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Home & Personal Care Ingredients & Formulations

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IKW-Guidance on Sustainability Criteria for Detergents, Cleaning and Maintenance Products in Private Households

The German Cosmetic, Toiletry, Perfumery and
Detergent Association (IKW), Home Care Department

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Translation / Original: German

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1. Introduction

The members of The German Cosmetic, Toiletry, Perfumery and Detergent Association (IKW) have long been committed to sustainability under the umbrella of the association. This commitment has already led to a series of declared initiatives, such as the dialogue platform FORUM WASCHEN [1], the IKW report on sustainability in the detergents, maintenance and cleaning products industry [2] as well as voluntary initiatives.

The constant further development of initiatives and products in accordance with the concept of sustainability secures the sustainability of the detergents, maintenance and cleaning products industry in a constantly changing world.

Sustainability means the balanced linking of economic and social aspects with ecological aspects to meet today's needs while at the same time preserving all possibilities for future generations [3].

Nonetheless, manufacturers of detergents, maintenance and cleaning products (home care products) frequently find themselves drawn into goal conflicts. For example, efforts to compact products more and more lead to the handling of such concentrated products posing a higher health risk in comparison with less concentrated products.

The social benefit of the home care products with regard to hygiene and value-preserving aspects is undisputed. The products make a considerable contribution to present-day living and health standards, for example by prolonging the lifetimes of textiles, dishes, floors and other household items. In principle, targeted communication with consumers is necessary so that they can also use the products sustainably. This guidance was prepared in the IKW by a working group of experts from manufacturers of home care products.

1.1 Task

The member companies of the IKW make their expert knowledge about the products manufactured by them available to the public in the form of a guidance on sustainability criteria for home care products. This document is intended to provide an overview of central sustainability criteria. It does not represent any recommendation for a sustainability evaluation. For all protagonists concerned with the manufacture, marketing or assessment of home care products (e.g. manufacturers, test institutes, magazines, retailers and

other companies and institutions), it offers a comprehensive, objective overview of all accessible criteria as well as subordinate aspects.

In principle it should be noted that every home care product has an intended range of action that also picks up on the expectations of the consumers. The desired combination of individual properties is additionally subject to constant change and is itself dependent on new technical possibilities and new consumer habits and wishes. Therefore it is only possible to assess a product on the whole whether or not it meets the sustainability criteria. The singling out of individual criteria does not lead to a holistic consideration and can therefore be misleading.

1.2 Legal Regulations and Voluntary Initiatives

The legislator makes numerous demands with regard to the complete lifecycle of home care products (e.g. ingredients, manufacture, packaging, labelling and recycling/disposal). For the manufacture and marketing of home care products there are regulations that directly concern the industry and those that apply only indirectly and cross-industry. The most important regulations already touch on various sustainability aspects and are listed in **Appendix A** with regard to their relevance.

Beyond the legal constraints, manufacturers of home care products in Germany dedicate themselves under the IKW umbrella to the initiatives listed in **Appendix B**, which contribute to the transparency of the entire home care products industry among other things.

In addition to that, IKW established a dialogue platform in Germany – FORUM WASCHEN – with protagonists who are dedicated to sustainability in the areas of washing, dishwashing and cleaning in the household [1]. It consists of experts from authorities, German federal ministries, trade unions, manufacturers of home care products, manufacturers of household appliances, consumer and environmental protection organisations as well as research and educational institutes. The dialogue platform has received several awards, among others from the Rat für nachhaltige Entwicklung [German Council for Sustainable Development] [4] and offers extensive information material and fact papers free of charge.

2. Sustainability Criteria

The member companies of IKW strive to achieve optimum quality standards for their products in harmony with the concept of sustainability. This commitment to the concept of sustainability is based on experiences that manifest themselves in numerous exemplary initiatives and have been published regularly since 2005 in the IKW reports on sustainability in the home care products industry [2]. The various aspects in the manufacture and marketing of home care products are explained in more detail below.

2.1 Product Performance

The product performance is an integral component of sustainability and decisively influences the decision to purchase. With a laundry detergent, for example, the reliable cleaning of the textiles may be the most important thing. These basic benefits are extended several times over by additional consumer needs, such as fragrance and care.

In principle, the product performance can be determined through consumer tests, or technical tests with the help of standardised methods (e.g. Recommendations for the Quality Assessment of home care products [5]), or a combination of both.

The product performance should, however, always be adapted precisely to the respective consumer needs in order to obtain the most resource-efficient solution when used as intended.

2.2 Ingredients

Type and Origin of the Ingredients

Home care products generally consist of a formulation of several ingredients [6]. These ingredients can be from a natural, biotechnological or synthetic origin. The quantities of the most important ingredients or ingredient groups used in home care products for private users are published regularly in the IKW reports on the sustainability of the industry [2]. The most important ingredient group in terms of quantity is that of the surfactants – the so-called surface active agents. These can be generated from both renewable and petrochemical raw materials. As a matter of principle, renewables are not per se more sustainable than petrochemical raw materials. Renewable raw materials [7] play an important part in particular for the production of surfactants. Palm kernel oil or coconut oil or a mixture of the two is mainly used for this. Also oils from local crops (e.g. sunflowers or rapeseed) are basically suitable for surfactant production. However, these surfactants sometimes have a different performance spectrum. Further research is needed for the manufacture of such surfactants and their use in home care products [8].

Various certification systems are available for the use of ingredients based on palm (kernel) oil. Worldwide, the standard of the "Roundtable on Sustainable Palm Oil" (RSPO) is the most important and most widely used system for the certification of sustainable palm (kernel) oil.



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Verlag für chemische Industrie H. Ziolkowsky GmbH, Dorfstrasse 40, 86470 Thannhausen, Germany



The RSPO is an initiative composed of various protagonists and promotes sustainable practices in the global palm oil industry. In order to comply with its certification standard for supply chains, organisations or production sites must exhibit a reliable control system for the flow of substances and derivatives obtained from the palm oil fruit. Manufacturers of home care products can directly or indirectly support the sustainable production of palm (kernel) oil via various certification levels. By 2017 considerably more than half of the palm kernel oil used indirectly by the manufacturers of home care products and cosmetics was produced sustainably or certified [9].

In addition to the purchase of certified ingredients, the RSPO also expects the production sites to have themselves audited in accordance with the RSPO supply chain certification.

Depending on the RSPO certification level, this standard extends to every step of the value added chain, i.e. from the mill to the refinery and if necessary through to the users of derivatives manufactured from palm (kernel) oil (e.g. surfactants), see chapter 2.8. Among other things, the FORUM WASCHEN dialogue platform offers fact papers on the use of palm kernel and coconut oil in home care products [10].

Sustainability criteria that must meet specific requirements also apply to all other ingredients of, for example, a biotechnological or synthetic origin. These requirements can be defined among other things through quality management measures in the manufacture of the ingredients. For example, industry guidelines on the safe handling of enzymes for the protection of workers and consumers shall be applied in the manufacture and processing of enzymes [11].

Requirements for the Ingredients

In the European Union (EU), ingredients must be registered by the respective substance manufacturers or importers in accordance with the valid chemical legislation [REACH Regulation (EC) no. 1907/2006] [12]. For registration, comprehensive dossiers detailing among other things the dangers to human health, physical-chemical properties and/or behaviour in the environment must be submitted to the European Chemicals Agency (ECHA).

From the manufacture or import of ten tonnes or more of a substance, an additional chemical safety assessment (CSA) – and for dangerous substances an exposure assessment – is required with regard to human health and the environment. The exposure assessment specifies the applications for which the substance may be used in a home care product and under what conditions. Manufacturers of home care products may only use substances that are safe during the manufacturing process and the use in the home care product in private household with regard to human health and the environment. In addition, all home care products are evaluated as ready-made formulations with regard to their safety (see chapter 2.3). The

necessary information on ingredients as well as ready-made home care products is passed on via the respective safety data sheets within the supply chain [13].

Degradation Behaviour of Surfactants and other Organic Ingredients in the Environment

The biological degradation behaviour represents an essential aspect of the evaluation of organic substances with regard to their behaviour in the environment. The organic substances can hereby be subdivided into persistent as well as poorly, inherently or readily biodegradable. The subdivision takes place in accordance with the Regulation (EC) No 440/2008 for the determination of test methods with the help of OECD methods [14] (see Fig. 1). The degradation behaviour is observed over a period of four weeks in the laboratory. In the environment, the degradation can progress further even after this time frame.

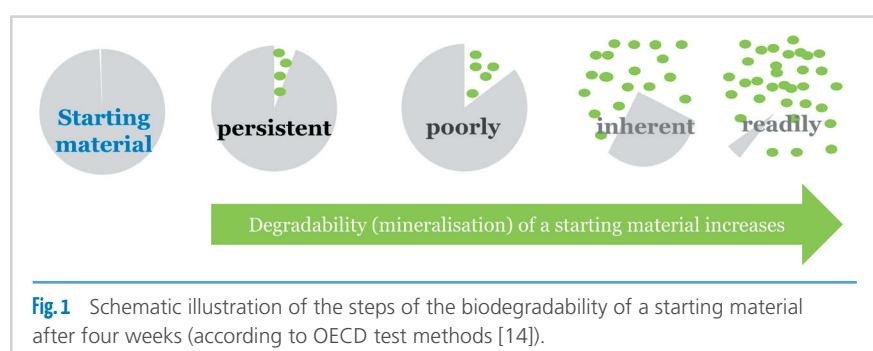


Fig. 1 Schematic illustration of the steps of the biodegradability of a starting material after four weeks (according to OECD test methods [14]).

As an important ingredient group in terms of quantity in laundry detergents and cleaning agents, surfactants must be readily aerobically biodegradable in accordance with the Detergents Regulation (EC) No 648/2004 (according to Fig. 1).

Effects of Ingredients from Home Care Products in Water (DID and HAD Lists)

The ingredients from home care products, such as surfactants, can affect aquatic organisms if introduced into water. The ready biodegradability of the ingredients or their elimination in sewage treatment plants already ensures their removal there to a high degree so that effects on aquatic organisms are avoided. Irrespective of that, in the case of an inadvertent direct introduction of home care products into a water, the lowest possible aquatic toxicity is particularly important. All parameters, biodegradability, elimination and aquatic toxicity, can be systematically and scientifically evaluated via the so-called critical dilution volume (CDV) [15]. With the help of the CDV, different formulations can be compared with regard to their environmental fate. Values for the aquatic toxicity and degradability of ingredients for the calculation of the CDV data for ingredients can be found in the so-called DID list [16] for the EU Ecolabel ("EU Flower") and, specifically for the sewage treatment plant situation in Germany, in the HAD list [17].

Enzymes

Enzymes are indispensable in some laundry detergents and cleaning products, because they achieve a very good cleaning effect at low temperatures in conjunction with a very low surfactant content. Enzymes work even in very small quantities and make a decisive contribution to an increase in the washing and cleaning performance and thus also to a saving of laundry detergents and cleaning agents (see chapter 2.6). Enzymes are manufactured biotechnologically and are bio-based and biodegradable. For consumer information purposes, each manufacturer specifies the enzyme types used in each product on the Internet (see chapter 2.4).

In-can Preservatives

Like foodstuffs, liquid waterbased home care products can rot over the course of the usage phase. In order to secure their shelf life, they contain in-can preservatives if necessary that prevent the development and growth of bacteria and fungi, such as mould and putrefactive agents [6]. The extension of the shelf life contributes to sustainable use, as the home care products do not need to be disposed of prematurely.

In accordance with the Biocide Products Regulation (EU) No 528/2012, the preservatives undergo an elaborate, cost-intensive evaluation and approval process. Therefore, an ever decreasing number of approved preservatives are available that may be used in home care products.

The result of this is that exposure to individual preservatives increases, leading to higher rates of end consumer intolerance.

Perfume Oils [18]

In the production of home care products, fragrance mixtures – so-called perfume oils – are used in order to give textiles, items or the room air a fragrance and even to give the home care products themselves a pleasant odour. Substances that are perceptible by the human nose as an odour are called fragrances in the following. Fragrances can be of a synthetic or natural origin. The availability of many natural fragrances is limited and they are therefore generally more expensive than synthetic fragrances. Fragrances of a natural origin are not necessarily to be evaluated more favourably than synthetic fragrances. The respective toxicological and ecological properties are much more important.

In this context, the topic of intolerance in the form of allergies plays the main role in the public perception. Fragrances that can cause allergic skin reactions must be marked in relation to their concentration on the packaging of the home care products [19]. Since 2006 the IKW has been carrying out annual surveys at its member companies on the intolerance of home care products. On average, fewer than two medically confirmed allergies of private end consumers were reported per billion packs of home care products sold in Germany [2]. Even though only very few intolerance reactions to home care products are known, the manufacturers of home care products and fragrances take responsibility within the scope of their responsible care engagement:

The individual fragrances are evaluated by a technically independent international research institute (Research Institute for Fragrance Materials – RIFM) with regard to their effects on the environment and human health. On the basis of this assessment, the International Fragrance Association (IFRA) draws up standards for the safe use of these substances. These so-called IFRA standards are binding worldwide for the IFRA members as a voluntary commitment [20].

Subsequently, a product safety assessment for the end product will be carried out on the basis of the information on the perfume ingredients made available by the manufacturers of home care products. The different exposure of the consumers to individual products is also considered.

Some products are offered in non-perfumed versions. However, the majority of consumers choose perfumed home care products.

The biodegradability of the fragrances used in the perfume oils used in home care products represents an important ecological criterion for the quantities of perfume oils that get into the wastewater. In the past, perfume oils have mistakenly been generally referred to as so-called "Poorly Biodegradable Organics" – PBO [21].

In fact, in terms of quantity, the proportion of readily or inherently biodegradable components in perfume oils for home care products in Germany is up to 70 percent [22].

Voluntary Doing without or Limiting of Ingredients by the Home Care Products Industry

Voluntary commitments in the home care products industry extend beyond the legal requirements and have a long tradition. These are contractually binding agreements between authorities, ministries and the industry. Some of these voluntary commitments have passed into law over the course of the years (see **Appendix B**: "Voluntary commitments"). On account of the increased requirements under competition laws, including for industrial associations, voluntary commitments as agreed in the past are increasingly difficult to enforce. Hence, they have been replaced by voluntary initiatives of the home care products industry (see **Appendix B**).

Microplastics

Microplastics is the name given to organic polymers that are insoluble in water and have a particle size of less than 5 millimetres [23]. Polymers such as polycarboxylates, which are soluble in water, do not fall under the definition of microplastics. With regard to the formation of microplastic particles, a distinction is made between primary and secondary microplastics.

Primary microplastics are particles that are manufactured in this particle size and, for example, added to end consumer products. Secondary microplastics, conversely, are created in the environment through the abrasion, wear, weathering, decomposition and fragmentation of larger plastic products or coatings, textiles made of synthetic fibres, car tyres or lacquer and paint coatings. The quantities of secondary microplastics

getting into the environment are several orders of magnitude higher than the quantities of primary microplastics. In some laundry detergents and cleaning agents, microplastics have been and are still in use as abrasives in some cleaners for glass ceramic cooking fields, as capsule materials for perfume oils or as opacifying agents. These are exclusively primary microplastics, the majority of which reach sewage treatment plants via the household wastewater and are bound there to high degree in the sewage sludge [24].

The manufacturers are looking at ways of replacing the microplastics still in use by other materials. If microplastics are used in laundry detergent and cleaning products, the manufacturer must publish the chemical designation of the polymer in the ingredients data sheet in the Internet according to the Detergents Regulation (e.g. as styrolacrylate, polyurethane, melamine formaldehyde condensation resin).

2.3 Product Safety

For the manufacturers of home care products in the IKW, the safety of their products for consumers and the environment has the highest priority. A home care product only becomes marketable when all legal requirements and voluntary agreements, in-house quality standards and customer-specific requirements have been fulfilled.

Only ingredients that meet all legal requirements of the European Union (EU) and have been comprehensively tested with regard to health compatibility are used in home care products (see chapter 2.2). Beyond that, additional requirements from the voluntary initiatives of this branch of industry are met. In the "IKW Recommendation for the Safety Assessment of Detergents, Cleaning and Maintenance Products", the IKW describes in general what steps need to be taken to develop and market safe home care products [25]. The IKW recommendation refers both to the home care products itself and to their ingredients.

For the safe use of the home care products, the consumers' attention is drawn to possible hazards on the label, e.g. irritating effects on the skin or eyes. The bases of this labelling are the EU regulations on the classification, labelling and packaging of substances and mixtures [CLP Regulation (EC) No 1272/2008]. The labelling-relevant properties of a home care product arise from those of the individual ingredients and describe potential hazards.

However, decisive for the safety of the consumer is not just the potential hazard arising from a product, but also the risk. The risk arises from the severity of the possible effect and the exposure, i.e. the frequency and extent of contact. The esti-

mation of the exposure is indispensable for a realistic safety assessment, as a damaging effect of a substance might only occur from a certain quantity and concentration.

For example, it is extremely unlikely when using an undiluted hand dishwashing detergent that a splash will get into the eyes. If contact should nevertheless accidentally occur, the possible effect would be temporary irritation.

In addition to that, the home care products industry started further initiatives for the safety evaluation of their products (e.g. Detnet [26], MAGAM [27], MAGAM II [28-30], individual cooperation between manufacturers and poison centres) as well as the labelling of home care products using industry-wide standardised safe use pictograms [31].

In the case of production lots that don't meet the specifications and could pose unacceptable risks for consumers, internal company risk management measures extending to product recalls come into force as in other industries.

Once a week, the European Commission additionally publishes a list of non-marketable products that have been reported by manufacturers or authorities on the following platform ("Rapid Alert System"): https://ec.europa.eu/consumers/consumers_safety/safety_products/rapex/alerts/?event=main.listNotifications

2.4 Transparency and Information Policy

A further important part of the holistic approach of sustainability criteria is the method or scope of the provision of information on the products for various target groups. Apart from the legally prescribed packaging information (see chapter 2.5), the publication of product compositions in the Internet and recipe reports, the voluntary initiatives of the industry as well as additional voluntary information of the individual manufacturers should be mentioned here (see **Appendix B**). Recipes for laundry detergents and cleaning agents that are brought onto the market in Germany must be notified to the Bundesinstitut für Risikobewertung (BfR) [Federal Institute of Risk Assessment]. The BfR forwards this information to the poison centres in Germany.

In addition, the IKW makes suggestions available for the easy location of directories of ingredients of laundry detergents and cleaning agents for member companies. In addition, the IKW regularly collects comprehensive statistics on product incompatibility, social indicators and the current use of the most important ingredients in home care products on a voluntary basis. The evaluations of the statistics are regularly published for a broad public in the IKW report on sustainability in the home care products industry and are forwarded to ministries and authorities [2].



Therefore, together with its member companies, the IKW is constantly in contact with the public, e.g. authorities, ministries, consumer protection organisations and science. These contacts are institutionalised [32] and also perceived ad hoc. Most manufacturers and marketers additionally offer product-related instructions for application and use as well as free hotline telephone numbers on products and brochures in order to facilitate the dialogue with consumers.

2.5 Packaging Information

Legal requirements apply to the design and labelling of home care products (see [Appendix A](#)).

Legal requirements of the Detergents Regulation (EC) No 648/2004:

- General information:
 - Name and trade name of the product
 - Name, address and telephone number of the marketer
 - Address, e-mail address, telephone number and website via which the public can obtain the ingredient data sheet
- Labelling of the ingredients
 - Defined ingredients or ingredient groups with their weight proportions in defined ranges
 - Enzymes, disinfectants, optical brighteners and fragrances
 - Allergenic fragrances
 - In-can Preservatives
- Dosing information for detergents and
 - Recommended quantity in millilitres or grams
 - Number of normal washing machine fillings
 - Capacity of any measuring cup attached
- Dosing information for dishwasher detergents
 - Standard dosing in grams or millilitres or number of tabs for the main washing programme

Additional legal requirements for laundry, care and cleaning products classified as hazardous by the CLP Regulation (EC) No 1272/2008:

- Identity of all substances contained in the mixture that are responsible for certain classifications of the mixture
- Hazard pictograms
- Signal words
- Hazard statements
- Suitable precautionary statements
- A section for supplementary information
- Attachment of a unique formula identifier (UFI) [33]

Regulations with regard to the reuse of packaging are implemented by the directive 94/62/EC and the Packaging Act in Germany:

- The European legal regulations contained in the Directive 94/62/EC on packaging and packaging waste are implemented in Germany by the law on the marketing, return and recycling of packaging (Packaging Act).

- For the identification of the material, packaging can be labelled with defined numbers and abbreviations, e.g. PET/1, HDPE/2, PAPP/20. However, there is no obligation to provide this information. The use of numbers and abbreviations other than those defined in Appendix 5 of the Act for the labelling of the same materials is not permitted.

Specifications with regard to the labelling of fill quantities are implemented in accordance with the Prepackage Regulation.

- The fill quantities of packs of home care products are given in millilitres or litres in liquid or paste form and in grams or kilograms in solid or powder form.

Furthermore, there are also notes on the environmental and sustainability assurance seal (see [Appendix C](#)) or voluntary, product-related instructions on application and use (see [Appendix B](#)).

Specifications for the voluntary application of environmental and sustainability seals:

- Seals of voluntary initiatives, for example for sustainable development
- Safety instructions in the form of pictograms
- Voluntary application instructions
- Washing and cleaning tips for the efficient use of home care products (e.g. the saving of water, energy, CO₂ emissions and money)

For the following voluntary, product-related instructions for application and use, the principle applies that all promised properties must be comprehensible and not misleading for the consumer:

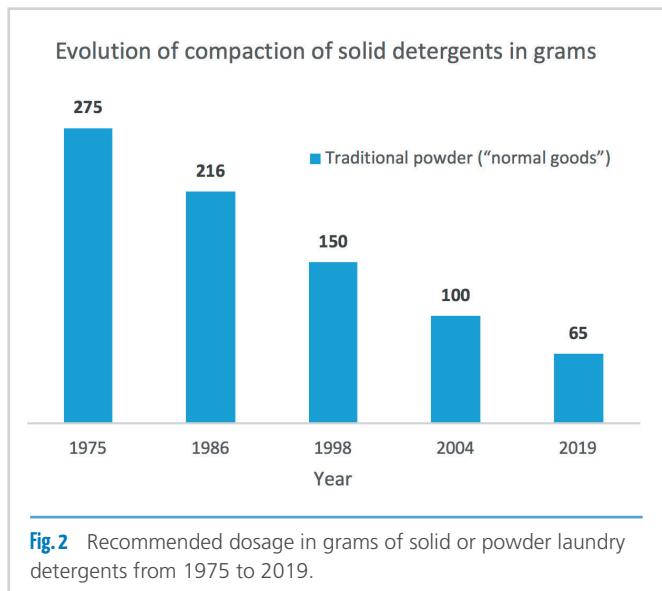
- Information on special usage possibilities and/or properties of the product
- Useful tips on achieving the best cleaning result, for example through the use of additional products
- Information on material incompatibilities

2.6 Dosage

The manufacturers of home care products draw up usage descriptions for their products with the aim of enabling optimum use of their performance while at the same time ensuring the protection of human health and the environment as well as material compatibility.

Users expect to receive understandable and practical information on use in order to reliably obtain the desired or advertised benefits of a product. Furthermore home care products can only be used sustainably if dosage instructions are given and are followed by the consumer. The dosage of home care products is therefore a very important sustainability criterion.

The rule of thumb is: The stronger a home care product is formulated, with the aim of the lowest possible dosage, the more favourably this affects sustainability factors, for example the packaging proportion and transport. Beyond that, its environmental impact can be reduced through the suitable overall use of ingredients. However, if the dosage is so low that the user no longer uses it reliably, for example for fear of



not achieving the desired product performance, then the sustainability result for the concentrated product becomes worse in the overall examination.

The goal must therefore be to find the optimum of concentration, performance expectation and practical and reliable dosage. For individual product groups the optimum recommended dosage may not be based on the area of use alone, but possibly also on different boundary conditions such as water hardness, machine size and the type and amount of dirt.

Ideally, the compaction takes place step by step across all products on the market. Since 1997, therefore, the compaction steps for detergents have been accompanied throughout Europe by initiatives of the International Association for Soaps, Detergents and Maintenance Products (A.I.S.E., Brussels) [34, 35].

In Germany, the recommended dosage of solid detergents has been reduced by about 75 percent over the period from 1975 to 2019 (see **Fig. 2**).

Compaction measures for liquid detergents are also supported within the context of the A.I.S.E., which have likewise led to concentrated products with lower application doses [34].

2.7 Packaging Information

Home care products must be safely packaged. In accordance with legal requirements, home care products must be protected during transport and storage, and easy dosage and safe use must be guaranteed. Plastic packaging is frequently used for this. The design of packaging in particular for liquid home care products without using plastics is difficult at the present time.

Glass packaging is not usually an alternative, because it is much heavier and easily breakable. Cardboard packaging is only usable for certain products, e.g. laundry detergents in powder form [36]. Other alternatives such as refill stations can pose safety risks, e.g. if there is no proper labelling on the packaging and when filling.

The manufacturers of the home care products do a great deal to reduce the consumption of packaging as much as possible. For example, a considerable amount of packaging material can be saved through the use of thin-walled packaging (e.g. refill packs). An attempt is made to use lighter packaging wherever possible. With home care products, it has been possible to significantly reduce the packaging expenditure per product unit, in particular through product concentrations (see chapter 2.6). Over and above that, the use of used plastics for packaging is a very meaningful strategy [36].

Germany has been a pioneer in the recycling of packaging materials for many years. The German Packaging Act (VerP_G), which came into force on 1 January 2019, once again contains considerably stricter recycling requirements for plastic packaging, in addition to which it requires the use of recyclates – i.e. old plastic – in the manufacture of new packaging. In this context the manufacturers of laundry, care and cleaning products support the European Commission's strategy through the strengthening of a recycling-oriented economy [37]. This is intended to protect the environment against plastic pollution. Growth and innovation are fostered at the same time. Plastic packages for home care products should be designed in such a way that they are basically recyclable on the one hand and already actually have the highest possible recyclate content on the other.

The essential prerequisites for the efficient recycling of plastic waste are the nationwide and close-to-home collection of packaging, sorting according to the type of plastic and appropriate treatment for the high-quality reuse. This source must be used much more in future, both for reasons of the manufacturers' responsibility for the development of sustainable/recyclable solutions and also in order to meet the requirements of the Packaging Act: In 2022, around 700,000 tonnes of plastic from the dual collection must undergo material recycling in Germany. This task must be tackled by everyone involved in the value added chain, from end consumers to the collection and sorting system and from recycling to the manufacture and use in industry. The worldwide implementation of such measures would also make an effective contribution to the protection of water.

Half of the used plastic packaging produced in Germany in 2016 was used for material recycling, the other half was used for thermally recycling [38]. However, material recycling is regarded as a more sustainable type of recycling.

To reduce the use of plastic for packaging, the packaging weight per application should be as low as possible. The multiple use of primary packaging through the offering of refill packs also avoids the unnecessary use of plastic.

Requirements for the packaging design to reduce the packaging volume are already part of environmental seals or voluntary initiatives. For example, the packaging quantities of home care products have been reduced across Europe by 25 percent since 2006 through the implementation of the sustainability criteria of the A.I.S.E.'s voluntary initiative "Charter for Sustainable Cleaning" [39].

2.8 Manufacture and Production

The decision to introduce quality management systems is a good basis for a sustainable development with regard to environment, society and economy. The management systems are subject to an external independent evaluation ("certification audit"), which ensures that the criteria are adhered to.

The most widespread are location certificates according to the EN ISO series [e.g. 50001 (energy management), 9001 (quality management), 14001 (environmental management) and EMAS III (environmental management)]. IFS-HPC (Quality & Risk Management Household and Personal Care) and BRC-CP (Quality & Risk Management Consumer Products) are sometimes also used. Over 80 percent of the manufacturers of home care products in the IKW have implemented such systems [40]. Comprehensive certification according to all the standards named above is not absolutely necessary, as certain requirements are the same or very similar. With a careful selection of the management systems, the company can set various emphases so that all three pillars of sustainability can be accounted for.

All of these standards include the areas quality, occupational health and safety, environment and energy with different weightings, which can be traced back to the three pillars of sustainability. In principle, these systems are based on a continual improvement process (CIP), which ultimately affects the product safety and quality and thus also the sustainability of the company.

An integrated management system oriented to the aforementioned sustainability criteria represents a comprehensive solution for the respective company.

One part of the management system could be the certification of a location with regard to the use of ingredients (e.g. surfactants) on the basis of renewable raw materials (e.g. palm kernel oil).

As already mentioned in chapter 2.2, organisations or production sites must have a reliable control system for the flow of materials and derivatives.

A successfully completed certification recognises the transparency of the company with regard to the quantity of certified ingredients that are purchased, used in products and specified in open dialogue with retailers and other partners.

2.9 Economy

Ecology, economy and social affairs are the three pillars of a sustainable development. Only the equal implementation of all three factors can permanently secure and improve sustainability. An ecological product only becomes sustainable when it sells and has returned its use of resources to the user in the form of a desired or advertised benefit. If it doesn't sell, or doesn't sell successfully enough, its use of resources – even if very low from an ecological point of view – remains unused and is thus wasted.

The economical success of a product is therefore a prerequisite for sustainable ecological and social action. Conversely, economic interests must also be oriented to ecological necessities and social needs in order to be of benefit to society in the long run.

The equality of ecology, economy and social affairs, i.e. sustainability, applies as a matter of principle. Economic aspects must not be overweighted at the expense of ecological and social aspects.

2.10 Social Aspects

The social pillar of sustainability is expressed not only in the product and work safety, the information and instructions on the packaging of home care products or an active and open information policy, but also in the dealings of the manufacturers of home care products with their suppliers in the supply chain and their employees.

The manufacturers of home care products make different demands on the suppliers here. For example, in 2017 around 80 percent of the manufacturers of home care products, which have participated in a survey, had internal goals and systems for ensuring quality standards for social criteria at suppliers [40]. The survey shows also that over 30 percent of manufacturers of home care products in Germany checked whether their suppliers had a system for the adherence of their major sub-suppliers to the social standards.

Moreover in 2017, over 62 percent of the manufacturers of home care products published a CSR report [41], a sustainability report or an activity or environmental report with a central reference to sustainability.

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In 2014 the European Commission published the directive on the disclosure of non-financial information, the so-called CSR reporting obligations. Since the reporting year 2017, the directive defines new reporting obligations for large companies of public interest, in particular for listed companies with more than 500 employees. In their annual reports, the companies must enlarge on essential non-financial aspects of the corporate activity and publish them [42].

3. Final Statement and Summary

Criteria for the assessment of the sustainability of home care products arise from a large bandwidth of topics and requirements that frequently extend beyond the legal specifications. There is currently no seal that adequately covers this bandwidth. Instead, they refer only to partial aspects of sustainability, such as environmental aspects, and ignore economic and social aspects.

Overall, the levels of awareness of the product seals for environmental compatibility and sustainability in Germany still vary a great deal. Whereas over 80 percent of consumers know the German Ecolabel "Blue Angel" (Blauer Engel) and the "EU Energy Label", a survey by FORUM WASCHEN indicates that only about a third of consumers are familiar with the European environmental sign "EU Ecolabel" and the industry initiative "The Charter for Sustainable Cleaning" [43]. The Siegelklarheit ("Seal Clarity") portal, which is run by the

Federal Ministry for Economic Cooperation and Development (BMZ) offers a good overview [44]. In addition, the following ministries are represented on the committee of the portal: Ministries of the Environment, Nature Conservation, Construction and Nuclear Safety, Justice, Consumer Protection and Labour and Social Affairs. Some seals are supported by the ministries involved.

The aim of the portal is to strengthen sustainable trade. It is intended to assist consumers, governments and companies to better understand environmental and social seals. Through a differentiated assessment with the help of catalogues of criteria, the portal also contributes to the expedition of the market penetration of superior seals and the international implementation of high environmental and social standards.

From the home care products sector, the "Blue Angel" (Blauer Engel) and "EU Ecolabel" seals as well as the charter product seal of the A.I.S.E. industry initiative "The Charter for Sustainable Cleaning" are positively evaluated in the "Credibility" and "Environment" sections.

A summary of ecolabels and sustainability assurance seals can be found in [Appendix C](#) of the IKW guidance on sustainability criteria.

Members of the Working Group

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Appendix A Important Pieces of Legislation for Manufacturers of Detergent, Maintenance and Cleaning Products

At present, in particular the following pieces of legislation apply for the placing on the market of detergent, maintenance and cleaning products for private consumers (home care products) in Germany. They regulate, inter alia, the requirements to the labelling, data reporting and monitoring of such products and their ingredients, respectively [45]:

These provisions directly govern the detergent, maintenance and cleaning products sector:

- Detergents Regulation (EC) No 648/2004
- Detergent and Cleaning Products Act (WRMG)

These rules indirectly govern the above sector; they apply across several industries:

- Food and Feed Code (LFGB)
- Chemicals Act (ChemG)
- Dangerous Substances Ordinance (GefStoffV)
- Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures ("CLP Regulation")
- Regulation (EC) No 1907/2006 on the registration, evaluation, authorisation and restriction of chemicals ("REACH")
- Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products ("Biocides Regulation")
- Regulation (EU) No 98/2013 on the marketing and use of explosives precursors ("Precursors Regulation")
- Chemical Ban Ordinance (ChemVerbotsV)
- Repackaging Ordinance (FertigPackV)
- Packaging Act (VerpackG)
- Ordinance on the Transport of Dangerous Goods by Road (GGVS)
- Ordinance on the Transport of Dangerous Goods by Rail (GGVE)
- Ordinance on Workplaces (ArbStättV)
- Act on the protection against harmful environmental impacts due to air pollution, noises, vibrations and similar phenomena (BImSchG)
- Act to drive forward the circular economy and to ensure an environmentally sound waste management (KrWG)
- Act to strengthen non-financial reporting in management reports on the situation of undertakings and groups of undertakings (German act implementing the CSR Directive)

Appendix B Voluntary Commitments and Initiatives of the Detergent, Maintenance and Cleaning Products Industry

This Appendix lists the most important voluntary initiatives and commitments of the detergent, maintenance and cleaning products industry (home care products industry) in Germany and Europe where German home care products industry is actively involved:

- **Dialogue Platform FORUM WASCHEN**, since 2001

FORUM WASCHEN is a dialogue platform for actors who are committed to sustainability in washing, dishwashing and cleaning in households. The platform was initiated by the IKW in 2001. It consists of experts from public authorities, federal ministries, research institutes, trade unions, environmental organisations, universities, consumer associations, and federations of manufacturers of household appliances, textiles, detergents and cleaning products.
www.forum-waschen.de
www.waschtipps.de

- **A.I.S.E. Charter for Sustainable Cleaning**, since 2005

This Europe-wide initiative for sustainable washing and cleaning was launched on a voluntary basis in 2005 by the detergent, maintenance and cleaning products industry, with the aim of continuous improvement in the industry's companies. Charter members undertake to orient their whole production process to the goal of sustainability and to do so in a verifiable manner, starting from the purchase of raw materials to production as such and product use and disposal by consumers. Progress is regularly verified by external auditors. Companies which fulfil the requirements of the Charter are entitled to use the Charter logo on their products. Since 2010, not only company-related criteria but also criteria for product groups are available. The latter refer to the environmental properties of the products and their packaging and to the affixing of uniform consumer information on sustainable use.
<https://www.sustainable-cleaning.com/en.home.orb>

In July 2019 the Charter Scheme has been upgraded again to be even more complete and relevant (Charter for Sustainable Cleaning 2020+), aligned with EU circular economy and plastics policy, climate change priorities and with global policy expectations:
<https://www.charter2020.eu/>

The initiative was assessed as "good" on the German federal government's platform "siegelklarheit.de" (www.siegelklarheit.de)

- **A.I.S.E. Initiative on Laundry Detergent Powder Compaction**, since 2004

- **A.I.S.E. Safety Tips for Liquid Laundry Detergent Capsules**, since 2015

- **A.I.S.E. European classification network "DetNet"** for the correct classification of detergents and cleaning products; replacing since 2014 the Trustee Expert Model in Germany (set up back in 1994)

- **IKW Reports on sustainability in the detergent, maintenance and cleaning products industry**, since 2005

- Publication of the **IKW survey on input quantities of the most important ingredients** and circulating of these data to ministries and public authorities in Germany, since 1997

- Publication of the **IKW statistics on intolerances to detergent, maintenance and cleaning products**, since 1996

- **Preventive information for child safety, in order to prevent accidents with detergent, maintenance and cleaning products in private households ("Guardian Angel Card")**, since 2006

- The IKW member companies support the **development and recognition of alternative methods to animal testing** [46], since 1986

The home care products industry in Germany has voluntary commitments in place for the non-use ("voluntary ban") of the following ingredients, the years when these agreements were concluded are stated:

- Voluntary ban of highly volatile chlorinated hydrocarbons (CHCs) in detergents and cleaning products, since 1987
- Voluntary ban of ethylenediaminetetraacetic acid (EDTA), since 1991

Voluntary commitments on hypochlorite-containing household cleaners with regard to labelling and restriction, since 1985 (renewed in 1999)

Recommendation for the information printed on packaging – concerning the emptying of residues, issued in 1992

The subjects of many of the originally relevant voluntary ban commitments were regulated by law only several years after publication of the agreements, making them obsolete. Some examples:

- Voluntary ban of phosphates in detergents, 1985 (regulated by law since June 2013)
- Voluntary ban of musk xylol, 1993 (regulated by law since August 2014)
- Substitution of distearyl dimethyl ammonium chloride (DSDMAC) by substances that are faster and more readily degradable in fabric softeners, 1991 (regulated by law since October 2005)
- Voluntary ban of triclosan, 2001 (regulated by law since February 2016)
- Voluntary ban of alkylphenol ethoxylates (APEO), 1986 (regulated by law since 2005)



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Appendix C Summary of Ecolabels and Sustainability Assurance Seals for Laundry, Care and Cleaning Products

In Europe there is a barely comprehensible plethora of national, international and partly also regional labels for particularly environmentally friendly products or products designated as sustainable. These product claims, which are called "environmental labels", "environmental marks", "ecolabels" or "sustainability labels", are issued by various institutions, associations or independent testing institutes. The portal "www.siegelklarheit.de" offers a certain orientation. An example of a obligating label is the "EU energy label" for household electrical appliances. There are voluntary ecolabels and sustainability assurance seals for the product group of laundry, care and cleaning products. These labels provide information with regard to certain product properties and indicate whether these products are particularly environmentally friendly or more sustainable in comparison with one another. These product features are defined via the quality guidelines and test conditions of the respective label. These seals can thus serve the consumer as an orientation aid when shopping [44, 47].

Among the best-known ecolabels are the "Blue Angel", the "Nordic Swan" and the European ecolabel (EU Ecolabel). The European sustainability initiative "The Charter for Sustainable Cleaning" of the International Association for Soaps, Detergents and Maintenance Products (A.I.S.E., Brussels) is one of the industry-specific sustainability assurance seals.

Overall, the levels of awareness of the product seals for environmental compatibility and sustainability in Germany still vary a great deal. Whereas over 80 percent of consumers know the "Blue Angel" and the "EU Energy Label", a (non-representative) survey by FORUM WASCHEN indicates that only about a third of consumers are familiar with the European ecolabel and the industry initiative "The Charter for Sustainable Cleaning" [48].

Apart from the environmental and sustainability seals named here, the publications of the German Stiftung Warentest ("Test" magazine) are regarded by consumers as very trustworthy.

Blue Angel [49]

The Blue Angel is the best known ecolabel in Germany. At the same time, consumers trust it a great deal. A jury made up of representatives from environmental and consumer associations, trade unions, industry, retail, manual trades, municipalities, science, media, churches, youth and the federal states is the independent decision-making body for the "Blue Angel". The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety is the label owner and provides regular information on the decisions of the ecolabel jury. The Federal Environmental Agency acts as the office of the ecolabel jury and develops the technical criteria for the issuing principles of the "Blue Angel". The German Institute of Quality Control and Labelling (RAL gGmbH) is the entity that issues the labels: <https://www.blauer-engel.de/en>

European Ecolabel for Laundry Detergents and Cleaning Agents: EU Ecolabel

The European ecolabel ("EU Ecolabel") can be issued on application if a laundry detergent or cleaning agent meets the criteria defined by the European Commission with regard to the ingredients, yield, biodegradability, packaging and washing or cleaning performance [50]. The EU Ecolabel is managed by the European Union Ecolabelling Board (EUEB) and supported by the European Commission and all member states of the European Union and the European Economic Area (EEA).

The EU Ecolabel is revised at longer intervals and adapted to the current developments. Members of this committee are the bodies of the member states that are responsible for the ecolabel, representatives of environmen-

tal, consumer and industrial associations, trade unions, and representatives of small and mid-size enterprises and retailers. The German Institute of Quality Control and Labelling (RAL) and the Federal Environmental Agency are responsible for the checking and issuing of the seal within Germany. In the case of the EU Ecolabel for laundry detergents and cleaning agents, the requirements for the product performance must be confirmed by an external testing institute: <https://www.eu-ecolabel.de/>

European Sustainability Initiative "Charter for Sustainable Cleaning"

The European sustainability initiative "Charter for Sustainable Cleaning" is a voluntary sustainability initiative of the International Association for Soaps, Detergents and Maintenance Products (A.I.S.E., Brussels) and is valid throughout Europe. The goal is the continuous improvement of numerous criteria along the value added chain in the companies from the laundry, care and cleaning products industry. <https://www.sustainable-cleaning.com/en/home.orb> or <https://www.charter2020.eu/> Companies that have joined the sustainability initiative can indicate this by means of a seal on the products manufactured by them. Unlike the environmental seals, which are related only to ecological criteria of the products, the seal of the Charter stands for the commitment of the manufacturer in the sense of sustainable action in all of the sections of the product lifecycle that it can influence.

In order to be able to affix the product-related seal to a product, certain criteria – the "Advanced Sustainability Profiles" – must be met with regard to the maximum recommended dosage, the environmental safety of the ingredients used, the packaging and the consumer information for the use of the product.

Product Carbon Footprint – PCF

The term "carbon footprint" designates the balance of the greenhouse gas emissions along the entire lifecycle of a product in a defined application – i.e. the sum of all climate-relevant gases such as carbon dioxide from the procurement of the raw materials and production to the transport, use and disposal.

However, the carbon footprint of a laundry detergent is decisively influenced by the behaviour of the consumer during the usage phase in the household as well as the age and design of the washing machine. There is no carbon footprint for washing to date and if there were, the examination would have to focus on the climate-relevant behaviour of the consumer. Purely product-related labelling of the laundry detergent is meaningful only to a limited extent in this context and not very helpful for the consumer [51]. The usage phase contains the majority of the carbon dioxide emissions in the lifecycle of laundry detergents – not the product itself. The carbon dioxide release is therefore heavily dependent on the individual consumer behaviour.

Product Environmental Footprint Initiative – PEF

As a further development of the concepts for the determining the environmental effects of products along their lifecycle, the Product Environmental Footprint Initiative was created by the European Commission in 2013.

The product environmental footprint is oriented to existing standards such as the life cycle assessment according to EN ISO 14040/14044 and specifies them in order to achieve the highest possible comparability in the application. A detailed assessment at product level for the comparability in the application is not yet mature [52]. The voluntary initiatives by the A.I.S.E. such as the "Charter for Sustainable Cleaning" initiative are scientifically based and still remain valid.

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