defined in Annex I to Regulation (EC) No 1272/2008 and in accordance with the list in Table 2.

(*i*) Ingoing substances

The product shall not contain ingoing substances at a concentration limit at or above 0,010 % weight by weight in the final product that meet the criteria for classification as toxic, hazardous to the aquatic environment, respiratory or skin sensitisers, carcinogenic, mutagenic or toxic for reproduction in accordance with Annex I to Regulation (EC) No 1272/2008 and in accordance with the list in Table 2.

Where stricter, the generic or specific concentration limits determined in accordance with Article 10 of Regulation (EC) No 1272/2008 shall take precedence.

Table 2 Restricted hazard classifications and their categorisation

Acute toxicity	
Categories 1 and 2	Category 3
H300 Fatal if swallowed	H301 Toxic if swallowed
H310 Fatal in contact with skin	H311 Toxic in contact with skin
H330 Fatal if inhaled	H331 Toxic if inhaled
H304 May be fatal if swallowed and enters airways	EUH070 Toxic by eye contact
Specific target organ toxicity	
Categories 1	Category 2
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
Respiratory and skin sensitisation	
Categories 1A/1	Category B
H317 May cause allergic skin reaction	H317 May cause allergic skin reaction

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled	H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
Carcinogenic, mutagenic or toxic for reproduction	
Categories 1A and 1B	Category 2
H340 May cause genetic defects	H341 Suspected of causing genetic defects
H350 May cause cancer	H351 Suspected of causing cancer
H350i May cause cancer by inhalation	
H360F May damage fertility	H361f Suspected of damaging fertility
H360D May damage the unborn child	H361d Suspected of damaging the unborn child
H360FD May damage fertility. May damage the unborn child	H361fd Suspected of damaging fertility. Suspected of damaging the unborn child
H360Fd May damage fertility. Suspected of damaging the unborn child	H362 May cause harm to breast fed children
H360Df May damage the unborn child. Suspected of damaging fertility	
Hazardous to the aquatic environment	
Categories 1 and 2	Category 3 and 4
H400 Very toxic to aquatic life	H412 Harmful to aquatic life with long-lasting effects
H410 Very toxic to aquatic life with long-lasting effects	H413 May cause long-lasting effects to aquatic life
H411 Toxic to aquatic life with long-lasting effects	
Hazardous to the ozone layer	
H420 Hazardous to the ozone layer	

This criterion does not apply to ingoing substances covered by Article 2(7)(a) and (b) of Regulation (EC) No 1907/2006 which set out criteria for exempting substances within Annexes IV and V to that Regulation from the registration, downstream user and evaluation requirements. In order to determine whether that exclusion applies, the applicant shall screen any ingoing substance present at a concentration above 0,010 % weight by weight.

Substances and mixtures included in Table 3 are exempted from point (b)(ii) of Criterion 5.

Table 3 Derogated substances

DD, HDD, HSC, IIDD, IILD

Substance	Hazard statement
Surfactants	H400 Very toxic to aquatic life
	H412 Harmful to aquatic life with long-lasting effects

DD, HDD, IIDD, IILD

Subtilisin	H400 Very toxic to aquatic life
	H411 Toxic to aquatic life with long-lasting effects

DD, HDD, HSC, IIDD, IILD

Enzymes (*1)	H317 May cause allergic skin reaction
	H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled

IILD

ε-phthalimido-peroxy-hexanoic acid (PAP) used as bleaching agent at max concentration of 0,6 g/kg of laundry	H400 Very toxic to aquatic life
	H412 Harmful to aquatic life with long-lasting effects
Peracetic acid/hydrogen peroxide used as	H400 Very toxic to aquatic life

	bleaching agent	H410 Very toxic to aquatic life with long-lasting effects
		H412 Harmful to aquatic life with long-lasting effects

DD, HDD, HSC, IIDD, IILD

NTA as an impurity in MGDA and GLDA (*2)	H351 Suspected of causing cancer

(*1) Including stabilisers and other auxiliary substances in the preparations.

(*2) In concentrations lower than 0,2 % in the raw material as long as the total concentration in the final product is lower than 0,10 %.

LD

Substance	Classification according to Regulation (EC) No 1272/2008	Hazard statement
Surfactants	Hazardous to the aquatic environment — Acute Hazard, Category 1	H400: Very toxic to aquatic life
	Hazardous to the aquatic environment — Chronic Hazard, Category 3	H412: Harmful to aquatic life with long-lasting effects
Subtilisin	Hazardous to the aquatic environment — Acute Hazard, Category 1	H400: Very toxic to aquatic life
	Hazardous to the aquatic environment — Chronic Hazard, Category 2	H411: Toxic to aquatic life with long-lasting effects
Enzymes (1)	Skin Sensitisation, Hazard Category 1, 1A, 1B	Respiratory Sensitisation, Hazard Category 1, 1A, 1B
	Respiratory Sensitisation, Hazard Category 1, 1A, 1B	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled
NTA as an impurity in MGDA and GLDA (2)	Carcinogenicity, Hazard Category 2	NTA as an impurity in MGDA and GLDA (*2)

(1) Including stabilisers and other auxiliary substances in the preparations

(2) In concentrations lower than 0,2 % in the raw material as long as the total concentration in the final product is lower than 0,10 %.

ALL

Assessment and verification: the applicant shall demonstrate compliance with this criterion for the final product and for any ingoing substance present at a concentration greater than 0,010 % weight by weight in the final product. The applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, or SDS confirming that none of these substances meets the criteria for classification with one or more of the hazard statements listed in Table 2 in the form(s) and physical state(s) in which they are present in the product.

For substances listed in Annexes IV and V to Regulation (EC) No 1907/2006, which are exempted from registration obligations under points (a) and (b) of Article 2(7) of that Regulation, a declaration to this effect by the applicant shall suffice to comply.

The applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, or SDS confirming the presence of ingoing substances that fulfil the derogation conditions.

Proposed sub-criterion (b) hazardous substances

ALL

(*i*) Final product

The final product shall not be classified ~~and labelled~~ as being acutely toxic, a specific target organ toxicant, a respiratory or skin sensitiser, carcinogenic, mutagenic or toxic for reproduction, or hazardous to the aquatic environment, as defined in Annex I to Regulation (EC) No 1272/2008 and in accordance with the list in Table 2.

(*i*) Ingoing substances

The product shall not contain ingoing substances at a concentration limit at or above 0,010 %

weight by weight in the final product that meet the criteria for classification as toxic, hazardous to the aquatic environment, respiratory or skin sensitisers, carcinogenic, mutagenic or toxic for reproduction in accordance with Annex I to Regulation (EC) No 1272/2008 and in accordance with the list in Table 2.

Where stricter, the generic or specific concentration limits determined in accordance with Article 10 of Regulation (EC) No 1272/2008 shall take precedence.

Table 2 Restricted hazard classifications and their categorisation

Acute toxicity	
Categories 1 and 2	Category 3
H300 Fatal if swallowed	H301 Toxic if swallowed
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H330 Fatal if inhaled	H331 Toxic if inhaled
H304 May be fatal if swallowed and enters airways	EUH070 Toxic by eye contact
Specific target organ toxicity	
Categories 1	Category 2
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
Respiratory and skin sensitisation	
Categories 1A/1	Category B
H317 May cause allergic skin reaction	H317 May cause allergic skin reaction
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled	H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
Carcinogenic, mutagenic or toxic for reproduction	
Categories 1A and 1B	Category 2
H340 May cause genetic defects	H341 Suspected of causing genetic defects
H350 May cause cancer	H351 Suspected of causing cancer
H350i May cause cancer by inhalation	
H360F May damage fertility	H361f Suspected of damaging fertility
H360D May damage the unborn child	H361d Suspected of damaging the unborn child
H360FD May damage fertility. May damage the unborn child	H361fd Suspected of damaging fertility. Suspected of damaging the unborn child
H360Fd May damage fertility. Suspected of damaging the unborn child	H362 May cause harm to breast fed children
H360Df May damage the unborn child. Suspected of damaging fertility	
Hazardous to the aquatic environment	
Categories 1 and 2	Category 3 and 4
H400 Very toxic to aquatic life	H412 Harmful to aquatic life with long-lasting effects
H410 Very toxic to aquatic life with long-lasting effects	H413 May cause long-lasting effects to aquatic life
H411 Toxic to aquatic life with long-lasting effects	
Endocrine disruptors for human health and the environment	
Category 1	Category 2
EUH380: May cause endocrine disruption in humans	EUH381: Suspected of causing endocrine disruption in humans
EUH430: May cause endocrine disruption in the environment	EUH431: Suspected of causing endocrine disruption in the environment
Persistent, Bioaccumulative and Toxic	
PBT	vPvB
EUH440: Accumulates in the environment and	EUH441: Strongly accumulates in the

	living organisms including in humans	environment and living organisms including in humans
	Persistent, Mobile and Toxic	
	PMT	vPvM
	EUH450: Can cause long-lasting and diffuse contamination of water resources	EUH451: Can cause very long-lasting and diffuse contamination of water resource
	Hazardous to the ozone layer	
	H420 Hazardous to the ozone layer	

This criterion does not apply to ingoing substances covered by Article 2(7)(a) and (b) of Regulation (EC) No 1907/2006 which set out criteria for exempting substances within Annexes IV and V to that Regulation from the registration, downstream user and evaluation requirements. In order to determine whether that exclusion applies, the applicant shall screen any ingoing substance present at a concentration above 0,010 % weight by weight.

Substances and mixtures included in Table 3 are exempted from point (b)(ii) of Criterion 5.

Table 3 Derogated substances

DD, HDD, HSC, IIDD, IILD

Substance	Hazard statement
Surfactants	H400 Very toxic to aquatic life
	H412 Harmful to aquatic life with long-lasting effects

DD, HDD, IIDD, IILD

Subtilisin	H400 Very toxic to aquatic life
	H411 Toxic to aquatic life with long-lasting effects

DD, HDD, HSC, IIDD, IILD

Enzymes (*1)	H317 May cause allergic skin reaction
	H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled

IILD

ε-phthalimido-peroxy-hexanoic acid (PAP) used as bleaching agent at max concentration of 0,6 g/kg of laundry	H400 Very toxic to aquatic life
	H412 Harmful to aquatic life with long-lasting effects
Peracetic acid/hydrogen peroxide used as bleaching agent	H400 Very toxic to aquatic life
	H410 Very toxic to aquatic life with long-lasting effects
	H412 Harmful to aquatic life with long-lasting effects

DD, HDD, HSC, IIDD, IILD

NTA as an impurity in MGDA and GLDA (*2)	H351 Suspected of causing cancer

(*1) Including stabilisers and other auxiliary substances in the preparations.

(*2) In concentrations lower than 0,2 % in the raw material as long as the total concentration in the final product is lower than 0,10 %.

LD

Substance	Classification according to Regulation (EC) No 1272/2008	Hazard statement
Surfactants	Hazardous to the aquatic environment — Acute Hazard, Category 1	H400: Very toxic to aquatic life
	Hazardous to the aquatic environment — Chronic Hazard, Category 3	H412: Harmful to aquatic life with long-lasting effects

<table>
<tr><td></td><td>
<table>
<tr><td>Subtilisin</td><td>Hazardous to the aquatic environment — Acute Hazard, Category 1</td><td>H400: Very toxic to aquatic life</td></tr>
<tr><td></td><td>Hazardous to the aquatic environment — Chronic Hazard, Category 2</td><td>H411: Toxic to aquatic life with long-lasting effects</td></tr>
<tr><td>Enzymes ([1])</td><td>Skin Sensitisation, Hazard Category 1, 1A, 1B</td><td>Respiratory Sensitisation, Hazard Category 1, 1A, 1B</td></tr>
<tr><td></td><td>Respiratory Sensitisation, Hazard Category 1, 1A, 1B</td><td>H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled</td></tr>
<tr><td>NTA as an impurity in MGDA and GLDA ([2])</td><td>Carcinogenicity, Hazard Category 2</td><td>NTA as an impurity in MGDA and GLDA (*2)</td></tr>
</table>
([1]) Including stabilisers and other auxiliary substances in the preparations
([2]) In concentrations lower than 0,2 % in the raw material as long as the total concentration in the final product is lower than 0,10 %.
</td></tr>
<tr><td>ALL</td><td>
Assessment and verification: the applicant shall demonstrate compliance with this criterion for the final product and for any ingoing substance present at a concentration greater than 0,010 % weight by weight in the final product. The applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, or SDS confirming that none of these substances meets the criteria for classification with one or more of the hazard statements listed in Table 2 in the form(s) and physical state(s) in which they are present in the product.

For substances listed in Annexes IV and V to Regulation (EC) No 1907/2006, which are exempted from registration obligations under points (a) and (b) of Article 2(7) of that Regulation, a declaration to this effect by the applicant shall suffice to comply.

The applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, or SDS confirming the presence of ingoing substances that fulfil the derogation conditions.
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</table>

<u>*Rationale for the proposed sub-criterion (b) hazardous substances*</u>

This sub-criterion is directly linked to the requirements given in the EU Ecolabel Regulation (EC) No 66/2010 which states that:

> "*The EU Ecolabel may not be awarded to goods containing substances or preparations/mixtures meeting the criteria for classification as toxic, hazardous to the environment, carcinogenic, mutagenic or toxic for reproduction (CMR), in accordance with 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, nor to goods containing substances referred to in Article 57 of Regulation (EC) No 1907/2006 of the European parliament and the Council of 18 December 2006 concerning the Registration, evaluation, authorization of chemicals (REACH) establishing a European Chemicals Agency*".

The identification of potential sources of hazard is based on a list of hazard classes, categories and hazard statement codes that are grouped based on the CLP classification and labelling rules and harmonised across different EU Ecolabel product groups. The list generally refers to substances. However, if information on substances cannot be obtained, the classification rules for mixtures apply.

The EU Ecolabel Regulation allows derogations to be included for specific substances under strictly defined conditions:

> "*For specific categories of goods containing substances referred to in paragraph 6, and only in the event that it is not technically feasible to substitute them as such, or via the use of alternative materials or designs, or in the case of products which have a significantly higher overall environment performance compared with other goods of the same category, the Commission may adopt measures to grant derogations from paragraph 6*".

Substances and mixtures with endocrine disrupting properties are a significant concern for public health and the environment. Research has demonstrated that endocrine disruption can lead to a range of human disorders. Additionally, substances and mixtures with PBT or vPvB properties are of high concern due to their resistance to breakdown in the environment and their tendency to accumulate in living organisms throughout the food chain. Similarly, PMT and vPvM substances pose concerns because of their high persistence and mobility, allowing them to enter the water cycle and spread over long distances, including in drinking water.

The use of these substances in detergents is also prohibited. In fact, in December 2022, the Commission published a proposal for a revised Regulation on the classification, labelling, and packaging of chemicals (CLP)([167]) which includes a Delegated Act([168]) to introduce new hazard classes for endocrine disruptors, PBT, and PMT substances. These new hazard classes are included in the sub-criterion (b): Hazardous substances and in Table XX of Restricted hazard classifications and their categorization.

Points for discussion 14 – Titanium Dioxide derogation

Stakeholders are invited to reply the following consultation questions:

- Question 33 (Q33) – Is titanium dioxide used in detergent products? If so, in which products, for what purpose and at what levels?
- Question 34 (Q34) – Would you support a derogation for TiO2 in EUEL criteria for the classification of H351? If so, please also clarify if your support is only for liquid detergent products or also for powder detergent products. Note that this assumes that the harmonised classification for TiO2 is maintained as a result of the ongoing legal disputes ([169],[170])

7.6.3. Substances of very high concern (SVHCs)

Existing sub-criterion (c) substances of very high concern (SVHCs)	
ALL	The final product shall not contain any ingoing substances that have been identified in accordance with the procedure described in Article 59(1) of Regulation (EC) No 1907/2006, which establishes the candidate list for substances of very high concern.
ALL	*Assessment and verification:* the applicant shall provide a signed declaration of compliance supported by declarations from their suppliers, if appropriate, or SDS confirming the non-presence of all the candidate list substances. Reference to the latest list of substances of very high concern shall be made on the date of application.
Proposed sub-criterion (c) substances of very high concern (SVHCs)	

[167] https://ec.europa.eu/commission/presscorner/detail/en/ip_22_7775

[168] https://environment.ec.europa.eu/publications/clp-delegated-act_en

[169] Judgment of the General Court (Ninth Chamber, Extended Composition) of 23 November 2022. CWS Powder Coatings GmbH and Others v European Commission. Environment and protection of human health – Regulation (EC) No 1272/2008 – Classification, labelling and packaging of substances and mixtures – Delegated Regulation (EU) 2020/217 – Classification of titanium dioxide in powder form containing 1% or more of particles of a diameter equal to or below 10 µm – Criteria for classification of a substance as carcinogenic – Reliability and acceptability of studies – Substance that has the intrinsic property to cause cancer – Calculation of lung overload in particles – Manifest errors of assessment. Cases T-279/20 and T-288/20. https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:62020TJ0279

[170] Case C-82/23 P: Appeal brought on 14 February 2023 by the European Commission against the judgment of the General Court (Ninth Chamber, Extended Composition) delivered on 23 November 2022 in joined Cases T-279/20 and T-288/20, CWS Powder Coatings and Others v Commission, and in Case T-283/20, Billions Europe and Others v Commission. OJ C 127, 11.4.2023, p. 26–27. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:62023CN0082

ALL	The final product shall not contain any ingoing substances that have been identified in accordance with the procedure described in Article 59(1) of Regulation (EC) No 1907/2006, which establishes the candidate list for substances of very high concern.
ALL	*Assessment and verification:* the applicant shall provide a signed declaration of compliance supported by declarations from their suppliers, if appropriate, or SDS confirming the non-presence of all the candidate list substances. Reference to the latest list of substances of very high concern shall be made on the date of application.

1951

1952 *Rationale for the proposed sub-criterion (c) substances of very high concern (SVHCs)*

1953 Similarly to sub-criterion (b), sub-criterion (c) is directly linked to the EU Ecolabel Regulation (EC) No 66/2010,
1954 which states that no substances of very high concern (SVHC) can be present in EU Ecolabel products. It also
1955 specifies that:

1956 "*no derogation shall be given concerning substances that meet the criteria of Article 57 of Regulation*
1957 *(EC) No 1907/2006 (REACH) and that are identified according to the procedure described in Article*
1958 *59(1) of that Regulation, present in mixtures, in an article or in any homogeneous part of a complex*
1959 *article in concentrations higher than 0,1 % (weight by weight)*".

1960 Article 57 defines the criteria for the inclusion of substances in Annex XIV of the REACH Regulation (in relation
1961 to their classification according to the CLP Regulation) as follows:

1962 (a) substances meeting the criteria for classification in the hazard class carcinogenicity category 1A
1963 or 1B;
1964 (b) substances meeting the criteria for classification in the hazard class germ cell mutagenicity
1965 category 1A or 1B;
1966 (c) substances meeting the criteria for classification in the hazard class reproductive toxicity category
1967 1A or 1B, adverse effects on sexual function and fertility or on development;
1968 (d) substances which are persistent, bioaccumulative and toxic;
1969 (e) substances which are very persistent and very bioaccumulative;
1970 (f) substances — such as those having endocrine disrupting properties or those having persistent,
1971 bioaccumulative and toxic properties or very persistent and very bioaccumulative properties, which do
1972 not fulfil the criteria of points (d) or
1973 (e) — for which there is scientific evidence of probable serious effects to human health or the
1974 environment which give rise to an equivalent level of concern to those of other substances listed in
1975 points (a) to (e) and which are identified on a case-by-case basis in accordance with the procedure
1976 set out in Article 59.

1977 Article 59 sets the procedure for the identification of substances referred to in Article 57. The updated list of
1978 SVHCs is available on the European Chemicals Agency website: https://www.echa.europa.eu/candidate-list-
1979 table. The applicant is asked to refer to the latest version of this list at the date of application.

1980

1981 ### 7.6.4. Fragrances

Existing sub-criterion (d) fragrances	
DD, HDD, HSC, IILD, LD	Any ingoing substance added to the product as a fragrance shall be manufactured and handled following the code of practice of the International Fragrance Association (IFRA) ([171]). The recommendations of the IFRA Standards concerning prohibition, restricted use and specified

[171] Available at the IFRA website http://www.ifraorg.org

	purity criteria for substances shall be followed by the manufacturer.
HDD	Fragrances shall not be used in hand dishwashing detergents for professional use.
IIDD	Industrial and institutional dishwasher products shall not contain any fragrances.
DD, HDD, HSC, IILD, LD	*Assessment and verification:* the supplier or fragrance manufacturer, as appropriate, shall provide a signed declaration of compliance.
IIDD	*Assessment and verification:* the applicant shall provide a signed declaration of compliance.
Proposed sub-criterion (d) fragrances	
DD, HDD, HSC, IILD, LD	Products marked as "mild/sensitive" shall be fragrance-free. Substances listed under Table 13-1 of the SCCS opinion on 'Fragrance allergens in cosmetic products' ([172]) shall not be present in EU Ecolabel products in concentrations higher than 0,010% (by weight) per substance. Fragrances which are prohibited according to Annex II to the Cosmetics Regulation ([173]) shall not be present in EU Ecolabel products in concentrations ≥ 0,010 % (by weight) per substance. Any ingoing substance added to the product as a fragrance shall be manufactured and handled following the code of practice of the International Fragrance Association (IFRA) ([174]). For such ingoing substances, ~~T~~the recommendations of the IFRA Standards concerning prohibition, restricted use and specified purity criteria for substances shall be followed by the manufacturer.
HDD	Fragrances shall not be used in hand dishwashing detergents for professional use.
IIDD	Industrial and institutional dishwasher products shall not contain any fragrances.
DD, HDD, HSC, IILD, LD	*Assessment and verification:* the applicant shall provide a signed declaration of compliance, supported by a signed declaration of compliance from the supplier or fragrance manufacturer, as appropriate, safety data sheets for any fragrance formulations used and calculations, if necessary, to demonstrate compliance with the 0,010 % thresholds in the detergent product for Table 13-1 or Annex II fragrance substances.~~shall provide a signed declaration of compliance.~~
IIDD	*Assessment and verification:* the applicant shall provide a signed declaration of compliance.

Rationale for the proposed (d) fragrances

The majority of ecolabelling schemes, including the EU Ecolabel, require that fragrances used in labelled products are manufactured and handled in accordance with the code of practice of the International Fragrance Association (IFRA), which is available at http://www.ifraorg.org. This is a requirement in the currently valid criteria for all product groups and has been agreed to be kept in the revised EU Ecolabel criteria.

The IFRA Code of Practice is a self-regulating system of the industry, based on risk assessments carried out by an independent Expert Panel. It is a comprehensive document that indicates fragrance products that are deemed as safe for use by the consumer and to the environment. It applies to the manufacture and handling

[172] Available at: https://ec.europa.eu/health/scientific_committees/consumer_safety/docs/sccs_o_102.pdf

[173] Regulation (EC) No. 1223/2009 of the European Parliament and of the Council on cosmetic products. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02009R1223-20231201

[174] Available at the IFRA website http://www.ifraorg.org

of all fragrance materials, for all types of applications and contains the full set of IFRA Standards. Abiding to the IFRA Code of Practice is a prerequisite for all fragrance supplier companies that are members of IFRA (either directly or through national associations).

Amendments to the Code, if required, are issued annually, based on new scientific developments. These contain either new usage restrictions or revisions of existing usage restrictions.

However, given the concern with allergies and skin sensitisation in the general population, there is motive for EU Ecolabel products to go beyond industry self-regulation. Many fragrance substances have been demonstrated to possess allergenic properties, as evidenced by Table 13-1 of the opinion of the Scientific Committee on Consumer Safety (SCCS) in 2012[175]. The SCCS opinion identified over 80 fragrance allergens but no "safe use concentrations" for these substances have been determined for their use in cosmetics products. This was part of the reasoning why EU Ecolabel criteria for cosmetic products introduced this restriction on "Table 13-1 fragrance substances". Although the potential exposure to fragrances in detergent products is arguably less severe than in cosmetics products, there is still the risk of exposure via inhalation (with the consumer perception of surfaces and clothes needing to "smell clean") and via dermal contact, especially with hard surface cleaners and hand dishwashing detergents.

Due to the vast number of fragrance substances and the data gaps that still exist in testing for allergenic and sensitising properties, it is proposed that any EU Ecolabel detergent products claiming "mild" or "sensitive" properties must also be fragrance free. This is aligned with the EU Ecolabel criteria for cosmetic products similar to the Blue Angel DE-UZ 194 criteria for hand dishwashing detergents and hard surface cleaners and DE-UZ 202 for laundry detergents.

The Blue Angel criteria also prevent any fragrances listed in Annex II to the Cosmetics Regulation (EC) No. 1223/2009 from being present in detergent products at concentrations of 0,010% by weight or more. This seems reasonable given that the substances in Annex II are actually banned from being used in cosmetics products. However, Annex II is very large, containing over 1700 substances, and it is not clear how many of these are fragrances. Consequently, we propose to align with the Blue Angel criteria on this point, but subject to further research.

It is also worth mentioning here that the Blue Angel criteria go further, also limiting any fragrances listed in Annex III to the Cosmetics Regulation (EC) No. 1223/2009 in the same way that they limit Annex II substances. In the initial EUEL revision proposals it has not been decided to align with this requirement because these substances are not actually banned in cosmetic products, but just limited. Further research is proposed to look at which of the ca. 400 entries in Annex III correspond to fragrance substances and to see what types of hazardous properties these substances exhibit before making any general blanket restrictions.

Fragrances are banned altogether in IIDD products and allowed in household DD products mainly because they can be used to mask the smell of certain ingredients. Consumers generally do not need or want their washed utensils to "smell" clean. The extent to which fragrance substances are actually used in EUEL licensed DD products will be evaluated before deciding on how valid this supported argument for allowing fragrances in DD products is.

The complexity of fragrance formulations and the very broad range of potentially hundreds of substances of which they can be composed, has meant that life cycle inventories are generally inadequate for conducting any precise assessments of the impacts of different fragrance formulations. In the background research conducted using EF datasets, a single proxy fragrance formulation was used (consisting of four different fragrance substances at 15% each, plus a 40% share of solvent/binder which was considered as benzoic acid as a proxy).

A sensitivity analysis on how much the removal of fragrance compounds from a liquid laundry detergent would affect results (i.e. going from 0.7% to 0%) caused whole life cycle normalised results to drop by between 1% and 11% for all PEF impact categories. The most affected categories were: mineral and metal resource depletion (MR, -11%), ecotoxicity (ETox, -9%), human toxicity-carcinogenic (HTox-c, -8%) and ozone depletion (OD, -7%). These impacts are highly significant considering the fact that the reductions also include

[175] See SCCS/1459/11: The SCCS opinion on fragrance allergens in cosmetic products. Available here: https://ec.europa.eu/health/scientific_committees/consumer_safety/docs/sccs_o_102.pdf

impacts from the other life cycle stages, including energy consumption in the use phase, which tended to dominate the overall life cycle impacts of laundry detergents.

While the impacts of fragrance formulations are therefore significant for some impact categories, LCA is not the best tool to justify any specific recommendations. However, given the fact that 2 of the most affected impact categories are toxicity-related, this would support any specific hazard substance or CDV value-related restrictions for individual fragrance ingredients.

7.6.5. Preservatives

Existing sub-criterion (e) preservatives	
ALL	(i) The product may only include preservatives in order to preserve the product, and in the appropriate dosage for this purpose alone. This does not refer to surfactants which may also have biocidal properties. (ii) The product may contain preservatives provided that they are not bio-accumulating. A preservative is considered to be not bio-accumulating if the BCF is < 100 or log K_{ow} is < 3,0. If both the BCF and log K_{ow} values are available, the highest measured BCF value shall be used. (iii) It is prohibited to claim or suggest on the packaging or by any other communication that the product has an antimicrobial or disinfecting effect.
ALL	*Assessment and verification:* the applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, along with the SDS of any preservative added and information on its BCF or log K_{ow} values. The applicant shall also provide artwork of the packaging.
Proposed sub-criterion (e) preservatives	
ALL	(i) The product may only include preservatives in order to preserve the product, and in the appropriate dosage for this purpose alone. This does not refer to surfactants which may also have biocidal properties. (ii) The product may contain preservatives provided that they are not bio-accumulating. A preservative is considered to be not bio-accumulating if the BCF is < ~~100~~500 or log K_{ow} is < ~~3,0~~4,0. If both the BCF and log K_{ow} values are available, the highest measured BCF value shall be used. (iii) It is prohibited to claim or suggest on the packaging or by any other communication that the product has an antimicrobial or disinfecting effect.
ALL	*Assessment and verification:* the applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, along with the SDS of any preservative added and information on its BCF or log K_{ow} values. The applicant shall also provide artwork of the packaging.

Rationale for the proposed sub-criterion (e) preservatives

According to the Biocidal Product Regulation (BPR (EC) No 528/2012/EC),

"*biocide means any substance or mixture, in the form in which it is supplied to the user, consisting of, containing or generating one or more active substances, with the intention of destroying, deterring, rendering harmless, preventing the action of, or otherwise exerting a controlling effect on, any harmful organism by any means other than mere physical or mechanical action"*

They are used in detergent products for preservation purposes. They prevent the product from spoiling during storage by preventing the growth of microorganism.

There is no definition for biocides/preservatives included in the Detergents Regulation and only a reference to preservation agents and the Council Directive 76/768/EEC (the Cosmetics Directive) is made. However, Article

2 (1) of Regulation (EC) No 1223/2009 on cosmetic products (which substituted the Cosmetics Directive since July 2013) defines:

> '*preservatives' as "substances which are exclusively or mainly intended to inhibit the development of micro-organisms in the cosmetic product*".

A preservative's function is to ensure that products are safe to be used by consumers over a long period of time and to maintain the appearance of the product.

Nevertheless, the use of preservatives can also be cause for concern as they are often toxic to aquatic organisms and can also produce hypersensitivity and allergies. Moreover, the combination of toxicity, poor degradability and bioaccumulation raises the potential for environmental damage. For this reason it is proposed that the use of preservatives is restricted in EU Ecolabel products.

In accordance with the BPR, preservatives shall only be used only for preservation purposes and properly dosed for this function. This means minimal amounts shall be used and only for the most necessary reasons. Additionally, the sub-criterion requires that the preservatives used shall not be bioaccumulating. In the existing criteria, the cut-off values (BCF is < 100 or log K_{ow} is < 3,0) derive from the Dangerous Substances Directive (DSD). However, the DSD Directive was replaced by Regulation EC 1272/2008 (CLP Regulation), which allowed less stringent thresholds. Therefore, it is proposed to align with the CLP Regulation and Nordic Swan, and define the bioaccumulating thresholds as BCF < 500 and log Kow < 4.0. This approach would also be aligned with the most recent criteria for Cosmetics and Animal Care Products[176].

In addition, it is prohibited to claim or suggest on the packaging or by any other communication that the product has antimicrobial or disinfecting effects in accordance with the common agreed approach on what the EU Ecolabel stands for.

Finally, additional restrictions on the use of preservatives can be found in the list of excluded substances in the sub-criterion (a) and refer to specific substances, which, as agreed along the revision process should not be used for the preservation purposes in the EU Ecolabel. These cover the exclusion of the following preservatives: formaldehyde and its releasers (e.g. 2-bromo-2-nitropropane-1,3- diol, 5-bromo-5-nitro-1,3-dioxane, sodium hydroxyl methyl glycinate, diazolinidyl urea), triclosan and also MIT with the new proposal of its inclusion in the list of excluded substances. In addition, the restrictions also include the exclusion of another isothiazolinones, CMIT, through the ban on organic chlorine compounds, in the new proposal, in line with Nordic Swan.

Preservatives are generally needed in liquid detergent products except in some cases where the alcohol content or certain surfactants that have anti-microbial properties themselves can deliver effective in-can preservation. However, using surfactants for this purpose in order to have biocide-free formulations will also tend to increase the CDV result of the formulation because if their higher toxicity.

While there are only a limited number of preservative compounds used in liquid detergent products, the availability of EF datasets for these substances was low. This restricted the accuracy and precision of any LCA results looking at the effect of changing or reducing preservative concentrations.

A sensitivity analysis on how much replacing a typically used preservative (proxy EF dataset: Benzo[thia]diazole) with less hazardous alternatives (proxies of benzyl alcohol and lactic acid) in laundry detergents showed that normalised LCA results could be reduced by typically 1-2% for most impact categories, but much more (e.g. 6-9%) for mineral and metal resource depletion and human toxicity (carcinogenic). However, those reductions assumed a 1-to-1 replacement of the preservatives, which is unlikely to be the case in real formulations. This uncertainty, coupled with lack of specific EF datasets for individual preservative substances, means that the LCA findings are purely for orientation and highlight that a notable contribution to human toxicity impacts can apply.

Similar to the situation with fragrances, the LCA findings imply that the best approach to take with EU Ecolabel criteria would be to restrict the use of the more toxic varieties of this type of detergent ingredient. This could potentially be applied via specific CLP hazard code restrictions and/or CDV value restrictions.

[176] Commission Decision (EU) 2021/1870 https://eur-lex.europa.eu/eli/dec/2021/1870/oj

7.6.6. Colouring agents

Existing sub-criterion (f) colouring agents	
ALL	Colouring agents in the product shall not be bio-accumulating. A colouring agent is considered not bio-accumulating if the BCF is < 100 or log K_{ow} is < 3,0. If both the BCF and log K_{ow} values are available, the highest measured BCF value shall be used. In the case of colouring agents approved for use in food, it is not necessary to submit documentation of bio-accumulation potential.
ALL	*Assessment and verification:* the applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, along with the SDS of any colouring agent added and information on its BCF or log K_{ow} value, or documentation to ensure that the colouring agent is approved for use in food.
Proposed sub-criterion (f) colouring agents	
ALL	Colouring agents in the product shall not be bio-accumulating. A colouring agent is considered not bio-accumulating if the BCF is < ~~100~~500 or log K_{ow} is < ~~3,04~~,0. If both the BCF and log K_{ow} values are available, the highest measured BCF value shall be used. In the case of colouring agents approved for use in food, it is not necessary to submit documentation of bio-accumulation potential.
ALL	Assessment and verification: the applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, along with the SDS of any colouring agent added and information on its BCF or log K_{ow} value, or documentation to ensure that the colouring agent is approved for use in food.

Rationale for the proposed sub-criterion (f) Colouring agents

Colorants are primarily added to products for aesthetic reasons; however, many of them are toxic. In an effort to minimize the environmental and health-related impacts of these ingredients, the EU Ecolabel excludes colorants that may bioaccumulate. This criterion applies to all EU Ecolabel criteria sets related to detergents and cleaning products, ensuring harmonized requirements across all product groups.

In the existing criteria in force the BCF and log Kow cut-off values come from the Dangerous Substances Directive (DSD). However, the DSD Directive was replaced by Regulation EC 1272/2008 (CLP Regulation), allowing more relaxed thresholds. Therefore, it was proposed to align with the CLP Regulation and Nordic Swan, and define the bioaccumulating thresholds as BCF < 500 and log Kow < 4.0.

Colorants serve no functional purpose in detergent products and are mainly used in small quantities in order to address consumer perception issues associated with the product. A growing market trend in liquid detergent products (laundry detergents, hand dishwashing detergents and hard surface cleaners) is that they are colourant-free. Consequently, a sensitivity analysis on colourants in detergent products was conducted in the background research to see what would be the effect of removing the colourant in a liquid laundry detergent formulation, simply by substituting it for more water in a new, colourant-free hypothetical formulation. This would entail reducing the colourant content from 0.03% to 0.00%.

The normalised LCA impacts in the colourant-free product over its entire life cycle were marginally reduced by 0.1% to 0.2% for most impacts, and notably more for the metal and mineral resource depletion (a 1.7% reduction). However, the findings from this sensitivity analysis are undermined by the fact that a fully representative colourant dataset was not identified in the initial screening studies and instead, a proxy consisting of an equal mix of 6 pigments was used instead. The real impacts of colourants could probably be higher if adequate proxies are defined for substances used to make organic dyes.

Regardless of the uncertainties surrounding the precise impacts of colourant ingredients, it can be assumed that they account for a greater share of the LCA impacts that their simple share in the liquid laundry detergent formulation by a factor of at least 3-4. This factor could be higher still in HDD or HSC products

since they have higher water contents, meaning that each % change in non-water ingredients is more significant.

7.6.7. Enzymes

Existing sub-criterion (e) enzymes	
ALL	Only enzyme encapsulated (in solid form) and enzyme liquids/slurries shall be used.
ALL	*Assessment and verification:* the applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, along with the SDS of any enzyme added.
Proposed sub-criterion (f) colouring agents	
ALL	Only enzyme encapsulated (in solid form) and enzyme liquids/slurries shall be used.
ALL	Assessment and verification: the applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, along with the SDS of any enzyme added.

Rationale for the proposed sub-criterion (g) Enzymes

The use of enzymes in detergent formulations is relatively common and brings environmental benefits as it allows better and faster removal of proteins at lower washing temperatures, often after a preliminary soaking. From a formulation perspective, enzymes only make up a small proportion of total laundry detergent formulations, but can allow for major reductions in the needed quantities of surfactants. For example, in two white papers published by Novozymes:

- Powder laundry detergent (Latin American market formulas) surfactant content could be reduced from 15% to 10% when increasing the enzyme content from 0.20% to 0.66%. The higher enzyme formulation delivered improved stain removal performance, lowered the cost of ingredients by 10%, reduced gCO2/wash by 9.0g and reduced CDV by 5.2m3/wash.
- Liquid laundry detergent (Asian market formulas) surfactant content could be reduced from 18% to 12.9% while increasing enzyme content from 0.2% to 0.48%. Ther higher enzyme formulation delivered improved stain removal performance, lowered the cost of ingredients by 8%, reduced gCO2/wash by 10.0g and reduced CDV by 11.5m3/wash.

Similar benefits can no doubt be expected with laundry detergent formulations used in the European market. In general, these multi-faceted benefits of reduced ingredient cost, improved stain removal, reduced carbon footprint and lower aquatic toxicity impacts have led to the widespread use of enzymes in laundry detergents.

However, it can also cause health and environmental problems due to enzyme scattering and impurity. The latter is dealt with in Directive 2009/41/EC ([177]), while the former is addressed through this criterion. The scattering of enzymes is reduced as long as they are in a form that cannot be inhaled by employees during the manufacturing process or by end users.

Indeed, initially enzymes used in detergent products were causing allergies and irritation to both, employees in during the manufacturing processes and end users. In order to eliminate this issue, dust-free forms of enzymes were developed and are available for detergent formulations (Krishna 2011). Liquid and slurry forms can also be safely used.

[177] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32009L0041

Moreover, in June 2015 the industry association AISE published a revised version of guidelines on the safe handling of enzymes (AISE 2015). These guidelines specify two main forms of enzyme products supplied to detergent manufacturers:

- Enzyme encapsulates (in solid form, for manufacture of powders or tablets),
- Enzyme liquids/slurries.

Powdered enzymes are excluded due to the higher risk of enzyme dust generation and the encapsulated ones must meet a set quality standard on "the level of free enzyme dust present in the bulk material and/or the resistance of the encapsulate to damage within the process".

As enzymes can be used in different detergent and cleaning products, it is proposed to include in all criteria documents the text: *"Only enzyme encapsulates (in solid form) and enzyme liquids/slurries shall be used".*

7.6.8. Corrosive properties (Only for HDD)

Existing sub-criterion (h) corrosive properties	
HDD	The final product shall not be classified as a 'Corrosive' (C) mixture with H314 Causes severe skin burns and eye damage, as a 'Skin corrosion/irritating, categories 1A, 1B, 1C' mixture in accordance with Regulation (EC) No 1272/2008.
HDD	*Assessment and verification:* The applicant shall provide the competent body with the exact concentrations of all ingoing substances used in the product, either as part of the formulation or as part of any mixture included in the formulation, that are classified as 'Corrosive' (C) with H314 in accordance with Regulation (EC) No 1272/2008, along with the product SDS.
Proposed sub-criterion (h) Corrosive properties	
HDD	The final product shall not be classified as a 'Corrosive' (C) mixture with H314 Causes severe skin burns and eye damage, as a 'Skin corrosion/irritating, categories 1A, 1B, 1C' mixture in accordance with Regulation (EC) No 1272/2008.
HDD	*Assessment and verification:* The applicant shall provide the competent body with the exact concentrations of all ingoing substances used in the product, either as part of the formulation or as part of any mixture included in the formulation, that are classified as 'Corrosive' (C) with H314 in accordance with Regulation (EC) No 1272/2008, along with the product SDS.

Rationale for the proposed sub-criterion (h) Corrosive properties

Corrosive properties are assigned to chemicals (mainly acids and bases) that can attack and chemically destroy exposed body tissues. The inclusion of this criterion of high relevance for hand dishwashing detergents as they come in direct, and sometimes prolonged, contact with skin.

No changes are proposed for this sub-criterion.

7.6.9. Micro-organisms *(Only for LD, HSC)*

Existing sub-criterion (h) micro-organisms	
HSC	(i) Identification: all intentionally added micro-organisms shall have an American Type Culture Collection (ATCC) number, belong to a collection of an International Depository Authority (IDA) or have had their DNA identified in accordance with a 'Strain identification protocol' (using 16S ribosomal DNA sequencing or an equivalent method). (ii) Safety: all intentionally added micro-organisms shall belong to both of the following: — Risk Group I as defined by Directive 2000/54/EC of the European Parliament and of the Council

	([178]) — biological agents at work, — the Qualified Presumption of Safety (QPS) list issued by the European Food Safety Authority (EFSA). (iii) Absence of contaminants: pathogenic micro-organisms, as defined below, shall not be in any of the strains included in the finished product when screened using the indicated test methods or equivalent: — E. coli, test method ISO 16649-3:2005, — Streptococcus (Enterococcus), test method ISO 21528-1:2004, — Staphylococcus aureus, test method ISO 6888-1, — Bacillus cereus, test method ISO 7932:2004 or ISO 21871, — Salmonella, test method ISO6579:2002 or ISO 19250. (iv) All intentionally added micro-organisms shall not be genetically modified micro-organisms (GMMs). (v) Antibiotic susceptibility: all intentionally added micro-organisms shall be, with the exception of intrinsic resistance, susceptible to each of the five major antibiotic classes (aminoglycoside, macrolide, beta-lactam, tetracycline and fluoroquinolones) in accordance with the EUCAST disk diffusion method or equivalent. (vi) Microbial count: products in their in-use form shall have a standard plate count equal to or greater than 1×10^5 colony-forming units (CFU) per ml in accordance with ISO 4833-1:2014. (vii) Shelf life: the minimum shelf life of the product shall not be lower than 24 months and the microbial count shall not decrease by more than 10 % every 12 months in accordance with ISO 4833-1:2014. (viii) Fitness for use: the product shall fulfil all the requirements set out in Criterion 6 on fitness for use and all claims made by the manufacturer on the actions of the micro-organisms contained in the product shall be documented through third-party testing. (ix) Claims: it is prohibited to claim or suggest on the packaging or by any other communication that the product has an antimicrobial or disinfecting effect. (x) User information: the product label shall include the following information: — that the product contains micro-organisms, — that the product shall not be used with a spray trigger mechanism, — that the product should not be used on surfaces in contact with food, — an indication of the shelf life of the product.
HSC	*Assessment and verification:* the applicant shall provide: (i) The name (to the strain) and identification of all micro-organisms contained in the product with ATCC or IDA numbers or documentation on DNA identification. (ii)Documentation demonstrating that all micro-organisms belong to Risk Group I and the QPS list. (iii) Test documentation demonstrating that the pathogenic micro-organisms are not present in the product. (iv) Documentation demonstrating that all micro-organisms are not GMMs.

[178] Directive 2000/54/EC of the European Parliament and of the Council of 18 September 2000 on the protection of workers from risks related to exposure to biological agents at work (seventh individual directive within the meaning of Article 16(1) of Directive 89/391/EEC) (OJ L 262, 17.10.2000, p. 21). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32000L0054

	(v) Test documentation demonstrating that all micro-organisms are, with the exception of intrinsic resistance, susceptible to each of the five major antibiotic classes indicated. (vi) Test documentation of CFU per ml of in-use solution (for undiluted products, the dilution ratio recommended for 'normal' cleaning shall be used). (vii) Test documentation of CFU per ml of in-use solution every 12 months for a product stored until the end of its shelf life. (viii) Test results from a third-party laboratory demonstrating the claimed actions of the micro-organisms and artwork of the packaging or a copy of the product's label highlighting any claims made on the actions of the micro-organisms. (ix) and (x) Artwork of the packaging or a copy of the product's label.
Proposed sub-criterion (h) micro-organisms	
HSC, LD	(i) Identification: all intentionally added micro-organisms shall have an American Type Culture Collection (ATCC) number, belong to a collection of an International Depository Authority (IDA) or have had their DNA identified in accordance with a 'Strain identification protocol' (using 16S ribosomal DNA sequencing or an equivalent method). (ii) Safety: — ~~a~~All intentionally added micro-organisms shall belong to ~~both of the following:~~ Risk Group I as defined by Directive 2000/54/EC of the European Parliament and of the Council ([179]) — biological agents at work, — ~~the Qualified Presumption of Safety (QPS) list issued by the European Food Safety Authority (EFSA).~~ — The outcome of a microbial risk assessment should be that the risk associated with the use of a product containing microorganisms is deemed as acceptable. (iii) Absence of contaminants: pathogenic micro-organisms, as defined below, shall not be in any of the strains included in the finished product when screened using the indicated test methods or equivalent: — E. coli, test method ISO 16649-3:2005, — Streptococcus (Enterococcus), test method ISO 21528-1:2004, — Staphylococcus aureus, test method ISO 6888-1, — Bacillus cereus, test method ISO 7932:2004 or ISO 21871, — Salmonella, test method ISO6579:2002 or ISO 19250. (iv) All intentionally added micro-organisms shall not be genetically modified micro-organisms (GMMs). (v) Antibiotic susceptibility: all intentionally added micro-organisms shall be, with the exception of intrinsic resistance, susceptible to each of the five major antibiotic classes (aminoglycoside, macrolide, beta-lactam, tetracycline and fluoroquinolones) in accordance with the EUCAST disk diffusion method or equivalent. (vi) Microbial count: products in their in-use form shall have a standard plate count equal to or greater than 1×10^5 colony-forming units (CFU) per ml in accordance with ISO 4833-1:2014. (vii) Shelf life: the minimum shelf life of the product shall not be lower than 24 months and the microbial count shall not decrease by more than 10 % (measured in logarithmic scale) every 12

[179] Directive 2000/54/EC of the European Parliament and of the Council of 18 September 2000 on the protection of workers from risks related to exposure to biological agents at work (seventh individual directive within the meaning of Article 16(1) of Directive 89/391/EEC) (OJ L 262, 17.10.2000, p. 21). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32000L0054

	months in accordance with ISO 4833-1:2014. (viii) Fitness for use: the product shall fulfil all the requirements set out in Criterion 6 on fitness for use and all claims made by the manufacturer on the actions of the micro-organisms contained in the product shall be documented through third-party testing. (ix) Claims: it is prohibited to claim or suggest on the packaging or by any other communication that the product has an antimicrobial or disinfecting effect. (x) User information: the product label shall include the following information: — that the product contains micro-organisms, — that the product shall not be used with a spray trigger mechanism, — that the product should not be used on surfaces in contact with food, — an indication of the shelf life of the product.
HSC	*Assessment and verification:* the applicant shall provide: (i) The name (to the strain) and identification of all micro-organisms contained in the product with ATCC or IDA numbers or documentation on DNA identification. (ii)Documentation demonstrating that all micro-organisms belong to Risk Group I ~~and the QPS list~~ and documentation on the microbial risk assessment, certified by an independent third-party expert, where the risk associated with the intended use of the product is deemed as acceptable. (iii) Test documentation demonstrating that the pathogenic micro-organisms are not present in the product. (iv) Documentation demonstrating that all micro-organisms are not GMMs. (v) Test documentation demonstrating that all micro-organisms are, with the exception of intrinsic resistance, susceptible to each of the five major antibiotic classes indicated. (vi) Test documentation of CFU per ml of in-use solution (for undiluted products, the dilution ratio recommended for 'normal' cleaning shall be used). (vii) Test documentation of CFU per ml of in-use solution every 12 months for a product stored until the end of its shelf life. (viii) Test results from a third-party laboratory demonstrating the claimed actions of the micro-organisms and artwork of the packaging or a copy of the product's label highlighting any claims made on the actions of the micro-organisms. (ix) and (x) Artwork of the packaging or a copy of the product's label.

Rationale for the proposed micro-organisms

The aim of this criterion is to ensure that the use of microorganisms as ingredient in detergent and cleaning products is compatible with product cleaning and environmental performance but also, and importantly, with safety.

In the previous revision this sub-criterion was included in order to accommodate microorganisms as a novel (at that time) ingredient used in HSC products, included in the so called "microbial cleaning products". This also aimed to anticipate to the inclusion of such ingredients as part of the legislative landscape via the Detergents Regulation. For full details on the background details on this matter, please see previous revision final TR ([180]), PR report (preliminary and market analysis chapters) and within this TR1, the scope section.

[180] European Commission, Joint Research Centre, Boyano, A.; Kaps, R.; Medyna, G.; Wolf, O, 2016. Revision of six EU Ecolabel criteria for detergents and cleaning products. Final Technical Report. Available at https://susproc.jrc.ec.europa.eu/product-

As mentioned in this TR1, the revised Detergent Regulation effectively includes microorganisms within its scope. As part of JRC's research, it become apparent that, whilst still in development as an innovation, there were evidences about existing LD products containing microorganisms. Considering this, the proposal is not only to expand LD scope to be compatible with such products but also to make the necessary changes (if any needed due to the nature of LD products) to the existing criterion dealing with products containing microorganisms (currently, HSC products).

Besides implications of scope expansion to other product groups, the criterion has been revised with the intention to improve it. During this process, JRC identified that:

- The Qualified Presumption of Safety (QPS) list issued by the European Food Safety Authority (EFSA) is not in strict terms a confirmatory prove of safety (yet its associated information can be useful in this sense).
- The list of pathogenic microorganisms enumerated might be limited, as highlighted in exchanges with experts (e.g. EFSA).
- It was not specified which was the scale in which it should be measured the allowed 10% decrease per year in terms of microbial count.

Given that QPS list inclusion is no longer proposed and that safety is relative to the type of product used, its function and context of use, it is proposed to assess safety in relative terms via a microbial risks assessment certified an independent third-party expert. The assessment of the safety of microbial cleaning products, from the perspective of manufacturers and the risk associated with these products, has been one of the recent industrial sector developments that developed a framework for the risk assessment of this type of products. In this sense, industry are better prepared to carry out a microbial risk analysis, which then can be validated by an independent third-party.

Further work is currently carried by JRC, especially on engaging with relevant experts on microbial containing products to better understand the nature of such products within each product group.

Points for discussion 15 – Micro-organisms

Stakeholders are invited to reply the following consultation question:

- Question 35 (Q35) – do you support requiring a microbial risk assessment as a proof of safety? If not, do you have any proposal to assess microbial containing products safety?
- Question 36 (Q36) – do you have any suggestion to complement the microorganisms list in (iii)
- Question 37 (Q37) – do you support the threshold set (*equal or greater than 1 × 10^5 CFU*) to prove product performance via microbial counts? If not, could you share reasons?
- Question 38 (Q38) – do you support current shelf-life requirements (vi)? Do you consider it represents properly also products falling under LD scope?

7.7. Packaging

Packaging is an increasingly critical environmental concern, with the EU generating an estimated 188.7 kg of packaging waste per inhabitant in 2021. The most common materials for packaging waste are paper and cardboard, representing 40.3% of total packaging waste in 2021, followed by plastic (19%), glass, wood, and metal. The waste stream has grown by 23.5% since 2010, with a 6% increase in packaging waste in 2021 compared to 2020[181].

bureau/sites/default/files/contentype/product_group_documents/1581681262/Technical%20background%20report.pdf (Accessed 10/07/23)

[181] https://ec.europa.eu/eurostat/statisticsexplained/index.php?title=Packaging_waste_statistics#Waste_generation_by_packaging_material

Despite this, packaging is essential for reducing potential product damage from the environment, facilitating content identification, and providing important information such as ingredients, safety, and dosage advice. From a life cycle perspective, packaging is not the most significant environmental impact for detergent products. However, environmental aspects related to packaging have improvement potential and can be addressed in the EU Ecolabel criteria.

The policy tool that harmonizes national measures for managing packaging and packaging waste at the EU level is the Packaging and Packaging Waste Directive (PPWD) 94/62/EC[182]. Its primary objective is to reduce the environmental impact of packaging and packaging waste by promoting the use of recyclable and reusable materials and encouraging the recycling and recovery of packaging waste to prevent final disposal.

The EU Ecolabel aims to address the environmental challenges associated with packaging waste and sees a potential contribution in setting ambitious requirements. The packaging provisions proposed in the packaging criterion goes above and beyond the requirements set out in the PPWD.

The packaging criterion is structured into various sub-criteria, each serving different and complementary objectives, which will be detailed in the subsequent sections in the following order:

1. (X) Recycled materials content (for LD, DD, HDD, HSC)
2. (X) Weight/utility ratio (WUR)
3. (X) Design for recycling
4. (X) Products sold in spray bottles (Only for HSC)
5. (X) Packaging take-back systems (Only for HSC, IIDD, IILD)

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7.7.1. Recycled materials content

NEW sub-criterion (x) recycled materials content	
LD DD HDD HSC	The criterion sets requirements for sales packaging (primary packaging) and grouped packaging (secondary packaging). a) Paper/cardboard used for packaging Sales packaging (primary packaging) made of paper and/or cardboard shall contain a minimum 80 % of recycled material. Grouped packaging (secondary packaging) made of paper and/or cardboard shall contain a minimum 70 % of recycled material. Cardboard packaging for liquid products is exempt from this requirement. The remaining share (100% minus recycled content percentage) of paper and/or cardboard used for the sales and grouped packaging shall be covered by valid Sustainable Forestry Management certificates issued by an independent third-party certification scheme such as FSC, PEFC or equivalent. The certification bodies issuing Sustainable Forestry Management certificates shall be accredited/recognised by that certification scheme. b) Plastic used for packaging Sales packaging (primary packaging) made of PET shall contain a minimum of 70% recycled material (PCR - recycled plastic made from post-consumer recycled), other plastics (e.g. HDPE) shall contain a minimum of 50% recycled material (PCR).

[182] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A01994L0062-20180704

	All closures and trigger closures (e.g. removable closures and pump dosers) and pounches are exempt from this requirement. Recycled content and recyclability of sales packaging (primary packaging) and grouped packaging (secondary packaging) shall be indicated on the sales packaging. The recycled content stated on the packaging shall refer to the total weight (body, closure, label/sleeve and trigger closure). *Assessment and verification*: The applicant shall submit: (1) a signed declaration of compliance specifying the percentages of recycled content in the sales (primary) and grouped (secondary) packaging when relevant; (2) a high resolution photograph of the sales packaging where information regarding recycled content appear clearly. The applicant shall provide audited accounting documents that demonstrate that the remaining share (100% minus recycled content percentage) of the paper and/or cardboard used for the sales and grouped packaging is defined as certified material according to valid FSC, PEFC or equivalent schemes. The audited accounting documents shall be valid for the whole duration of the EU Ecolabel license. Recycled content shall be verified by complying with the EN 45557 or ISO 14021. Plastic recycled content in the packaging shall comply with chain of custody standards such as ISO 22095 or EN 15343. Equivalent methods may be accepted if considered equivalent by a third-party, and shall be accompanied by detailed explanations showing compliance with this requirement and related supporting documentation. Invoices demonstrating the purchase of the recycled material shall be provided.

Rationale for the proposed (x) recycled materials content

The European Union has implemented a circular economy action plan that focuses on sectors that consume most resources and have a high potential for circularity, such as packaging. The goal of this new sub-criterion is to introduce percentages of recycled content in detergent products packaging to support the EU's circular economy objectives.

As reported before the PPWD aims to reduce the environmental impact of packaging and packaging waste by promoting the use of recyclable and reusable materials, and by encouraging recycling and recovery of packaging waste. The Directive is currently undergoing revision, and some of the new proposals include increased recycling targets to promote a more circular economy and decrease the amount of packaging waste sent to landfills.

The revised PPWD proposal includes mandatory targets for recycled content, varying by packaging type. Following a vote by the EU Parliament in November 2023, amendments related to mandatory minimum percentages of recycled content were adopted[183].

Starting from January 1, 2030, plastic packaging must contain the following minimum percentages of recycled content:

- 30% for contact-sensitive packaging, made from polyethylene terephthalate (PET) as the major component; except single use beverage bottles,

- 7.5% for contact-sensitive packaging made from plastics other than PET, excluding single-use plastic beverage bottles

- 30% for single-use plastic beverage bottles

- 35% for plastic packaging other than those mentioned above

Regarding paper and cardboard, the Impact Assessment accompanying the PPWD proposal[184] stated that:

[183] https://www.europarl.europa.eu/doceo/document/TA-9-2023-0425_EN.html
[184] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A01994L0062-20180704

-Relatively high levels of recycled content uptake are possible in most other paper/card packaging applications because recycling rates for cardboard and/or paper are high in the EU (84.6% in 2017), meaning there is a good supply of secondary material[185].

- It is technically possible to include a significant proportion of recycled content in cardboard and/or paper packaging, although the recycling process does gradually shorten and weaken the fibres, and so for certain applications virgin fibres must also be used to achieve the performance requirements of the packaging. As a general estimate, fibres can be recycled between 4 and 7 times before they can no longer be used in the paper manufacturing process[186].

Industry representatives, consulted during bilateral meetings, indicated a mature technological market where packaging with high recycled content is available. It was highlighted that recycled content for secondary packaging is already in use between 60 and 90% and that the content depends on the mechanical properties of the packaging (e.g. for logistics and transport).

For plastics, industry representatives specified that up to 100% PCR is used for PET bottles, and up to 50-60% for HDPE. However, there are some compromises in using recycled content, such as product quality and performance in relation to colour choices, stability of the product or packaging for the desired aim (i.e some incompatibility with formulations requiring UV blocking (e.g. opaque packaging)). Other factors to consider for recycled content include packaging format (weight/volume) taking into account the capacity of the bottles and whether or not a handle is needed.

The study ([187]) on "Recycled Content in Plastics with a Focus on PET, HDPE, LDPE, PP" highlights additional factors to consider in using recycled plastics[188], such as:

- Further recyclability of materials: only single-origin polymer streams are easily recyclable, but once recycled, obtaining single-origin material is challenging, complicating further recycling.

- Material safety: substances that are not destroyed in the recycling process and remain in the material can impact material safety.

- Price of recycled plastics: the price is often higher than that of their fossil fuel counterparts.

Requirements to promote the use of recycled materials and preserve virgin resources have been introduced in various ecolabel schemes, such as the latest voted EU Ecolabel criteria for absorbent hygiene products and the Nordic Swan and Blue Angels schemes for detergents, as detailed in Annex I.

In light of all the above, it is proposed to include this new sub-criterion introducing specific percentages of recycled content for paper/cardboard and plastics, with provisions that exceed the PPWD Directive. This will ensure greater environmental ambition and the ability to respond to new industrial/technical innovations and developments in the political landscape.

The proposal aligns with Blue Angels requirements, specifying a minimum of 80% PCR for paper/cardboard in primary packaging and a minimum of 70% PCR for paper/cardboard in secondary packaging. Cardboard packaging for liquid products is exempt from this requirement.

Additionally, the remaining share of paper and/or cardboard must be covered by valid Sustainable Forestry Management certificates issued by an independent third-party certification scheme such as FSC, PEFC, or equivalent.

For plastics, a minimum of 70% PCR for PET is required, and a minimum of 50% PCR for other plastics, with specific exclusions for closures, trigger, dosers, pounches.

The importance of packaging on the overall life cycle impacts of the different detergent product categories covered by the EU Ecolabel was assessed using a combination of values for packaging weights found in LCA literature and in EU Ecolabel license applications. To start with, assuming that all packaging materials were of

[185] EUROSTAT Recycling rates for packaging waste,https://ec.europa.eu/eurostat/databrowser/view/ten00063/default/table?lang=en (

[186] Australian Packaging Covenant Design Smart Material Guide: Fibre-Based Packaging, https://www.australianpackagingassessment.com.au/wp-content/uploads/2017/11/2.-Fibre_DSMG.pdf

[187] GIZ, 2022. 'Recycled content in plastic material with focus on PET, HDPE, LDPE, PP'. Available at: https://www.giz.de/de/downloads/2021-06%20Recycled%20Content%20in%20plastic%20material_barrierefrei.pdf

[188] GIZ, 2022. 'Recycled content in plastic material with focus on PET, HDPE, LDPE, PP'. Available at: https://www.giz.de/de/downloads/2021-06%20Recycled%20Content%20in%20plastic%20material_barrierefrei.pdf

virgin origin, the packaging impacts (of primary packaging and secondary packaging material production) were as follows.

Table 14. Share of non-normalised LCA impact category results for packaging materials on whole LCA result

	LLD	PLD	DD	HDD	HSC-KC*	HSC-ATC**
AP	7.8%	1.4%	7.1%	3.3%	38.1%	6.8%
CC	8.0%	0.9%	2.6%	1.4%	69.0%	15.1%
CC-fossil	8.5%	1.0%	2.7%	1.4%	69.6%	15.1%
CC-biogenic	0.3%	0.0%	0.5%	0.1%	13.8%	30.9%
CC-LULUC	21.9%	11.6%	29.1%	8.5%	35.1%	10.3%
ETox	8.8%	0.4%	6.0%	2.7%	64.1%	27.3%
PM	8.1%	2.0%	12.1%	10.3%	40.9%	5.1%
E-Ma	5.4%	1.2%	6.8%	1.5%	28.9%	3.5%
E-Fr	0.9%	0.2%	2.7%	0.1%	24.3%	5.0%
E-Te	10.6%	2.5%	9.5%	3.4%	31.5%	5.5%
HTox-c	3.9%	0.3%	6.2%	1.8%	53.3%	14.5%
HTox-nc	4.6%	0.4%	3.0%	0.8%	52.2%	8.7%
IR	3.1%	0.2%	0.2%	7.5%	118.8%	13.7%
LU	105.6% ***	408.9%***	57.2%	-61.3%†	80.7%	25.6%
OD	0.1%	0.0%	3.9%	0.2%	27.4%	2.1%
POF	13.2%	3.0%	10.2%	3.0%	42.0%	11.5%
ER	12.9%	0.7%	3.2%	2.1%	96.4%***	29.9%
MR	2.5%	0.5%	33.5%	89.9%***	113.1%***	3.4%
WU	0.9%	0.2%	1.6%	0.6%	20.4%	-0.3%†

*KC stands for Kitchen Cleaner. **ATC stands for Acid Toilet Cleaner. ***some results can be unusually high, even exceeding 100% in cases where the total impacts also included larger negative contributions from other life cycle stages (which, when positive and negative are added together, the total life cycle impacts can cancel out and be similar to or even less than those of just the packaging stage). † Negative values for packaging need to be checked to make sure that it does not stem from recycled content unintentionally included in background data.

The next part of the LCA research involved conducting a sensitivity analysis to see what would happen if the plastic packaging was changed to 100% recycled content and cardboard to 88% recycled content (with the same packaging weights as before). The sensitivity analysis showed some common traits amongst all detergent products but also some notable differences. The % changes in normalised impacts were as follows:

Table 15. Change in normalised LCA impact category results when shifting to recycled content packaging

	LLD	PLD	DD	HDD	HSC-KC*	HSC-ATC**
AP	-0.9%	-0.2%	-0.2%	-0.6%	-0.6%	-0.2%
CC	+0.4%	+0.2%	-0.1%	-0.3%	-2.2%	+1.9%
ETox	-1.3%	0.0%	-0.1%	-0.9%	+2.7%	+0.4%
PM	-0.2%	0.0%	-0.2%	-2.1%	-2.7%	0.0%
E-Ma	-0.8%	-0.2%	-0.3%	-0.4%	-3.1%	-0.5%
E-Fr	-0.1%	0.0%	-0.1%	0.0%	-3.0%	-1.6%
E-Te	-1.4%	-0.3%	-0.4%	-0.8%	-3.0%	-0.6%
HTox-c	-0.5%	0.0%	-0.1%	-0.7%	-12.4%	-2.3%
HTox-nc	+0.1%	+0.1%	-0.1%	-0.2%	+12.4%	+2.0%
IR	+0.3%	0.0%	0.0%	+2.0%	+61.8%	+12.4%
LU	-35.2%	-41.9%	-23.5%	-25.0%	-72.9%	-22.5%
OD	0.0%	0.0%	0.0%	0.0%	+1.3%	+0.8%
POF	-2.6%	-0.6%	-0.7%	-0.9%	-4.4%	-1.8%
ER	-0.7%	+0.2%	0.0%	-0.6%	-1.2%	+1.0%
MR	0.0%	0.0%	-0.1%	-48.4%	-60.2%	-0.2%
WU	+0.5%	+0.1%	0.0%	0.0%	-0.1%	+0.6%

*KC stands for Kitchen Cleaner. **ATC stands for Acid Toilet Cleaner. ***some results can be unusually high, even exceeding 100% in cases where the total impacts also included larger negative contributions from other life cycle stages (which, when positive and negative are added together, the total life cycle impacts can cancel out and be similar to or even less than those of just the packaging stage). † Negative values for packaging need to be checked to make sure that it does not stem from recycled content unintentionally included in background data.

All product categories showed substantial reductions (-22% to -73%) in land use impacts thanks to the use of recycled content in packaging. When PET was the main primary packaging material (i.e with HDD and HSC-KC products) the use of recycled content triggered major reductions (-48% and -60%) in metal and mineral resource depletion (MR). This benefit was not seen when going from virgin HDPE to recycled HDPE (i.e. the HSC-ATC product).

It was interesting to note that not all the changes were beneficial. All of the detergent products showed some small increases in some of the impact categories when shifting to recycled content packaging. In some cases, these increases were more substantial, especially for the IR impacts for both HSC products (+62% and +12%) and for HTox-nc for the HSC-KC product (+12%).

Points for discussion 16 – Recycled materials content

Stakeholders are invited to reply the following consultation question:

— Question 39 (Q39) – Should there be a requirement on recyclability of plastic in the grouped packaging (secondary packaging)?

7.7.2. Weight/utility ratio (WUR)

Existing sub-criterion (x) weight/utility ratio (WUR)

ALL

The weight/utility ratio (WUR) of the product shall be calculated for the primary packaging only and shall not exceed the following values for the reference dosage.

DD

Product type	WUR (g/wash)
Dishwasher detergents	2,4
Rinse aids	1,5

HDD

Product type	WUR (g/l of washing water)
Hand dishwashing detergent	0,6

HSC

Product type	WUR (g/l of cleaning solution)
Undiluted products	15
RTU products	150
RTU products sold in bottles with trigger sprays	200

IIDD

Water hardness Product type	Soft < 1,5 mmol $CaCO_3$/l (g/l of washing solution)	Medium 1,5-2,5 mmol $CaCO_3$/l (g/l of washing solution)	Hard > 2,5 mmol $CaCO_3$/l (g/l of washing solution)
Powders	0,8	1,4	2,0
Liquids	1,0	1,8	2,5

IILD

Water hardness Product type	Soft < 1,5 mmol $CaCO_3$/l (g/kg of laundry)	Medium 1,5-2,5 mmol $CaCO_3$/l (g/kg of laundry)	Hard > 2,5 mmol $CaCO_3$/l (g/kg of laundry)
Powders	1,5	2,0	2,5
Liquids	2,0	2,5	3,0

LD

Product type	WUR (g/kg of laundry)
Powder laundry detergents Laundry detergents in tablets or capsules	1,2
Liquid/gel laundry detergents (not in tablets or capsules)	1,4
Stain remover (pre-treatment only)	1,2

ALL	Primary packaging made of more than 80 % of recycled materials is exempted from this requirement.
ALL	*Assessment and verification:* the applicant shall provide the calculation of the WUR of the product. If the product is sold in different packaging (i.e. with different volumes), the calculation shall be submitted for each packaging size for which the EU Ecolabel shall be awarded. The WUR is calculated as follows: $$\mathbf{WUR} = \sum \frac{(W_i + U_i)}{(D_i + R_i)}$$ Where: W_i: weight (g) of the primary packaging (i); U_i: weight (g) of non-post-consumer recycled packaging in the primary packaging (i). $U_i = W_i$ unless the applicant can prove otherwise; D_i: number of reference doses contained in the primary packaging (i); R_i: refill index. $R_i = 1$ (packaging is not reused for the same purpose) or $R_i = 2$ (if the applicant can document that the packaging component can be reused for the same purpose and they sell refills). The applicant shall provide a signed declaration of compliance confirming the content of post-consumer recycled material, along with relevant documentation. Packaging is regarded as post-consumer recycled if the raw material used to make the packaging has been collected from packaging manufacturers at the distribution stage or at the consumer stage.

Proposed sub-criterion (x) weight/utility ratio (WUR)

ALL: The weight/utility ratio (WUR) of the product shall be calculated for the sales packaging (primary packaging) only and shall not exceed the following values for the reference dosage.

DD

Product type	WUR (g/wash)
Dishwasher detergents	~~2,4~~ 2,0
Rinse aids	~~1,5~~ 0,4

HDD

Product type	WUR (g/l of washing water)
Hand dishwashing detergent	~~0,6~~0,3

HSC

Product type	WUR (g/l of cleaning solution)
Undiluted products	~~15~~1,0
RTU products	150
RTU products sold in bottles with trigger sprays	~~200~~175

IIDD

Water hardness Product type	Soft < 1,5 mmol $CaCO_3$/l (g/l of washing solution)	Medium 1,5-2,5 mmol $CaCO_3$/l (g/l of washing solution)	Hard > 2,5 mmol $CaCO_3$/l (g/l of washing solution)
Powders	0,8	1,4	2,0
Liquids	1,0	1,8	2,5

IILD

Water hardness Product type	Soft < 1,5 mmol $CaCO_3$/l (g/kg of laundry)	Medium 1,5-2,5 mmol $CaCO_3$/l (g/kg of laundry)	Hard > 2,5 mmol $CaCO_3$/l (g/kg of laundry)
Powders	1,5	2,0	2,5
Liquids	2,0	2,5	3,0

LD

Product type	WUR (g/kg of laundry)
Powder laundry detergents Laundry detergents in tablets or capsules	~~1,2~~1,0

		Liquid/gel laundry detergents (not in tablets or capsules)	~~1,4~~1,1
		Stain remover (pre-treatment only)	1,2
ALL	Sales packaging (primary packaging) made of more than 80 % of recycled materials is exempted from this requirement.		
ALL	*Assessment and verification:* the applicant shall provide the calculation of the WUR of the product. If the product is sold in different packaging (i.e. with different volumes), the calculation shall be submitted for each packaging size for which the EU Ecolabel shall be awarded. The WUR is calculated as follows: $$\mathbf{WUR} = \sum \frac{(W_i + U_i)}{(D_i + R_i)}$$ Where: W_i: weight (g) of the sales packaging (primary packaging) (i); U_i: weight (g) of non-post-consumer recycled packaging in the sales packaging (primary packaging) (i). $U_i = W_i$ unless the applicant can prove otherwise; D_i: number of reference doses contained in the sales packaging (primary packaging) (i); R_i: refill index. R_i = 1 (packaging is not reused for the same purpose) or R_i = 2 (if the applicant can document that the packaging component can be reused for the same purpose and they sell refills). The applicant shall provide a signed declaration of compliance confirming the content of post-consumer recycled material, along with relevant documentation. Packaging is regarded as post-consumer recycled if the raw material used to make the packaging has been collected from packaging manufacturers at the distribution stage or at the consumer stage.		

Rationale for the proposed (x) weight/utility ratio (WUR)

The weight-utility ratio (WUR) serves the purpose of reducing packaging volume and promoting the use of recycled materials, thereby aiding in the reduction of unnecessary transportation and air emissions, leading to lower CO_2 emissions. The WUR measures the amount of packaging used to deliver a specific product benefit.

Generally, lighter packaging costs less to transport and store, and its manufacturing and distribution require less energy and fewer raw materials. However, there are trade-offs. Excessive reduction of packaging can result in flimsy packaging and undesirable consequences, such as product deterioration, spillage, or uncontrolled dosing.

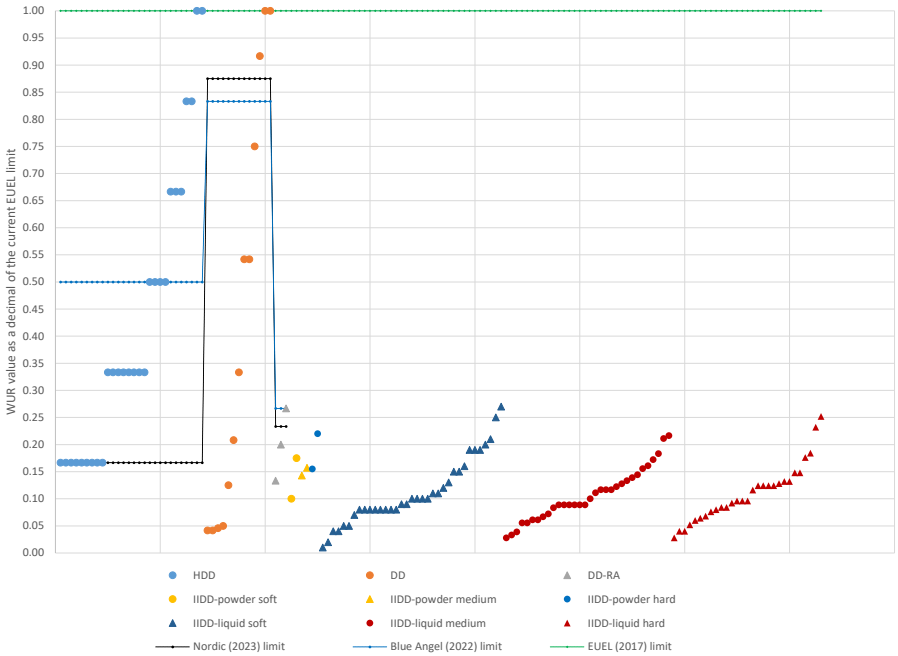
The WUR is a measure of the packaging mass required to deliver the reference dosage for a detergent. This indicator aims to limit packaging use and promote the incorporation of recycled materials. Additionally, the potential for refillability and reusability of the packaging is positively factored into the WUR calculation.

Anonymised data provided by Competent Bodies for actual WUR values of different detergent products that have been awarded the EU Ecolabel allowed for a broad analysis to be conducted. In order to facilitate the side-by-side comparison of different categories and sub-categories of products, the WUR results were divided by the applicable EUEL limit to create a unitless coefficient of between 0 and 1 for each data point. These points can then be compared to the EUEL limit, or the limits for Blue Angel (BA) and the Nordic Swan (NS), which are represented by lines. Data points are also arranged in ascending order to allow for a better distinction between data sets and to see better how the data is spread vertically. Relevant observations, including comparison to BA and NS thresholds, are made for each product (sub-group) groups, including suggestion for criterion's threshold revision.

Before commenting further, it has to be clarified that the data gathered so far is just a fraction of the total number of EU ecolabelled products and thus it is unclear if this data is fully representative of the other ecolabelled products in these categories. This is precisely why further input and stakeholder confirmation on the validity of the proposed thresholds is capital. Nevertheless, the analysis is robust in providing a clear direction for the revision (decreasing the limits) being only susceptible to change how much that reduction should be per product (sub-groups).

For HDD, DD and IIDD products, the data collected can be represented in Figure 5..

Figure 11. Plot of WUR values for different sub-categories of EUEL licensed HDD, DD and IIDD products in comparison to different ecolabel limits.



First of all, comparing the limits for WUR of the three ISO type I ecolabel schemes (the green, black and blue lines) shows that both the Blue Angel and the Nordic Swan are more ambitious than the EUEL in the following ways:

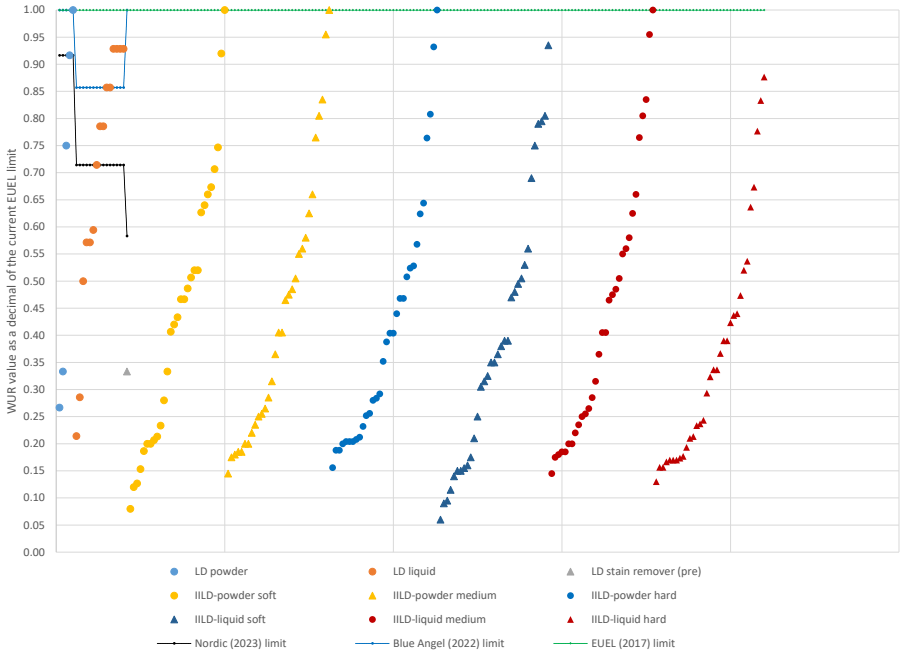
- For HDD products, Blue Angel limits were 50% lower and Nordic Swan around 83% lower (0.3 and 0.1 versus 0.6g/L washing water for EUEL, see Annex I).
- For DD products, Blue Angel limits were around 17% lower and Nordic Swan 12.5% lower (2.0 and 2.1 versus 2.4g/wash for EUEL, see Annex I).
- For DD Rinse Aids, Blue Angel limits were around 73% lower and Nordic Swan around 77% lower (0.4 and 0.35 versus 1.5g/wash for EUEL, see Annex I).
- For IIDD limits, no comparison was possible because the Blue Angel does not include these products in its scope and the Nordic Swan, while including them in its scope, does not set WUR limit values.

From the results, it can be seen that the data for HDD is clustered, but that the clusters spread out across the entire packaging range. The fact that the larger clusters appear at the lower end of the WUR values implies that it is possible to comply with lower packaging materials. In the data provided it is interesting to note that most of the EUEL HDD products in the graph above would fail to meet the Nordic Swan limit and a significant fraction of them would struggle to meet the Blue Angel requirement.

For DD Rinse Aids, although there are only three data points, all the results are at least 70% below the EUEL limit, which suggests that this limit should be significantly reduced. Likewise, the data trends for IIDD products suggest that the current EUEL limits are not challenging at all.

For LD and IILD products, the data collected can be represented in Figure 12

Figure 12. Plot of WUR values for different sub-categories of EUEL licensed LD and IILD products in comparison to different ecolabel limits.



The EU Ecolabel WUR values for powder household laundry detergents are generally aligned with the Blue Angel but are around 10% higher than the limits for Nordic Swan. With liquid/gel laundry detergents, both the Blue Angel (around 15% lower) and the Nordic Swan (around 29% lower) are more stringent. For a comprehensive overview of the limits of other ISO Type I schemes, please refer to Annex I for full details.

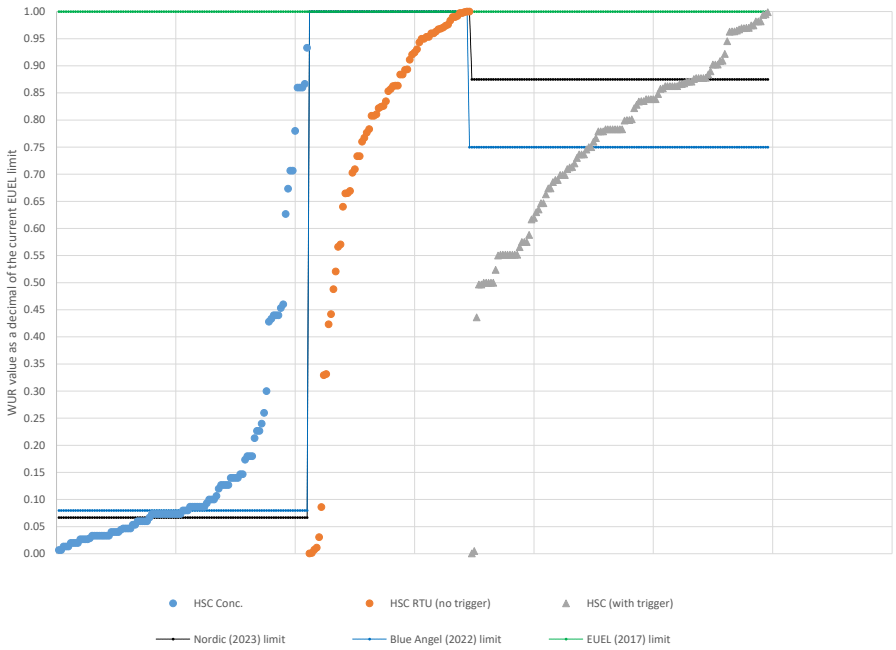
Note that for IILD limits, no comparison was possible because the Blue Angel does not include these products in its scope and the Nordic Swan, while including them in its scope, does not set WUR limit values.

From the results, it is evident that the data for various forms of household laundry detergent (LD) - powder and liquid - as well as IILD for different product forms and water hardness, are distributed across the entire range of packaging. These findings suggest the potential for a reduction of approximately 30% in WUR values, along with the implementation of stricter limits to align with other ISO Type schemes, where feasible. Overall, the distribution of data indicates there is room for improvement, regardless of the product format or water hardness.

For HSC products, the data collected can be represented in

Figure 13

Figure 13. Plot of WUR values for different sub-categories of EUEL licensed HSC products in comparison to different ecolabel limits.



The limits for RTU products with no trigger spray set out in Nordic Swan and Blue Angel align with the EU Ecolabel but are not clearly distinguishable from the graph due to overlap. However, the WUR limits are much lower in the Blue Angel and Nordic Swan criteria for concentrated products and slightly lower for RTU products with no trigger. For a comprehensive understanding of the limits of other ISO Type I schemes, please refer to Annex I.

The clustering of data of RTU products with no trigger spray at the high end of the WUR values, close to the EU Ecolabel and other ISO Type I limits, suggests limited potential for improvement for this type of products. Conversely, for undiluted products, the aggregation of data at the lower end of the WUR values indicates the possibility of a significant reduction in EU Ecolabel WUR values, aligning with the requirements of Blue Angel and Nordic Swan. The spread of data for RTU products with trigger sprays suggests some limited room for improvement for EUEL limits.

Following the previous analysis, a clear direction has been identified for revising the WUR limits. However, accurately quantifying the extent of the reduction in limits is not currently feasible as the full analysis is still ongoing (e.g. full outcome of focus questionnaire) and requires fully representative data from all detergent products.

At this stage, alignment with the WUR limit values included in other ISO Type I schemes is proposed wherever possible for consumer products.

7.7.3. Design for recycling

Existing sub-criterion (x) design for recycling	
ALL	Plastic packaging shall be designed to facilitate effective recycling by avoiding potential contaminants and incompatible materials that are known to impede separation or reprocessing or to reduce the quality of recyclate. The label or sleeve, closure and, where applicable, barrier coatings shall not comprise, either singularly or in combination the materials and components listed in Table 4. Pump

<table>
<tr><td></td><td colspan="2">mechanisms (including in sprays) are exempted from this requirement.</td></tr>
<tr><td>ALL</td><td colspan="2"><table>
<tr><td>Packaging element</td><td>Excluded materials and components (*1)</td></tr>
<tr><td>Label or sleeve</td><td>— PS label or sleeve in combination with a PET, PP or HDPE bottle
— PVC label or sleeve in combination with a PET, PP or HDPE bottle
— PETG label or sleeve in combination with a PET bottle
— Any other plastic materials for sleeves/labels with a density > 1 g/cm^3 used with a PET bottle
— Any other plastic materials for sleeves/labels with a density < 1 g/cm^3 used with a PP or HDPE bottle
— Labels or sleeves that are metallised or are welded to a packaging body (in mould labelling)</td></tr>
<tr><td>Closure</td><td>— PS closure in combination a with a PET, HDPE or PP bottle
— PVC closure in combination with a PET, PP or HDPE bottle
— PETG closures or closure material with a density > 1 g/cm^3 in combination with a PET bottle
— Closures made of metal, glass, EVA which are not easily separable from the bottle
— Closures made of silicone. Silicone closures with a density < 1 g/cm^3 in combination with a PET bottle and silicone closures with a density > 1 g/cm^3 in combination with PEHD or PP bottle are exempted.
— Metallic foils or seals which remain fixed to the bottle or its closure after the product has been opened</td></tr>
<tr><td>Barrier coatings</td><td>Polyamide, functional polyolefins, metallised and light blocking barriers</td></tr>
<tr><td colspan="2">(*1) EVA — Ethylene Vinyl Acetate, HDPE — High-density polyethylene, PET — Polyethylene terephtalate, PETG — Polyethylene terephthalate glycol-modified, PP — Polypropylene, PS — Polystyrene, PVC — Polyvinylchloride</td></tr>
</table></td></tr>
<tr><td>ALL</td><td colspan="2">*Assessment and verification:* the applicant shall provide a signed declaration of compliance specifying the material composition of the packaging including the container, label or sleeve, adhesives, closure and barrier coating, as appropriate, along with photos or technical drawings of the primary packaging.</td></tr>
<tr><td colspan="3">Proposed sub-criterion (x) design for recycling</td></tr>
<tr><td>ALL</td><td colspan="2">Plastic packaging shall be designed to facilitate effective recycling by avoiding potential contaminants and incompatible materials that are known to impede separation or reprocessing or to reduce the quality of recyclate. The label or sleeve, closure and, where applicable, barrier coatings shall not comprise, either singularly or in combination the materials and components listed in Table 4. Pump mechanisms (including in sprays) are exempted from this requirement.</td></tr>
<tr><td>ALL</td><td colspan="2"><table>
<tr><td>Packaging element</td><td>Excluded materials and components (*1)</td></tr>
<tr><td>Body/Material</td><td>— Dyed black, using soot-carbon-based pigments
— Pounch/bag laminates with layer of different materials (composite packaging)</td></tr>
<tr><td>Label or sleeve</td><td>— PS label or sleeve in combination with a PET, PP or HDPE ~~bottle~~ packaging</td></tr>
</table></td></tr>
</table>

			— PVC label or sleeve in combination with a PET, PP or HDPE ~~bottle~~ packaging — PETG label or sleeve in combination with a PET ~~bottle~~ packaging — PET label or sleeve (except LDPET (< 1 g/cm3)) in combination with a PET ~~bottle~~ packaging — Any other plastic materials for sleeves/labels with a density > 1 g/cm^3 used with a PET ~~bottle~~ packaging — Any other plastic materials for sleeves/labels with a density < 1 g/cm3 used with a PP or HDPE ~~bottle~~ packaging (except for PP labels and polyolefins (PO) sleeves used in combination with a PP packaging or PE labels and PE sleeves used in combination with a HDPE packaging) — Labels or sleeves that are metallised or are welded to a packaging body (in mould labelling) — Glued cellulose-based labels for PP, HDPE, LDPE, PS packaging, that cannot be removed in cold washing — Non-removable washable adhesive applications (in water or alkaline at 80° C) for PET bottle
		Closure	— PS closure in combination a with a PET, HDPE or PP ~~bottle~~ packaging — PVC closure in combination with a PET, PP or HDPE ~~bottle~~ packaging — PETG closures or closure material with a density > 1 g/cm^3 in combination with a PET ~~bottle~~ packaging — Closures made of metal, glass, EVA which are not easily separable from the ~~bottle~~ packaging — Closures made of silicone. Silicone closures with a density < 1 g/cm^3 in combination with a PET ~~bottle~~ packaging and silicone closures with a density > 1 g/cm^3 in combination with ~~PEHD~~ HDPE or PP ~~bottle~~ packaging are exempted. — Metallic foils or seals which remain fixed to the ~~bottle~~ packaging or its closure after the product has been opened
		Barrier coatings	Polyamide, functional polyolefins, EVOH provided with tie layers made by a polymer different that the one used for the packaging body, metallised and light blocking barriers
		[*1] EVA — Ethylene Vinyl Acetate, EVOH — Ethylene vinyl alcohol, HDPE — High-density polyethylene, LDPET – Low Density Polyethylene terephthalate, PET — Polyethylene terephthalate, PETG — Polyethylene terephthalate glycol-modified, PP — Polypropylene, PS — Polystyrene, PVC — Polyvinylchloride, PO - Polyolefins	
ALL	*Assessment and verification:* the applicant shall provide a signed declaration of compliance specifying the material composition of the packaging including the container, label or sleeve, adhesives, closure and barrier coating, as appropriate, along with photos or technical drawings of the primary packaging.		

Rationale for the proposed design for recycling

The proposed revision of the Packaging and Packaging Waste Directive includes provisions to promote the development of reusable packaging and the advancement of high quality recycling. The Design for Recycling criterion is consistent with the objectives of the PPWD. This criterion emphasises the importance of designing packaging to facilitate efficient recycling by reducing impurities and material combinations that hinder the separation of different materials or reduce the quality of the recycled material. Although packaging made of monomaterials is the easiest to recycle, this is not always feasible or preferable. Therefore, for packaging

consisting of different materials, a table is proposed explaining which materials should not be mixed in order not to hinder recycling efforts.

The main changes from the current Design for Recycling criteria requirements are listed below.

Body/ Material:

- Pouches should be made of monomaterials to facilitate recycling. Therefore, a requirement prohibiting the use of laminates pouches made of different material layers has been included.

Label:

- Alignment with the Commission Decision for Cosmetics is proposed for:

  - Exclusion of PET labels or sleeves when used in combination with PET packaging.
  - Exceptions to the exclusion of certain plastic materials for sleeves/labels with a density less than 1 g/cm3 when used with PP or HDPE bottle packaging. PP labels and polyolefin sleeves can be used with PP packaging, and PE labels and PE sleeves can be used with HDPE packaging, despite the general exclusion of other plastic materials.

-PSL

The Commission Decision for Cosmetics outlines specific requirements for excluding PSL (pressure sensitive) labels, unless the adhesive is water releasable under the washing conditions of the recycling process. The adhesive used in the label can pose issues for the recycling of HDPE: Water-soluble glues are fully compatible with the recycling process, while self-adhesive labels are challenging to separate from the body and can contaminate the final recyclate. Therefore, PSL (pressure sensitive) needs to be provided with a releasable adhesive without reactivation.

Concerns have been raised by stakeholders regarding the availability of PSLs that comply with the washing conditions of the recycling process, specifically those demonstrating water releasable adhesive properties based on the Recyclass protocol (washing quick test procedure). To our knowledge, no PSLs with full compatibility have been approved by Recyclass at this time. This may require accepting limited compatibility, potentially impacting the recycling process and the quality of the recycled material.

Discussions within the context of PSL included in the EU Ecolabel criterion for cosmetics revealed that Recyclass is currently developing a new protocol, which is expected to be released within the current year.

Based on the current situation, alignment with the EU Ecolabel for cosmetics regarding PSL is not currently proposed. Further information is required from industry and recycling associations regarding this technology. However, it has been suggested to include a specific requirement for glued cellulose-based labels in alignment with the Blue Angel.

Closure:

- The exclusion of carbon black pigment from the EU Ecolabel requirement is due to its potential interference with optical sorting systems in recycling facilities. These systems, particularly the infrared (NIR) scanners used for sorting plastic packaging, may face challenges in accurately identifying dark-colored items, such as those containing carbon black. As a result, these products might not be properly identified and could end up in the residual waste fraction, rather than being recycled Colourless plastics are more easily recoverable and thus simpler to recycle.

Barrier coating:

- EVOH can influence the recyclability in different way. It is not admitted at all in the case of clear/light blue PET bottles, for preserving the high recycling quality and avoid yellowing effects, but a 3% threshold value was set for transparent coloured PET bottles. Indeed, extensive results of lab tests demonstrated that if the EVOH is applied with ad hoc tie layers its presence does not compromise the recycling quality. Against this, it has been proposed to restrict EVOH only in the specific case that the tie layers are made by a polymer different that the one used for the packaging body.

Points for discussion 17 – Design for recycling
Stakeholders are invited to reply the following consultation question:

- Question 40 (Q40) – PP labels with HDPE packaging are currently not allowed. Are stakeholders currently utilizing PP labels with HDPE packaging? Do any constraints or considerations exist related to the recycling process for this combination?
- Question 41 (Q41) – Do you employ water-soluble adhesives for plastic labels in your products? If not, what type of adhesive is utilized?
- Question 42 (Q42) – Should any additional material combinations that could potentially hinder the recycling process be considered? If yes, why?

7.7.4. Products sold in spray bottles (Only for HSC)

Existing sub-criterion (x) products sold in spray bottles	
HSC	Sprays containing propellants shall not be used. Spray bottles shall be refillable and reusable.
HSC	*Assessment and verification:* the applicant shall provide a signed declaration of compliance along with relevant documentation describing or demonstrating how the spray bottles that are part of the packaging can be refillable.
Proposed sub-criterion (x) products sold in spray bottles	
HSC	Sprays containing propellants shall not be used. Spray bottles shall be refillable and reusable.
HSC	*Assessment and verification:* the applicant shall provide a signed declaration of compliance along with relevant documentation describing or demonstrating how the spray bottles that are part of the packaging can be refillable.

Rationale for the proposed sub-criterion (x) products sold in spray bottles

Based on stakeholder feedback, the current requirement for spray bottles to be sold as part of a refillable system is interpreted differently by different competent bodies, from refills simply being available on the market to requiring proof that refills are sold alongside the original product on supermarket shelves. In many cases, product manufacturers do not have enough weight to dictate to retailers how their products and refills should be sold, especially if it is a new product. In order avoid uncertainty and give more flexibility to manufacturers, it is proposed to change the requirement for spray bottles – they must be refillable, i.e. not be single-use bottles that cannot be refilled and then reused. This requirement is important as it ensures that if the end user wants to refill and reuse the bottle to minimise waste, they are able to and manufacturers do not go for a packaging design that includes anti-tampering/child-proofing parts, which should never be needed for the types of products covered by the scope of the EU Ecolabel for hard surface cleaning products.

7.7.5. Packaging take-back systems (Only for HSC, IIDD, IILD)

Existing sub-criterion (x) packaging take-back systems	
HSC, IIDD, IILD	If the product is delivered in packaging that is part of a take-back system for a product, that product is exempted from the requirements set out in points (*WUR*) and (*Design for Recycling*) of Criterion X.
HSC, IIDD, IILD	*Assessment and verification:* the applicant shall provide a signed declaration of compliance along with relevant documentation describing or demonstrating that a take-back system has been put in place for the packaging.
Proposed sub-criterion (x) packaging take-back systems	

HSC, IIDD, IILD	If the product is delivered in packaging that is part of a take-back system for a product, that product is exempted from the requirements set out in points (*WUR)* and (*Design for Recycling*) of Criterion X.
HSC, IIDD, IILD	*Assessment and verification:* the applicant shall provide a signed declaration of compliance along with relevant documentation describing or demonstrating that a take-back system has been put in place for the packaging.

Rationale for the proposed sub-criterion (x) packaging take-back systems

The WUR approach was developed with consumer products in mind and does not scale up for deliveries made in large barrels or other containers which are retrieved after use by the detergent product manufacturers from their clients. To reflect the state of the market and remove unnecessary burdens on I&I products, products that come in packaging that is part of a take-back system are proposed to be exempted from the WUR and Design for Recycling sub-criteria. In the case of HSC, as the scope covers both consumer and professional products, the same exemption is proposed to be included.

In the EU Ecolabel, the take-back system is only defined for IILD, IIDD, and HSC. In contrast, Blue Angel extends this requirement to LD, DD, and HDD in addition to HSC.

Points for discussion 18 – Packaging take-back systems

Stakeholders are invited to reply the following consultation questions:

— Question 43 (Q43) – Would you support the extension of this criterion to other product groups such as LD, DD and HDD? Please specify why.

7.8. Fitness for use

Existing criterion (x) fitness for use	
ALL	The product shall have a satisfactory wash performance at the lowest temperature and dosage recommended by the manufacturer for the water hardness in accordance with
DD	the most updated IKW standard test ([189]) or the most updated standard EN 50242/EN 60436 as modified in 'Framework performance test for dishwasher detergents' available on the EU Ecolabel website ([190]).
HDD	the 'Framework for the performance test for hand dishwashing detergents' available on the EU Ecolabel website ([191]).
IIDD	the 'Framework performance test for industrial and institutional dishwasher detergents' available on the EU Ecolabel website ([192])
IILD	the 'Framework for performance testing for industrial and institutional laundry detergents' available on the EU Ecolabel website ([193]).
LD	'EU Ecolabel protocol for testing laundry detergents' ([194]) or 'EU Ecolabel protocol for testing stain removers' ([195]), as appropriate, available on the EU Ecolabel website.
ALL	*Assessment and verification:* the applicant shall provide documentation demonstrating that the product has been tested under the conditions specified in
DD	the IKW standard or framework and that the results showed that the product achieved at least the minimum cleaning performance required.
HDD, IILD	the framework and that the results showed that the product achieved at least the minimum wash performance required.
HSC, IIDD,	the framework and that the results showed that the product achieved at least the minimum cleaning performance required.
LD	the protocol and that the results showed that the product achieved at least the minimum wash performance required.
ALL	The applicant shall also provide documentation demonstrating compliance with the laboratory requirements included in the relevant harmonised standards for testing and calibration laboratories, if appropriate. An equivalent test performance may be used if equivalence has been assessed and accepted by the competent body.

[189] Available at http://www.ikw.org/fileadmin/content/downloads/Haushaltspflege/HP_DishwasherA_B_e.pdf

[190] [URL for protocol on EU Ecolabel website will be inserted later — currently all proposed protocol documents can be found in the Technical Report].

[191] Available at: http://ec.europa.eu/environment/ecolabel/documents/performance_test.pdf.

[192] Available at: [URL for protocol on EU Ecolabel website will be inserted later — currently all proposed protocol documents can be found in the Technical Report].

[193] Available at: [URL for protocol on EU Ecolabel website will be inserted later currently all proposed protocol documents can be found in the Technical Report]

[194] Available at: http://ec.europa.eu/environment/ecolabel/documents/Performance%20Test%20Laundry%20Detergents.pdf

[195] Available at: http://ec.europa.eu/environment/ecolabel/documents/Performance%20Test%20stain%20removers.pdf

Proposed criterion (x) fitness for use	
ALL	The product shall have a satisfactory wash performance at the lowest temperature and dosage recommended by the manufacturer for the water hardness in accordance with
DD	the most updated IKW standard test ([196]) or the most updated standard EN 50242/EN 60436 as modified in 'Framework performance test for dishwasher detergents' available on the EU Ecolabel website ([197]).
HDD	the 'Framework for the performance test for hand dishwashing detergents' available on the EU Ecolabel website ([198]).
IIDD	the 'Framework performance test for industrial and institutional dishwasher detergents' available on the EU Ecolabel website ([199])
IILD	the 'Framework for performance testing for industrial and institutional laundry detergents' available on the EU Ecolabel website ([200]).
LD	'EU Ecolabel protocol for testing laundry detergents' ([201]) or 'EU Ecolabel protocol for testing stain removers' ([202]), as appropriate, available on the EU Ecolabel website.
ALL	*Assessment and verification:* the applicant shall provide documentation demonstrating that the product has been tested under the conditions specified in
DD	the IKW standard or framework and that the results showed that the product achieved at least the minimum cleaning performance required.
HDD, IILD	the framework and that the results showed that the product achieved at least the minimum wash performance required.
HSC, IIDD,	the framework and that the results showed that the product achieved at least the minimum cleaning performance required.
LD	the protocol and that the results showed that the product achieved at least the minimum wash performance required.
ALL	The applicant shall also provide documentation demonstrating compliance with the laboratory requirements included in the relevant harmonised standards for testing and calibration laboratories, if appropriate. An equivalent test performance may be used if equivalence has been assessed and accepted by the competent body.

2540

2541 *Rationale for the proposed criterion (x) fitness for use*

[196] Available at http://www.ikw.org/fileadmin/content/downloads/Haushaltspflege/HP_DishwasherA_B_e.pdf

[197] [URL for protocol on EU Ecolabel website will be inserted later — currently all proposed protocol documents can be found in the Technical Report].

[198] Available at: http://ec.europa.eu/environment/ecolabel/documents/performance_test.pdf.

[199] Available at: [URL for protocol on EU Ecolabel website will be inserted later — currently all proposed protocol documents can be found in the Technical Report].

[200] Available at: [URL for protocol on EU Ecolabel website will be inserted later currently all proposed protocol documents can be found in the Technical Report]

[201] Available at: http://ec.europa.eu/environment/ecolabel/documents/Performance%20Test%20Laundry%20Detergents.pdf

[202] Available at: http://ec.europa.eu/environment/ecolabel/documents/Performance%20Test%20stain%20removers.pdf

The importance of ensuring that products perform as expected is of paramount importance, including from an environmental perspective. This is acknowledged and ensured in every EU ecolabel criteria, in this particular case via this criterion on *"Fitness for use"*, which aims to prove the cleaning efficiency of ecolabelled detergent and cleaning products.

Several stakeholders highlighted the need to update (and potentially extend) the *Fitness for use* testing protocols to ensure that products awarded with EUEL ecolabel are not ranked as non-performant, as in some reported cases. On the contrary, products awarded with the EU Ecolabel are aimed at being part of the best-in-class, both in terms of cleaning and environmental performance.

One of the key aspects for revision consideration is how to set a generic yet representative testing (formulation) profile of an average product in the market. It is important to set a common reference product across Europe so as to ensure that the level of performance is assessed in a homogeneous and reproducible manner. In this regard, an alternative to a generic formulation is the use of a market leader reference formulation profile, but this could also result in sources of variation at the time of making the performance assessment and, especially, there is no unique market leader for the whole Europe. Another layer of complexity is the nature of different product groups (and sub-groups/formats), which requires thorough knowledge of formulation profiles, versus the difficulty in accessing such information due to its commercial sensitivity. All the previous issues were face in the previous revision and, with market evolution, come back as a significant aspect to properly address.

Further to the issue on how to set reference products profile for the purpose of performance testing, there other aspect which require attention in the current revision exercise:

- Revise standards cited/used in *fitness for use* protocols and update according to latest versions.
- Consider expansion of protocols scope – for example consider other fabric materials in addition of cotton able to better or complementary represent current user behaviour with regards to clothing.
- Revise and improve protocols – on aspects such as how representative are the set of stains used.

To address the previous aspects, JRC considers that a panel of experts is required in order to feed and cross-check JRC's proposals on how to improve the protocols associated with the criterion *fitness for use*. Due to the highly technical nature of the required exchanges, JRC proposes to carry out a separate (and smaller) Ad Hoc working group under *fitness for use* (FfU AHWG) in order to come up with a first and curated proposal that will be shared with all registered stakeholders before the 2nd AHWG.

In view of the former, no changes are proposed at this stage. This criterion won't be discussed as part of the 1st AHWG but rather in the FfU AHWG.

7.9. Automatic dosing systems (only for IIDD & IILD)

Existing criterion (x) automatic dosing systems	
IIDD, IILD	For multi-component systems, the applicant shall ensure that the product is used with an automatic and controlled dosing system. In order to ensure correct dosage in the automatic dosing systems, customer visits shall be performed at all premises using the product, at least once a year during the license period, and they shall include calibration of the dosing equipment. A third party can perform these customer visits.
IIDD, IILD	*Assessment and verification:* the applicant shall provide a signed declaration of compliance along with a description of the content of customer visits, who is responsible for them and their frequency.
Proposed criterion (x) automatic dosing systems	
IIDD, IILD	For multi-component systems, the applicant shall ensure that the product is used with an automatic and controlled dosing system. In order to ensure correct dosage in the automatic dosing systems, customer visits shall be performed at all premises using the product, at least once a year during the license period, and they shall include calibration of the dosing equipment. A third party can perform these customer visits.
IIDD, IILD	*Assessment and verification:* the applicant shall provide a signed declaration of compliance along with a description of the content of customer visits, who is responsible for them and their frequency.

Rationale for the proposed criterion (x) automatic dosing systems

Industrial and institutional multi-component systems are difficult to dose as there is more than one product in the system. The use of a well maintained automatic and calibrated dosing system limits the risk of incorrect dosing and, thus, the risk of extra environmental impacts. Performing a system's calibration is both in the interest of the user, as overdosing has increased monetary costs and underdosing might result in bad performance of the product, and of the manufacturer, as correct dosing ensures that the product's optimal performance is achieved.

No changes are proposed in this criterion.

7.10. User information

Existing criterion (x) User information	
ALL	The product shall be accompanied by instructions for proper use so as to maximise product performance and minimise waste, and reduce water pollution and use of resources. These instructions shall be legible or include graphical representation or icons and include information on the following:
ALL	(a) Dosing instructions The applicant shall take suitable steps to help consumers respect the recommended dosage, making available the dosing instructions and a convenient dosage system (e.g. caps).
DD	Dosage instructions shall include information on the recommended dosage for a standard load.
HDD	Dosage instructions shall include the recommended dosage for at least two levels of soiling and, if applicable, the impact of the water hardness on the dosing. If applicable, indications of the most prevalent water hardness in the area where the product is intended to be marketed or where this information can be found shall be provided.
HSC	The following text shall appear on the packaging of RTU products: 'This product is not intended for a large-scale cleaning'. Dosage instructions shall include the recommended dosage for at least two levels of soiling and, if applicable, the impact of the water hardness on the dosing. If applicable, indications of the most prevalent water hardness in the area where the product is intended to be marketed or where this information can be found shall be provided.
IIDD, ILLD	This requirement does not apply for multicomponent products to be dosed with an automatic system Indications of the most prevalent water hardness in the area where the product is intended to be marketed or where this information can be found shall be provided.
LD	Dosage instructions shall include information on the recommended dosage for a standard load for at least two levels of soiling and on the impact of the water hardness on the dosing. Indications of the most prevalent water hardness in the area where the product is intended to be marketed or where this information can be found shall be provided.
ALL	(b) Packaging disposal information The primary packaging shall include information on the reuse, recycling and correct disposal of packaging.
DD, HDD, HSC, IIDD, IILD	(c) Environmental information A text shall appear on the primary packaging indicating the importance of using the correct dosage and the lowest recommended temperature in order to minimise energy and water consumption and reduce water pollution.
IILD	If the final product contains peracetic acid and hydrogen peroxide as a bleaching agent and is classified and labelled, a text shall appear on the primary packaging or technical product sheet stating that the classification and labelling is due to peracetic acid and hydrogen peroxide which degrade into non-classified substances during the washing process
LD	(c) Environmental information A text shall appear on the primary packaging indicating the importance of using the correct dosage and the lowest recommended temperature (which shall not be higher than 30 °C) and full loads in

	order to minimise energy and water consumption and reduce water pollution.
ALL	*Assessment and verification:* the applicant shall provide a signed declaration of compliance along with a sample of the product label.
Proposed criterion (x) user information	
ALL	The product shall be accompanied by instructions for proper use so as to maximise product performance and minimise waste, and reduce water pollution and use of resources. These instructions shall be legible or include graphical representation or icons and include information on the following:
ALL	(a) Dosing instructions The applicant shall take suitable steps to help consumers respect the recommended dosage, making available the dosing instructions and a convenient dosage system (e.g. caps).
DD	Dosage instructions shall include information on the recommended dosage for a standard load.
HDD	Dosage instructions shall include the recommended dosage for at least two levels of soiling and, if applicable, the impact of the water hardness on the dosing. If applicable, indications of the most prevalent water hardness in the area where the product is intended to be marketed or where this information can be found shall be provided.
HSC	The following text shall appear on the packaging of RTU products: 'This product is not intended for a large-scale cleaning'. Dosage instructions shall include the recommended dosage for at least two levels of soiling and, if applicable, the impact of the water hardness on the dosing. If applicable, indications of the most prevalent water hardness in the area where the product is intended to be marketed or where this information can be found shall be provided.
IIDD, ILLD	This requirement does not apply for multicomponent products to be dosed with an automatic system Indications of the most prevalent water hardness in the area where the product is intended to be marketed or where this information can be found shall be provided.
LD	Dosage instructions shall include information on the recommended dosage for a standard load for at least two levels of soiling and on the impact of the water hardness on the dosing. Indications of the most prevalent water hardness in the area where the product is intended to be marketed or where this information can be found shall be provided.
ALL	(b) Packaging disposal information The primary packaging shall include information on the reuse, recycling and correct disposal of packaging.
DD, HDD, HSC, IIDD, IILD	(c) Environmental information A text shall appear on the primary packaging indicating the importance of using the correct dosage and the lowest recommended temperature in order to minimise energy and water consumption and reduce water pollution.
IILD	If the final product contains peracetic acid and hydrogen peroxide as a bleaching agent and is classified and labelled, a text shall appear on the primary packaging or technical product sheet stating that the classification and labelling is due to peracetic acid and hydrogen peroxide which degrade into non-classified substances during the washing process
LD	(c) Environmental information

	A text shall appear on the primary packaging indicating the importance of using the correct dosage and the lowest recommended temperature (which shall not be higher than ~~3~~20 °C) and full loads in order to minimise energy and water consumption and reduce water pollution.

Rationale for the proposed criterion (x) user information

Consumer behaviour cannot be addressed directly in EUEL criteria, but one of the most effective ways to address this indirectly is via the information offered to users, thus the name and importance of this criterion.

Stakeholders proposed to ensure messages were addressing proper dosage and that were easily readable, mostly according to recent CLP revision. In these regards, the initial statement of the legal text is deemed still fit for purpose:

> " *The product shall be accompanied by instructions for proper use so as to maximise product performance and minimise waste, and reduce water pollution and use of resources. These instructions shall be legible or include graphical representation or icons and include information on the following"*

Another minor change is the aligment with the proposal made in LD scope to consider 20C as the minimum temperature from which ecolabelled products are effective.

7.11. Information appearing on the EU Ecolabel

Existing criterion (x) information appearing on the EU Ecolabel	
ALL	The logo should be visible and legible. The EU Ecolabel registration/licence number shall appear on the product and it shall be legible and clearly visible. The applicant may choose to include an optional text box on the label that contains the following text:
DD, HDD, HSC, IIDD, IILD	— Limited impact on the aquatic environment, — Restricted amount of hazardous substances, — Tested for cleaning performance.
LD	— Limited impact on the aquatic environment, — Restricted amount of hazardous substances, — Tested for wash performance at 30 °C (*). (*) If the product was tested at 15 or 20 °C in Criterion 7, the applicant may change the temperature indicated accordingly.
DD, HDD	*Assessment and verification:* the applicant shall provide a signed declaration of compliance along with a sample of the product label or artwork of the packaging where the EU Ecolabel is placed, together with a signed declaration of compliance.
HSC	*Assessment and verification:* the applicant shall provide a signed declaration of compliance along with a sample of the product label or artwork of the packaging where the EU Ecolabel is placed.
IIDD, IILD, LD	*Assessment and verification:* the applicant shall provide a signed declaration of compliance along with a sample of the product label.
Proposed criterion (x) information appearing on the EU Ecolabel	
ALL	The logo should be visible and legible. The EU Ecolabel registration/licence number shall appear on the product and it shall be legible and clearly visible. The applicant may choose to include an optional text box on the label that contains the following text:
DD, HDD, HSC, IIDD, IILD	— Limited impact on the aquatic environment, — Restricted amount of hazardous substances, — Tested for cleaning performance.
LD	— Limited impact on the aquatic environment, — Restricted amount of hazardous substances, — Tested for wash performance at ~~3~~20 °C (*). (*) If the product was tested at 15 ~~or 20~~ °C in Criterion 7, the applicant may change the temperature indicated accordingly.
DD, HDD	*Assessment and verification:* the applicant shall provide a signed declaration of compliance along with a sample of the product label or artwork of the packaging where the EU Ecolabel is placed, together with a signed declaration of compliance.

HSC	*Assessment and verification:* the applicant shall provide a signed declaration of compliance along with a sample of the product label or artwork of the packaging where the EU Ecolabel is placed.
IIDD, IILD, LD	*Assessment and verification:* the applicant shall provide a signed declaration of compliance along with a sample of the product label.

2603

2604 *Rationale for the proposed criterion (x) information appearing on the EU Ecolabel*

2605 According the Article 8 (3b) of the Regulation 66/2010, for each product group, key environmental
2606 characteristics (typically three) of the EU Ecolabel product may be displayed in the optional label text box. The
2607 guidelines for the use of the optional label with text box can be found in the "*guidelines for the use of the EU*
2608 *Ecolabel logo*" on the website.

2609 No major changes have been proposed for this criterion. The first part refers to the use of the logo and the
2610 license number and the second one to the information to be provided.

2611 The sentences proposed for change refer aligment with the proposal made in LD scope to consider 20C as the
2612 minimum temperature from which ecolabelled products are effective.

2613

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Annexes

Annex I Criteria comparison with main ISO Type I schemes

1 Comparison of current EU Ecolabel criteria with the main ISO type I ecolabelling schemes

Besides the EU Ecolabel, there are other ISO type I (14024) voluntary ecolabel schemes that also cover environmental criteria for different types of detergent products. As part of the revision of the current EU ecolabel criteria for six detergent product groups, a comparative study was done with two of other ISO type I schemes, to understand the similarities and differences between them.

Nordic Swan and Blue Angel ecolabel schemes have been chosen as key points of reference due to their well-established reputation and high uptake in the European market. The Nordic Swan Ecolabel, established in 1989, is supported by all Nordic governments and is the most recognized environmental label in the region, with over 25,000 products and services being sold in the Nordic countries. It is also a founding member of the international network for ISO 14024 Type I ecolabels, the Global Ecolabelling network (GEN). Similarly, the Blue Angel, established in 1978, has been the ecolabel of the German federal government for more than 45 years and has awarded over 30,000 products and services from more than 1,600 companies. Both ecolabels are ISO type I, like the EU Ecolabel, and are well-established and highly recognized in the European market. Their long-standing presence and widespread use make them suitable for comparison with the EU Ecolabel. An overview of the voluntary labelling schemes considered in this study is presented in Table I. Subsequently, a discussion of the comparison of the current criteria requirements for the different national ecolabelling schemes is reported. The comparison with the different ISO type I national schemes is based on the versions of the Nordic Swan and Blue Angel criteria that were updated in September 2023.

Table I. Other main ISO type I voluntary labelling schemes for detergents

Labelling programs	Region	Product category	Date of adoption/last revision and validity
Nordic Swan	Denmark, Finland, Iceland, Norway, Sweden	Laundry detergent and stain removers[203]	Version 8.6 (31 March 2023) 19 December 2019 - 31 December 2025
		Laundry detergent for professional use[204]	Version 4.0 (16 August 2023) 16 August 2023 – 31 December 2027
		Dishwasher detergents and rinse aids[205]	Version 7.5 (29 August 2023) 19 May 2022 - 30 June 2026
		Dishwasher detergents for professional use[206]	Version 3.5 (12 September 2023) 25 November 2021 – 31 December 2026
		Cleaning products[207]	Version 6.12 (06 June 2023) 07 November 2018 – 31 December 2025
		Hand dishwashing detergents[208]	Version 6.7 (31 January 2023) 14 March 2018 – 31 December 2025
Blue Angel	Germany	Laundry detergents[209]	Version 1.1 January 2022 – 31 December 2026
		Dishwasher detergents[210]	Version 3.1 January 2022 – 31 December 2026
		Hand Dishwashing Detergents and Hard Surface Cleaners[211]	Version 1.1 January 2022 – 31 December 2026

[203] Nordic Swan Ecolabel of Laundry detergent and stain removers
[204] Nordic Swan Ecolabel of Laundry detergent for professional use
[205] Nordic Swan Ecolabel of Dishwasher detergents and rinse aids
[206] Nordic Swan Ecolabel of Dishwasher detergents for professional use
[207] Nordic Swan Ecolabel of Cleaning Products
[208] Nordic Swan Ecolabel of Hand dishwashing detergents
[209] Blue Angel Ecolabel of Laundry detergents
[210] Blue Angel Ecolabel of Dishwasher detergents
[211] Blue Angel Ecolabel of Hand Dishwashing Detergents and Hard Surface Cleaners

1.1 Criterion Dosage requirements

Table II. Comparison dosage requirements for different ecolabelling schemes

<table>
<tr><th></th><th>EU Ecolabel</th><th>Nordic Swan</th></tr>
<tr><td>LD</td><td>
The reference dosage shall not exceed the following amounts.
<table>
<tr><th>Product type</th><th>Dosage
(g/kg of laundry)</th></tr>
<tr><td>Heavy-duty detergent,
Colour-safe detergent</td><td>16.0</td></tr>
<tr><td>Light-duty detergent</td><td>16.0</td></tr>
<tr><td>Stain remover (pre-treatment only)</td><td>2.7</td></tr>
</table>
The dosage requirements are related to a normally soiled laundry and a water hardness of 2.5 mmol of $CaCO_3$/l, which corresponds to medium water hardness.
</td><td>
The dosage shall not exceed the following limit values
<table>
<tr><th>Product type</th><th>Water hardness</th><th>Dosage</th></tr>
<tr><td>Heavy-duty detergent
(normally soiled)</td><td>5.5°dH</td><td>11.0 g/kg wash</td></tr>
<tr><td>Light-duty detergent
(lightly soiled)</td><td>5.5°dH</td><td>11.0 g/kg wash</td></tr>
<tr><td>Stain-removers (in-wash)</td><td>all</td><td>4.5 g/kg wash</td></tr>
<tr><td>Stain-removers
(pre-treatment)</td><td>all</td><td>2.7 ml/kg wash</td></tr>
</table>
Dosage for middle hard and hard water
The recommended dosage for medium hard water must not exceed 130 % of the recommended dosage for soft water. The recommended dosage for hard water must not exceed 160 % of the recommended dosage for soft water.
For tablets/pods/capsules:
- if the recommended dosage (at 5.5°dH) is one unit, two units can be recommended for increased water hardness (medium and hard water)
- if the recommended dosage (at 5.5°dH) is two units, three units can be recommended for increased water hardness (medium and hard water)
In either case, the amount of detergent from the recommended number of tablets/pods/capsules at increased water hardness, must not exceed 130% and 160 %, respectively, of the limit values in table
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
</td></tr>
</table>

<table>
<tr><td></td><td></td><td>130 % of the recommended dosage for normally soiled textiles.

For tablets/pods/capsules:

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

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

In either case, the amount of detergent from the recommended number of tablets/pods/capsules for heavily soiled textiles, must not exceed 130% of the limit values in table.</td></tr>
<tr><td>DD</td><td>The reference dosage shall not exceed the following amounts
<table><tr><th>Product type</th><th>Dosage (g/wash)</th></tr><tr><td>Single-function dishwasher detergent</td><td>19.0</td></tr><tr><td>Multi-function dishwasher detergent</td><td>21.0</td></tr></table>Rinse aids are exempted from this requirement</td><td>The maximum dose per wash must not exceed the following limit values
<table><tr><th>Product type</th><th>Dosage (g/wash)</th></tr><tr><td>Single function products</td><td>18.0</td></tr><tr><td>Multifunction products</td><td>20.0</td></tr></table>Rinse aids are exempted from this requirement</td></tr>
<tr><td>IIDD</td><td>No requirements are set</td><td>The dosage shall not exceed the following limit values
<table><tr><th>Product type</th><th>Dosage</th></tr><tr><td>Dishwasher detergents</td><td>4 g/l water</td></tr><tr><td>Soaking agents</td><td>50 g/l water</td></tr><tr><td>Products used to clean instruments in healthcare</td><td>8 g/l water</td></tr><tr><td>Rinse aids</td><td>2 g/l water</td></tr><tr><td>Dishwasher detergents for aluminium goods</td><td>4 g/l water</td></tr></table></td></tr>
</table>

The Blue Angel dosage requirements are not reported because they are the same of the EU Ecolabel, except for LD in which the dosage limit for laundry detergent booster of 7.0 g/kg laundry was introduced.

In the Nordic Swan water hardness is express in German degree (°dH) and a soft water hardness is taken into account in the dosage requirement for LD (soft: 0-8°dH, medium: 8-14°dH and hard: >14 °dH).

The dosage requirements for Nordic Swan appear to be stricter than the EU Ecolabel values in both laundry detergents and dishwasher detergents.

For laundry detergents, in addition to the dosage for soft water, the Nordic Swan criteria state that for medium-hard and hard water the maximum dosage must not exceed 130% and 160% of the recommended dosage for soft water, respectively. This would imply a maximum dosage of 14.3 g/kg wash for medium-hard water and 17.6 g/kg wash for hard water. Whereas, 16 g/kg is the current EU Ecolabel maximum dosage for a medium water hardness.

In the case of HDD, Nordic Swan includes specific requirement for maximum dosing and sets that the recommended dose must not exceed 1.0 grams per litre of water.

1.2 Criterion Toxicity to aquatic organisms

LD

The CDV limit values for light-duty laundry detergent are stricter in the Nordic Swan Ecolabel 15000 l/kg wash compare to the 20000 l/kg wash in the EU ecolabel. However, soft water hardness is considered in the case of Nordic swan and it refers to the DID list version 2016 or later.

Also in the Blue Angel the CDV values appear to be stricter then the EU Ecolabel values for both heavy duty/ colour safe laundry detergents (25000 l/kg laundry, Blue Angel and 31500 l/kg laundry, EU Ecolabel) and Low-duty laundry detergent (18 000 l/kg laundry, Blue Angel and 20000 l/kg laundry, EU Ecolabel). Blue angel also includes a maximum CDV value related to Laundry detergent booster of 7 500 l/kg laundry.

DD

For dishwasher detergents the Blue Angel scheme present stricter CDV values for single-function detergent(20000 l/wash, Blue Angel and 22500 l/wash, EU Ecolabel), multi-function detergents (24000 l/wash, Blue Angel and 27000 EU Ecolabel) and rinse aid (5000 l/wash Blue Angel and 7500 EU Ecolabel).

Nordic Swan sets more stringent limits in the case of multi-function dishwasher detergents (25500 l/wash, Nordic Swan and 27000 EU Ecolabel) and in the case of rise aid (5000 l/wash Nordic Swan and 7500 EU Ecolabel).

IILD

In the case of industrial and institutional laundry detergents, a comparison of CDV values is not straightforward since several parameters are taken into account especially in the case of the EU Ecolabel.

In the EU Ecolabel, the criterion considers three different levels of water hardness, three different degree of soiling (light, medium and heavy), and different product type i.e. powder, liquid and multi-component system.

The Nordic Swan on the other hand only differentiates values according to degrees of soiling. Overall, however, the Nordic Swan values are considerably tightened in comparison with The EU Ecolabel. For a light degree of soiling the Nordic Swan sets a CDV value of 10000 l/kg of laundry, and 180000 l/kg of laundry and 28000 l/kg of laundry for medium and heavy degrees of soiling, respectively.

IIDD

For the IIDD product group the current EU Ecolabel CDV thresholds are set for different levels of water hardness and for different product types i.e pre-soak, dishwasher detergents, multi-component system and rinse aids. Overall, the Nordic Swan CDV limits are lower than EU Ecolabel limits although they are not divided according to water hardness. Additionally beside the CDV threshold values for dishwashing detergents, soaking agents and rinse aids, Nordic Swan also includes requirements for products used to clean instruments in healthcare and dishwasher detergents for aluminium goods.

HSC

The HSC product group can be found under different levels of requirements.

Considering that Blue Angel does not include ready-to-use (RTU) products for all-purpose cleaners in the scope, the CDV limits for all-purpose concentrated products are more stringent than those reported in the EU

Ecolabel (10000 l/l of cleaning solution Blue Angel, 18000 l/l of cleaning solution EU Ecolabel). In the Blue Angel it is not clearly specified whether the other maximum permissible CDV values refer to concentrated or diluted products although from the values magnitude could be assumed to be RTU products. Furthermore, while in the EU Ecolabel there is only one value for sanitary cleaners, in Blue Angel there are different requirements in the case of Toilet cleaners and Bathroom cleaners. Blue Angel also includes requirements for descaler.

The Nordic Swan ecolabel, includes RTU and undiluted products but it also divides them into the subgroups consumer and professional products. In general, only for concentrated products and RTU windows cleaners Nordic Swan sets stricter threshold limits in comparison with EU Ecolabel values. Whereas, for other RTU products, Nordic Swan includes less stringent limits. Nordic swan also takes into account limits for products that are not considered in the scope of the EU Ecolabel such as foam and façade and terrace cleaners.

HDD

Blue Angel includes a CDV value stringent than the EU Ecolabel (2000 l/l of washing water Blue Angel, 2500 l/l of washing water EU Ecolabel). It is not clear, on the other hand, which is the limiting value in the case of the Nordic Swan scheme.

Overall, most of the changes observed for the detergent product groups in the various schemes could came from different DID list entry update.

1.3 Criterion Biodegradability

1.3.1 Sub-Criterion - Biodegradability of surfactants

In the EU Ecolabel, all surfactants must be readily aerobically degradable and all surfactants classified as hazardous to the aquatic environment (H400 and H412), must also be anaerobically biodegradable.

The other ecolabel schemes under review, Blue Angel and Nordic Swan, require that all surfactants, regardless of classification, must be readily biodegradable under aerobic conditions and biodegradable under anaerobic conditions. The Nordic swan ecolabel presents some exceptions for some product groups, in which hazardous classification with H410, H411, H412 and H413 is taken into account (e.g. Dishwasher Detergents). Blue Angel excludes carboxymethylcellulose.

Nordic Swan requires that all surfactants must be readily biodegradable according to test method No 301 A–F or No 310 in OECD guidelines for testing of chemicals or other equivalent test methods evaluated by an independent body and controlled by Nordic Ecolabelling. Moreover, it requires that all surfactants must also be anaerobically biodegradable in accordance with ISO 11734, ECETOC No 28, OECD 311 or equivalent testing methods evaluated by an independent body.

1.3.2 Sub criterion: Biodegradability of organic compounds

This criterion sets the maximum allowable content of organic substances in the product that are aerobically non-biodegradable (aNBO) or anaerobically non-biodegradable (anNBO).

LD

EU Ecolabel and Blue Angel set the values considering not only the products type (Heavy-duty, colour-safe, light-duty laundry detergent and stain remover) but also include the product form, solid (such as powder and tablets) and liquid (e.g. capsules and gel). Whereas, the Nordic Swan considers only the products type.

EU Ecolabel limits appear to be less strict than Nordic Swan only in the case of powder detergents.

Blue Angel sets lower values than EU Ecolabel in the case of heavy-duty, colour-safe detergents and light-duty laundry detergents in both solid and liquid form. Moreover, Blue Angel includes different requirements for laundry detergent booster.

IILD

For IILD it is difficult to make a direct comparison between EU Ecolabel and Nordic Swan threshold values, due to the different parameters considered in the EU Ecolabel including product type (powder, liquid an multi-component system), soiling level and water hardness. The Nordic Swan includes only limit values for aerobic

and anaerobic biodegradability divided by degree of soiling. In Nordic Swan iminodisuccinate (DID No. 2555) and cumene sulfonates (DID No. 2540) are excluded from the calculation of anNBO and polycarboxylates (DID No. 2507 and 2508) are excluded from the calculation of aNBO and anNBO.

DD

The Nordic Swan, unlike EU ecolabel, sets threshold limits only for anaerobic biodegradability of organic substances (anNBO). These values are more stringent compared with EU Ecolabel for both dishwasher detergent (≤ 1.2 g/wash in Nordic Swan, 3.00 g/wash in EU Ecolabel) and rinse aid (≤ 0.30 g/wash in Nordic Swan, 0.5 g/wash in EU Ecolabel). Moreover, Nordic Swan includes specific requirements for the biodegradability of water-soluble film (e.g. PVA films). Blue Angel presents the same limit values of EU Ecolabel for both aNBO and anNBO.

IIDD

Nordic Swan sets stricter limit values for both aNBO and anNBO and for all product categories compared to the EU Ecolabel. In addition, the Nordic scheme includes requirements for products used to clean instruments in the healthcare sector and for dishwasher detergents for aluminum products. Unlike EU Ecolabel, in Nordic Swan the threshold values are set regardless of water hardness. In Nordic Swan iminodisuccinate (DID No. 2555) and cumene sulfonates (DID No. 2540) are excluded from the calculation of anNBO and polycarboxylates (DID No. 2507 and 2508) are excluded from the calculation of aNBO and anNBO. Nordic Swan includes specific requirements for the biodegradability of water-soluble film (e.g. PVA films).

HDD

Nordic Swan does not include specific requirements for biodegradability of organics substances. Blue Angel sets a more stringent limits compared with EU Ecolabel for both aerobically not readily biodegradable organic substances (aNBO) and anaerobically non-biodegradable (anNBO) organic substances. In both cases the limit values are 0.02 g/l dishwashing water for Blue Angel and 0.03 g/l dishwashing water for EU Ecolabel. In addition Blue Angel includes also requirement for the biodegradability of synthetic polymers which states that all synthetic polymers in the final product must be at least inherently biodegradable under aerobic conditions.

HSC

In general Nordic Swan sets more stringent threshold values especially in the case of anNBO compared with EU Ecolabel. The Nordic scheme divides the threshold values for consumer and professional product categories. Whereas EU Ecolabel reports only one value bearing in mind, however, that the scope covers products for both private and professional use.

Nordic swan also takes into account limits for products that are not considered in the scope of the EU Ecolabel such as foam and façade and terrace cleaners.

Comparison with Blue Angel can only be made for undiluted products since it does not include RTU products in the scope. Blue Angel sets more stringent values in the case of all-purpose cleaner for both aNBO and anNBO limit values (0.02 g/l cleaning water in Blue Angel, 0.2 g/l cleaning water for EU) and anNBO limit values (0.1 g/l cleaning water in Blue Angel, 0.5 g/l cleaning water for EU). While EU Ecolabel sets threshold values for undiluted sanitary cleaners (0.2 g/l cleaning water in the case of aNBO and 0.5 g/l cleaning water in the case of anNBO), Blue Angel splits the category into toilet cleaner (5.000 g/1000 g cleaning solution in the case of aNBO, 15.000 g/1000 g cleaning solution in case of anNBO) and bathroom cleaner (0.500 g/1000 g cleaning solution in case of aNBO, 0.750 g/1000 g cleaning solution in case of anNBO).

1.4 Criterion – Sustainable sourcing of palm oil, palm kernel oil and their derivatives

The Blue Angel scheme includes requirements for renewable raw materials in which the proportion of renewable carbon in the total carbon in the surfactant system must be at least 50%.

For renewable raw materials produced from palm oil and palm kernel oil, Blue Angel ecolabel sets more detailed and specific requirements for compliance verification in comparison with EU Ecolabel.

Nordic Swan, for all product groups, sets a requirement similar to the EU Ecolabel with regard to certified raw material from palm oil, palm kernel oil and derivatives present in the final product at a percentage above than 1%. In the Nordic Swan for LD, a specific requirement for sugarcane requires certification according to the Bonsucro standard (approved by the EU REDII),

In addition, Nordic Swan includes, in the case of LD, HDD and HSC, a requirement for sustainable raw material that foresees that the licence holder must document that they are working to increase the purchase of sustainable and renewable raw materials or that they require their manufacturer to work to increase the purchase of renewable and sustainable raw materials for detergents. For each raw material ingredient included above 1% in the detergent Nordic Swan requires: (a) The proportion of the raw material/constituent part of the raw material/ingredient that comprises renewable raw material or originates from renewable raw material, calculated on an annual basis; (b) Specify what the renewable raw material consist (e.g. palm oil, coconut oil, grapeseed oil, beeswax); c) Whether the renewable raw material has a sustainability certification and at what level of traceability.

1.5 Criterion - Excluded and restricted substances

1.5.1 Sub-criterion Excluded substances

A comparison of the substances excluded by the criteria of different ecolabels is provided in Table III.

EU Ecolabel and Blue angel exclude formaldehyde and its releasers with the exception of impurities of formaldehyde in surfactants based on polyalkoxy chemistry up to a concentration of 0,010 % weight by weight in the ingoing substance.

In comparison to the EU Ecolabel the Nordic Swan has a larger list of excluded substances; however, EU Ecolabel exclude a large number of substances automatically through Article 6.6 of the Ecolabel Regulation (EC) No 66/2010.

LAS is excluded, because it is classified as H412 and it is not anaerobic biodegradable. Indeed following the sub-criterion Biodegradability of surfactants "all surfactants classified as hazardous to the aquatic environment: Acute Category 1 (H400) Chronic Category 3 (H412), in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council, shall be in addition anaerobically biodegradable".

Borates, and perborates are classified as toxic to reproduction. They are included in the SVHCs list and in accordance with the Ecolabel Regulation (EC) No 66/2010 they cannot be use in ecolabel products.

Regarding siloxanes, although some of them do not have a harmonised classification (e.g. D5, D6, HMDS), they are classified as persistent, bioaccumulative and toxic substances (PBT) in accordance with Annex XIII of REACH. Therefore, they are identified as SVHCs and excluded.

DADMAC, excluded by Nordic Swan, is employed in the manufacture of water-soluble cationic polymers used as coagulants.

Nitrolo Triacetic Acid (NTA) is an impurity in the complexing agents MGDA and GLDA, which are used in detergent products mainly in order to substitute phosphates. NTA is classified with H351 (carcinogenic cat 2) above the specific concentration of 5%. It is prohibited by the Nordic Swan ecolabel for the IIDD product group. Due to exclusion of phosphates for multiple product groups, NTA as an impurity in MGDA and GLDA is derogated in the EU Ecolabel in a concentration of 0,2% weight by weight, as reported in Table III.

Table III. Comparison excluded substances in the different ecolabelling schemes

Excluded Substances	EU Ecolabel						Nordic Swan						Blue Angel			
	LD	IILD	DD	IIDD	HSC	HDD	LD	IILD	DD	IIDD	HSC	HDD	LD	DD	HSC	HDD
APEOs and other alkyl phenol derivatives,																
Atranol																
Aromatic hydrocarbons																
Alkyl phosphonic acid derivatives (e.g. ATMP, HEDP, DTPMP) and their salts																
Antimicrobial or disinfecting ingredients added for purposes other than preservation																
BHT																
Benzalkonium chloride																
34 Bisphenols																
Boric acid, borates, and perborates																
Benzotriazole and benzotriazole derivatives																
Chloroatranol																
Colourants																
DADMAC (diallyl dimethyl ammonium chloride)																
DTPA (Diethylenetriaminepentaacetic acid)																
EDTA and its salts																
Endocrine-disruptors																
Fragrances						P					P					
Formic Acid																
Formaldehyde and its releasers																
Glutaraldehyde																
Halogenated hydrocarbons																
Halogenated flame retardants																
(HICC)Hydroxyisohexyl 3-cyclohexene carboxaldehyde																
3-iodo-2-propynyl butylcarbamate																
LAS (linear alkylsulphonates)																
Lysmeral (Lilial,Butylphenyl Methylpropional (2-(4-tert-Butylbenzyl)propionaldehyde)																
MIT (2-methyl-2H-isothiazol-3-one)																
Microplastics																
Methyldibromo glutaronitrile																
NTA (MGDA and GLDA contain NTA < 1.0%,																
Nanomaterials- Nanoparticles																
Nanosilver																
Nitromusks and polycyclic musks																
Organic chlorine compounds and hypochlorites																
Optical brighteners																
Phosphates																
Phthalates																
Parabens																
PFAS (Per- and polyfluoroalkyl substances)																
Per-fluorinated alkylates																
PBT and vPvB																
Quaternary ammonium salts not readily biodegradable																
Reactive chlorine compounds																
Rhodamine B																
Triclosan																
Sodium hydroxyl methyl glycinate																
SVHCs (Substances of very High Concern)																
Siloxanes D4, D5 and HMDS																
VOC (volatile organic compounds)																

Ban P Ban only in professional products Limitation apply Derogation apply

Excluded by other criteria/sub-criteria

Table IV. EU Ecolabel derogated substances

Product Catergory	Substance	Hazard statement
ALL PRODUCT CATEGORIES	Surfactants	H400 Very toxic to aquatic life
		H412 Harmful to aquatic life with long-lasting effects
	Enzymes(*)	H317 May cause allergic skin reaction
		H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
	NTA as an impurity in MGDA and GLDA (**)	H351 Suspected of causing cancer
LD, IILD, DD, IIDD and HDD	Subtilisin	H400 Very toxic to aquatic life
		H411 Toxic to aquatic life with long-lasting effects
IILD	ε-phthalaimido-peroxy-hexaoic acid (PAP) used as bleaching agent at max concentration of 0,6 g/kg of laundry	H400 Very toxic to aquatic life
		H412 Harmful to aquatic life with long-lasting effects
IILD	Peracetic acid/hydrogen peroxide used as bleaching agent	H400 Very toxic to aquatic life
		H410 Very toxic to aquatic life with long-lasting effects
		H412 Harmful to aquatic life with long-lasting effects
(*) 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 final product is lower than 0,10 %.		

Nordic Swan, unlike EU Ecolabel and Blue Angel, excludes endocrine disruptors (EDs). The Nordic scheme prohibits substances that are considered potential endocrine disruptors, category 1 (clear evidence for endocrine disruption in-vivo study) or category 2 (in-vitro data indicating potential for effects in-vivo, or in-vivo data on effects that may be ED-mediated), in line with the EU's report[212]. Substances that have been identified as EDs in relation to the biocidal[213] and plant protection[214] products regulations (BPR and PPPR) have also been excluded. Nordic Ecolabelling also refers to the Danish Centre on Endocrine Disrupters (CeHoS) list of substances fulfilling or likely fulfilling the WHO definition of an ED[215] and substances that have been identified as endocrine disruptors by ECHA's ED Expert Group[216].

[212] http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf
[213] Commission Delegated Regulation (EU) 2017/2100
[214] Commission Regulation (EU) 2018/605
[215] http://www.cend.dk/files/DK_ED-list-final_2018.pdf (table 8 and 13, or later publications)

[216] https://echa.europa.eu/fi/ed-assessment

1.5.2 Sub-criterion Restricted substances

The restricted substances include isothiazolinones, phosphorus total content and volatile organic compounds (VOCs), among others.

EU Ecolabel and Blue Angel set the same limitations for isothiazolinones in the formulation of the product, as reported in the following list:

- MIT (2-methyl-2H-isothiazol-3-one): 0,0015% weight by weight
- BIT (1,2-Benzisothiazol-3(2H)-one): 0,0050 % weight by weight;
- CIT/MIT (5-chloro-2-methyl-4-isothiazolin-3-one/2-methyl-4-isothiazolin-3-one): 0,0015% weight by weight.

On the other hand, the Nordic Swan completely excludes MIT from the DD, IIDD, IILD and HSC product group. In the case of HSC an exemption is included for polymer dispersions/waxes in which MIT is allowed in concentration ≤100 ppm in the raw material and ≤15ppm in the final product.

In Nordic Swan no other reference is made to other isothiazolinones other than MIT.

The total phosphorus (P) content is calculated as elemental P and it is limited in reviewed schemes by different threshold values in some product groups.

LD

Blue Angel and Nordic Swan include the same limits for stain removers (pre-treatment) but more stringent limits for LD compared with EU Ecolabel(0.03 g/kg of laundry in Blue Angel and Nordic Swan, 0.04 g/kg of laundry in EU Ecolabel).

IILD

Nordic Swan sets threshold values for total phosphonates/phosphonic acid in laundry detergents. All values for different degree of soiling are more stringent than those included in the EU Ecolabel as total phosphorus content as reported in table V.

Table V. Comparison of total phosphorus content threshold limits in EU Ecolabel and phosphate and/or phophonic acids content in Nordic Swan for IILD products.

	EU Ecolabel	Nordic Swan
Degree of soiling	Phosphorous content	Phosphonates/phosphonic acids (g/kg laundry)
Light soil	0.5 g/kg laundry	0.075 g/kg laundry
Medium soil	1.00 g/kg laundry	0.10 g/kg laundry
Heavy soil	1.50 g/kg laundry	0.15 g/kg laundry

DD

All reviewed ecolabels present the same threshold values.

IIDD

Nordic swan sets limit values for the content of the total phosphonates and phosphonic acid content (regardless of water hardness and degree of soiling) and these limits are more stringent compared to the limit values of total phosphorus in the EU Ecolabel.

Table VI. Comparison of total phosphorus content threshold limits in EU Ecolabel and phosphate and/or phophonic acids content in Nordic Swan for IIDD products.

	EU Ecolabel			Nordic Swan
	Phosphorous content			Phosphonates/phosphonic acids
Product type (in g/l of washing solution)	Water hardness (mmol $CaCO_3$/l)			Regardless Water hardness
	Soft (<1,5)	Medium (1,5-2,5)	Hard (> 2,5)	
Pre-soaks	0,08	0,08	0,08	0,01
Dishwasher detergents	0,15	0,30	0,50	0,01
Rinse aids	0,02	0,02	0,02	0,006
Multicomponent system	0,17	0,32	0,52	

HSC and HDD

For the HSC product group Blue Angel include more stringent limit values of total P content as reported in table VII. More ambitious threshold limits are also set in Blue Angel for HDD. Moreover, Blue Angel also sets limit for descaler.

Note that specific exclusions concerning phosphate, phosphonate, phosphonic acid or phosphoric acid for the different product groups in the various schemes are listed in table III. Nordic Swan in addition to phosphate also excludes phosphonate, phosphonic acid or phosphoric acid from HSC and HDD product groups.

Table VII. Comparison of total phosphorus content threshold limits in EU Ecolabel and Blue Angel for HSC and HDD products.

	EU Ecolabel	Blue Angel
Product Type	Phosphorous content	
All-purpose cleaners	0.02 g/l of cleaning solution	0.01 g/l of cleaning solution
Kitchen cleaners	1.00 g/l of cleaning solution	0.10 g/l of cleaning solution
Sanitary cleaners (EU Ecolabel)	1.00 g/l of cleaning solution	
Bathroom cleaner s(Blue Angel)		0.10 g/1000g of cleaning solution
Toilet cleaners (Blue Angel)		0.10 g/1000g of cleaning solution
Window cleaners	0.00 g/l of cleaning solution	0.001 g/1000g cleaning solution
Descaler		0.01 g/l of cleaning solution
Hand dishwashing detergent	0.08 g/l dishwashing water	0.01 g/l dishwashing water

Volatile organic compounds (VOCs) are prohibited from Nordic Swan in the HSC product group with the exemption for isopropanol, ethanol (including denaturing agents) and fragrances. Whereas specific limitation apply in the case of EU Ecolabel for HSC detergents and in the case of Blue Angel for HSC and HDD detergents.

Blue angel includes more stringent limits than the EU Ecolabel for all product groups except window cleaners, as reported in table VIII. Moreover, Blue Angel sets a limit for VOCs n HDD product group and descaler.

Table VIII. Comparison of VOCs limits in EU Ecolabel and Blue Angel scheme.

	EU Ecolabel	Blue Angel
Product Type	VOC limit	
All-purpose cleaners	30.0 g/l of cleaning solution	1.0 g/l of cleaning solution
Kitchen cleaners	60.0 g/l of cleaning solution	10.0 g/1000g cleaning solution
Sanitary cleaners (EU Ecolabel)	60 g/l of cleaning solution	
Bathroom cleaner s(Blue Angel)		10.0 g/1000g of cleaning solution
Toilet cleaners (Blue Angel)		10.0 g/1000g of cleaning solution
Window cleaners	100.0 g/l of cleaning solution	100.0 g/1000g cleaning solution
Descaler		0.1 g/l of cleaning solution
Hand dishwashing detergent		0.1 g/l dishwashing water

1.5.2.1 Sub-criterion Hazardous substances

Nordic Swan includes additional hazard classes in the classification of the product requirement compared to the restricted hazard classification in the EU Ecolabel. In the Nordic scheme the product must also not be classified with the following hazard classes (among others that are in line with the EU Ecolabel):

Classification	Hazard Class and Category Code	Hazard statement
Acute Toxicity	Acute Tox 4	H302 (not for IILD) H312 H332
Skin corrosion/irritation	Skin Corr. 1A, 1B or 1C	H314 (not for IIDD and IILD)

In addition, for the classification "Respiratory or skin sensitisation" Nordic Swan specifies that products labelled with EUH208 and that are primarily used in an open system (e.g. stain removers that are applied directly on the clothes or spray products) cannot be awarded. Exception is made in case the sensitising substance in the product labelled with EUH208 is an enzyme.

1.5.2.1 Sub-criterion Fragrances

Nordic Swan sets additional requirements in comparison with EU Ecolabel:

-HICC, chloroatranol, atranol are not permitted in the product in the case of LD, DD, HSC and HDD. Moreover, Lilial (CAS 80-54-6) and Benzyl salicylate (CAS 118-58-1) are not permitted in the product in the case of LD and DD.

-in LD, DD, HSC and consumer HDD the following list of fragrances maybe present in the detergents at a maximum of 0.01% (100ppm) per substance. In addition in the case of DD if the packaging contains fragrance, the 100 ppm limit applies to the packaging fragrance.

List of fragrances: Cananga Odorata and Ylang-ylang oil, Eugenia Caryophyllus Leaf / Flower oil, Jasminum Grandiflorum / Officinale, Myroxylon Pereirae, Santalum Album, Turpentine oil, Verbena absolute, Cinnamomum cassia leaf oil/Cinnamomum zeylanicum, ext.

The first seven substances in the fragrances list above are the ones that are identified with the greatest risk of sensitisation in the SCCS report 1459/11. The last one has been identified by the Danish EPA.

-For HSC Nordic Swan specifies that: a fragrance substance which is judged to be sensitising with the hazard statement H317 and/or H334, or which is subject to declaration, may be present at a maximum of 0.0100% (100 ppm) in the cleaning product. In concentrated products for refill for RTU bottles which are always diluted at least 10 times by the user to the finished product with a certain amount of water any of the above listed substances may be present in concentrations up to 0.0100% by weight (100 ppm) in the) in the diluted final product.

Foam products for consumers: Fragrances subject to declaration under Regulation (EC) No 648/2004 on Detergents as amended and/or classified as H317 and/or H334 and/or listed above must not exceed levels of > 50 ppm (> 0.0050%) per substance in the cleaning product. Refills for foam/spray products can contain each of the above-mentioned substance in concentrations of up to 0.050% by weight (500 ppm), on condition that the stated dilution gives a concentration in the diluted product of less than 0.0050% by weight (50 ppm).

-IILD and IIDD in Nordic Swan do not contain fragrances.

-In Nordic Swan fragrances must not be present in professional HDD, in professional foam cleaning products in HSC and in rinse aid and packaging in the case of DD.

1.5.2.2 Sub-criterion Preservatives

The bioconcentration factor BFC and octanol-water partition coefficient $\log K_{ow}$, to consider that preservatives in the product are not bio-accumulating, are different in the Nordic Swan compared with EU Ecolabel and Blue Angel. In the case of Nordic Swan the BCF is < 500 and $\log K_{ow} \leq 4.0$. In EU Ecolabel and Blue Angel the BCF is < 100 and $\log K_{ow} < 3.0$.

1.5.2.3 Sub-criterion Colouring agents

Nordic Swan includes a specific criterion in the case of DD which states that colourant are considered non-bioaccumulative if BCF < 500 or logKow < 4. Whereas EU Ecolabel considers that colourant are not bioaccumulative if BCF is < 100 and $\log K_{ow} < 3.0$. In addition Nordic Swan excludes all the colourant from the IILD

1.5.2.4 Sub-criterion Enzymes

The requirements for the sub-criterion Enzymes are similar in all the ecolabel schemes. However, the Nordic Swan for LD product group, specifies that enzymes can also be used in spray products if safe use can be documented by a risk assessment. The risk assessment shall be done according to AISE's "Exposure measurements of enzymes for risk assessment of household cleaning spray products (AISE, September 25, 2013)[217]. In case of IILD and IIDD Nordic Swan includes specific requirements for spray products and to prevent employees exposure. Indeed the Nordic scheme specifies that enzymes in spray products must comply with safe limit for exposure. The exposure limit should be below the Derived No Effect Level, DNEL for consumers and professionals, 15 ng/m^3.[218]

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

[217] https://www.aise.eu/documents/document/20171025092749-offline_1_consumer_safety.pdf
[218] https://www.aise.eu/documents/document/20210401175430-a_i_s_e__enzyme_spray_protocol_revision_july_2020.pdf

Nordic Swan includes enzymes in granulate capsules. The term “granulated capsules” is used instead of encapsulated granules because the requirement will otherwise only be interpreted as the enzyme can be covered by polymer (which often is non-degradable).

Nordic Swan also includes among the requirements that titanium dioxide in solid mixtures (e.g. in enzymes) is prohibited by the requirement classification of ingoing substances, in effect from 2021-10-01 (transition period until 2024-06-30).

Blue Angel measurement threshold in percent by mass [% (w/w)] ≥ 0.0010.

1.5.2.5 Sub-criterion Micro-organism

With regard to the sub-criterion microorganism that applies to the HSC product group, Nordic Swan places additional requirements in comparison to the EU Ecolabel. For instance, product information provided to the user, whether by means of labels/information sheet or other marketing material, shall specify that the product should not be used in places where immunocompromised people are present.

As for the antibiotic susceptibility, the EU ecolabel introduces the exception of intrinsic resistance of the micro-organism to the antibiotic. The same exception is not included in the Nordic Swan requirements. Moreover, in the list of antibiotics to which microorganisms must not be resistant Nordic Swan includes all quinolones and not only the Fluoroquinolones as is instead required in the EUEL.

Nordic Swan requires evidence that products containing microorganisms shall display superior performance as compared with the criterion set on fitness for use and that they can degrade proteins, starch and fat.

For the identification microorganisms' DNA, Nordic Swan requests that it is identified according only to a “Strain identification protocol” (using the 16S ribosomal DNA sequencing or other equivalent methods). Whereas EU Ecolabel includes other options i.e. that the microorganism shall have an American Type Culture Collection (ATCC) number or belong to a collection of an International Depository Authority (IDA).

In terms of shelf-life, the microbial count shall not drop by over 20% or, alternatively, decrease at a rate of less than 1 log per year, as per ISO 4833-1:2014 in the Nordic scheme. Meanwhile, the EU Ecolabel has a stricter criterion, allowing only a maximum decrease of 10%.

1.6 Criterion Packaging

1.6.1 Sub criterion Weight/utility ratio (WUR)

The weight/utility ratio (WUR) shall be calculated for the primary packaging only and shall not exceed the value reported in Table IX.

LD

More stringent threshold values are included in the Nordic Swan ecolabel. Nordic Swan requirements are related to packaging made of more than 90% of paper/cardboard and plastic. Blue Angel presents a more stringent value than the EU Ecolabel in the case of liquid/gel laundry detergents and sets also a requirement for laundry detergent booster

DD

The Blue Angel scheme sets the more stringent values for both dishwasher detergent and rinse aids.

Nordic Swan limit values are tighter in comparison to EU Ecolabel. Further, they are differentiated based on different product and packaging types.

HSC

The main difference for this product group relates to undiluted detergents. In fact, for this product category the Blue Angel threshold values are considerably stricter. Moreover, Blue Angel sets a requirement for descaler product.

In the Nordic Swan ecolabel the calculation of WUR is performed with the inclusion of a weighting factor of 2.5, as follow:

$$WUR = \Sigma[(2*Vi - 2.5*Ri)/(Di * ti)]$$

Note that Nordic Swan has changed the letters in the equation but the meaning of them remains the same as in the EU Ecolabel.

HDD

The Blue Angel and the Nordic Swan include tighter limits compared to the EU Ecolabel. The nordic scheme sets also a specific requirement for tablets HDD that must be diluted at least 10 times to the finished product. Moreover, also in this case, a weighting factor is included in the WUR calculation in Nordic Swam.

166 Table IX. Comparison weight/utility ratio for the different schemes

<table>
<tr><th></th><th>EU Ecolabel</th><th>Nordic Swan</th><th>Blue Angel</th></tr>
<tr><td>LD</td><td>
<table>
<tr><th>Product type</th><th>WUR (g/kg wash)</th></tr>
<tr><td>Powder LD</td><td>1.2</td></tr>
<tr><td>LD in table or capsule</td><td>1.2</td></tr>
<tr><td>Liquid/gel LD</td><td>1.4</td></tr>
<tr><td>Stain remover (pre-treatment only)</td><td>1.2</td></tr>
</table>
</td><td>
<table>
<tr><th>Product type</th><th>WUR (g/kg wash)</th></tr>
<tr><td>LD in plastic-based packaging</td><td>1.1</td></tr>
<tr><td>Stain removers in plastic-based packaging</td><td>0.7</td></tr>
<tr><td>Solid products in paper-based packaging</td><td>1.0</td></tr>
<tr><td>Liquid products in cardboard packaging</td><td>1.0</td></tr>
</table>
</td><td>
<table>
<tr><th>Product type</th><th>WUR (g/kg wash)</th></tr>
<tr><td>Solid LD (e.g powder)</td><td>1.2</td></tr>
<tr><td>Liquid/gel LD</td><td>1.2</td></tr>
<tr><td>Stain remover</td><td>1.2</td></tr>
<tr><td>Laundry detergent booster</td><td>1.2</td></tr>
</table>
</td></tr>
<tr><td>DD</td><td>
<table>
<tr><th>Product type</th><th>WUR (g/wash)</th></tr>
<tr><td>Dishwasher detergent</td><td>2.4</td></tr>
<tr><td>Rinse aids</td><td>1.5</td></tr>
</table>
</td><td>
<table>
<tr><th>Product type</th><th>WUR (g/ wash)</th></tr>
<tr><td>DD in rigid plastic-based packaging</td><td>1.8</td></tr>
<tr><td>DD in flexible plastic pounches</td><td>1.0</td></tr>
<tr><td>Solid DD in cardboard and corrugated board packaging</td><td>2.1</td></tr>
<tr><td>Liquid DD in cardboard packaging</td><td>1.8</td></tr>
<tr><td>Rinse aid</td><td>0.35
It is calculated at a dose of 3 ml</td></tr>
</table>
</td><td>
<table>
<tr><th>Product type</th><th>WUR (g/wash)</th></tr>
<tr><td>Dishwasher detergent</td><td>2.0</td></tr>
<tr><td>Rinse aids</td><td>0.4</td></tr>
</table>
</td></tr>
</table>

HSC

Product type	WUR (g/l of cleaning solution)
Undiluted products	15
RTU products	150
RTU products sold in bottle with trigger sprays	200

Product type	VNF (g/l of cleaning solution)
Foam products	175,0
Other RTU products	150,0
Concentrated products including wash polish/wax-and-wax and façade and terrace cleaners	1,0
Concentrated products for refill for RTU bottles which are always diluted at least 10 times by the user to the finished product	30

Product type	WUR (g/l of cleaning solution/end product)
All-purpose cleaner	1.2
Kitchen cleaner	150
Concentrated kitchen cleaner	1.2
Toilet cleaner	150
Bathroom cleaner RTU	150
Concentrated bathroom cleaner	1.2
Glass cleaner RTU	150
Concentrated glass cleaner	1.2
Descaler	10

HDD

Product type	WUR (g/l of washing water)
HDD	0.6

Product type	WUR (g/l of washing water)
Liquid HDD	0.1
Tablets HDD	30

Product type	WUR (g/l of washing water)
HDD	0.3

1.6.2 Sub-criterion Design for recycling

Nordic Swan sets specific requirements for labels for rigid plastic packaging, flexible plastic pouches/bags, cardboard packaging for liquid products, paper-based packaging for solid products.

Blue Angel excludes materials and component for specific packaging component i.e. printing, body/material,label or sleeve,closure and barrier layers. In the EUEL there are not specific requirements for the body/material and for the printing.

Table X. Materials and components of the analysed ecolabelling schemes including more stringent requirements in design for recycling.

Nordic Swan	Blue Angel
• It is not allowed to add pigments to PET used for box/bottle/container. Coloured recycled PET-granulated where the pigment originates from the recycled material is allowed for use. • Carbon black pigments cannot be added to the box/bottle/container of PE or PP or closures. Exemption is made for small amounts of carbon black used in other colours than black. • It excludes all barriers in plastic packaging • Silicone is not allowed in closures • Fillers (such as CaCO3) cannot be included in PE or PP box/bottle/container and closures at a level that the density of the plastic exceeds 0.995g / cm^3. It includes a list of other specific requirements for: - Labels for rigid plastic packaging Paper labels without fibre loss are permitted. Labels must not cover more than 60% of the container. Direct print on the cointainer is not permitted except for date codes, batch codes and Unique Formula Identifier (UFI). - Flexible plastic pounches The pouch/bag must be made of monomaterial, i.e. not laminates with layers of different materials. Barrier coating of EVOH (Ethylene vinyl alcohol) is allowed in maximum amounts of 5% related to the total weight. - Cardboard packaging for liquid products It promote the use of sustainably sourced wood fibres -Paper/paperboard: a minimum of 70% of the wood raw material that are used in the paper/cardboard must originate from forestry certified under the FSC or PEFC schemes. -Tree species listed on Nordic Ecolabelling's list of prohibited tree species must not be used in pulp/paperboard. The list of prohibited tree species is located on the website: www.nordic-ecolabel.org/wood/ - Cardboard packaging for solid products (in DD) -Paper labels are permitted. Other types of labels are not permitted. The label glue must be water soluble. -Solid coloured cardboard is not permitted, except from white solid coloured cardboard, which is permitted. -Direct printing on the packaging must only be done with water-based inks. Other requirements: - Cardboard packaging must contain at least 60% paper/paperboard -At least 90% by weight of the primary packaging must be made of bio-based material or post-consumer/commercial recycled material (PCR) or a combination of these. - Palm oil and soy cannot be used as a raw material in the production of bio-based plastic. Sugarcane must be certified.	- Printing • It excludes components in the EuPIA list (exclusion list for printing inks and related products) • It excludes direct print for PET bottles - Body/Material For fiber-based packaging BA excludes • Lacquered surface (excluding clear protective lacquer up to a thickness of ≤ 5 µm) • Plastic-coated surface • Dyed black, using soot-carbon-based pigments • Water-insoluble or non-redispersing adhesive applications where it has not been specifically proven that they can be removed For liquid packaging board BA excludes • Design different from standard structure (no wet-strength cardboard, PE ± aluminium) For all plastic packaging • Silicone components • Components of glass, metal, EVA • Multilayer-design (exept of PE-/ PP-EVOH) • Metallisation • Dyed black, using soot-carbon-based pigments (also for using interior layers) • Different type of plastics used on front and back sides • Metal pigments (lacquering, coating or embossing) applied on a large scale (taking up > 50 % of the surface) For HDPE- or PP-packaging • Components of foamed non-thermoplastic elastomers • Non-PO-plastics with a density of < 1 g/cm3. (PO-Polyolefins) • Plastics and fillers leading to a significant increase in density (> 0.995 g/cm3) • PE-X-components (for PE-packagings) For foils/LDPE-packagings (LDPE: Low density polyethylene) • Plastics and fillers leading to a significant increase in density (> 0.995 g/cm3) • PE-X-components For PET-bottles • PA-additives (PET-A-Copolymer) for transparent PET-bottles, colourless and „light-blue“ • Elastomer components with a density of > 1 g/cm3 • PETG-, PETC-, POM-, PS-, PVC-components (PETC: crystaline Polyethylene terephthalate, POM:Po-lyoxymethylene) For PS-packaging • Foreign plastic types or multilayers with a density between 1.0 - 1.08 g/cm^3 • Plastics and fillers leading to a significant increase in density - Label or sleeve

	For all plastic packagings • Silicone components • Large labels (taking up > 50 % of the surface) made with foreign materials • Full-sleeve label For HDPE- or PP-packaging • Components made of foamed non-thermoplastic elastomers • Glued cellulose-based labels that cannot be removed in cold washing • PE-X-components (for PE-packaging) For foils/LDPE-packaging • Glued cellulose-based labels that cannot be removed in cold washing • PE-X-components (for PE-packaging) For PET-bottles • Non-removable washable adhesive applications (in water or alkaline at 80° C) • PETG-, PETC-, POM-, PS-, PVC-components (e.g. PS la-bels/sleeves) • Elastomer components with a density of > 1 g/cm3 • Labels/sleeves connected edgeless with the packaing container (In-Mould-Labelling) For PS-packaging • 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 For all plastic packaging • Silicone components • For HDPE- or PP-packaging • Non-PO-plastics with a density of < 1 g/cm3 • Components of foamed non-thermoplastic elastomers • PE-X-components (for PE-packaging) For PET-bottles • PETG-, PETC-, POM-, PS-, PVC-components • Elastomer components with a density of > 1 g/cm3 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 (PVDC – Polyvinylidene chloride) • PE-X-components (for PE-packagings)

	<u>For foils/LDPE-packagings</u> • PA-layers (PA – Polyamide,) • PVDC-layers • PE-X-components • Non-polymeric layers (except SiOx/AlOx) • Further non-PE-polymer layers (except adhesive promoters, adhesives, PP, EVA and EVOH) <u>For PET-bottles</u> • 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

1.6.3 Packaging take-back systems

While in the EU Ecolabel the take-back system is only foreseen in the case of IILD, IIDD and HSC in Blue Angel this requirement is extended to LD, DD and HDD in addition to HSC.

1.6.4 Other packaging-related sub-criteria: recycled material in packaging

Blue Angel, unlike the EU Ecolabel, establishes specific requirements for cardboard and plastic sales packaging. In the case of paper/cardboard this must be produced from at least 80% recycled materials. In the case of secondary packaging that also serves as transport packaging, the percentage of recycled materials must be at least 70% for paper and cardboard. In the case of plastic packaging, PET packaging must be produced using at least 70% recycled plastic from post-consumer waste (PCR), and other plastics (e.g. HDPE) at least 50% PCR. All caps and snap closures (e.g. removable closures and pump dispensers) and aluminium bags are exempt from this rule. Nordic Swan sets similar requirements, in fact all hard/rigid plastic packaging must contain a minimum 50 % (by weight, calculated on the total mass of the bottle/box/container, closure and label) post-consumer/commercial recycled material (PCR). Whereas paper/cardboard-based packaging must contain a minimum of 90 % (by weight) PCR. An exemption is made for corrugated board where minimum 50 % (by weight) PCR is required, and for cardboard packaging for liquid products, which does not need to contain PCR.

1.6.5 Other packaging-related sub-criteria: fill ratio

Nordic Swan in the case of DD includes a requirement for the product's fill ratio that is differentiated based on different product and packaging types. The fill level (doses/litres) that the product must exceed is established as follow:

Product type	**Fill ratio [doses/litre]**
Solid dishwasher detergents in rigid plastic-based packaging	40
Liquid dishwasher detergents in rigid plastic-based packaging	55
Dishwasher detergents in flexible plastic pouches	25
Solid dishwasher detergents in cardboard and corrugated board packaging	30
Liquid dishwasher detergents in cardboard-based packaging	55

1.7 Criterion Fitness for use

In general no major differences in the performance tests are present in the various schemes analyzed. Some differences concern the standards used.

For LD, the Nordic Swan ecolabel considers a broader list of reference washing machines that fulfill the requirements for laboratory performance tests. While the EU ecolabel only specifies the Miele 1935 WPS WTL machine suggesting however that other machines that provide similar performance can be considered, though no specification on the model. The Miele 1935 WPS WTL washing machine is no longer in production.

For IILD, the EU ecolabel tests must be performed on normal soiling, while in the case of Nordic Swan the products must be tested on light, medium and heavy soiling.

For HSC, In the Nordic Swan scheme, microorganism based products are to be compared to an equivalent product without microorganisms. In the case of EU Ecolabel, no specific test is stated.

For HDD products, in the case of Nordic Swan, the test must be performed using water of a typical hardness for the area in which the product is to be sold. Whereas EU Ecolabel take in consideration a specific water hardness (2,5 ± 0,5 mmol $CaCO_3$/l).

1.8 Criterion User information

The Blue Angel provides a free of charge service to request a dosing aid in case it is not enclosed in the packaging or it cannot be stocked at the retail outlet. The dosing aid can be requested via a free hotline, by e-mail or via the Internet, and delivery is free of charge (for LD and DD)

For all products groups Blue Angel requires that the type of enzyme contained in the product must be stated on the packaging.

The LD Blue Angel packaging includes instructions on where to find information about water hardness, as well as guidance to "Fill the drum with the maximum possible load for the type of textile." Additionally, for DD, the packaging advises to "Only clean dishes with a completely full machine and to not add more detergent than recommended."

Moreover, for HSC and HDD, the Blue Angel ecolabel places the following safety instructions in the packaging:

- "Keep away from children!" (also for DD products)
- "Do not mix different cleaners!"
- "Avoid inhaling sprayed product" (only for end products that are packaged as sprays).

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